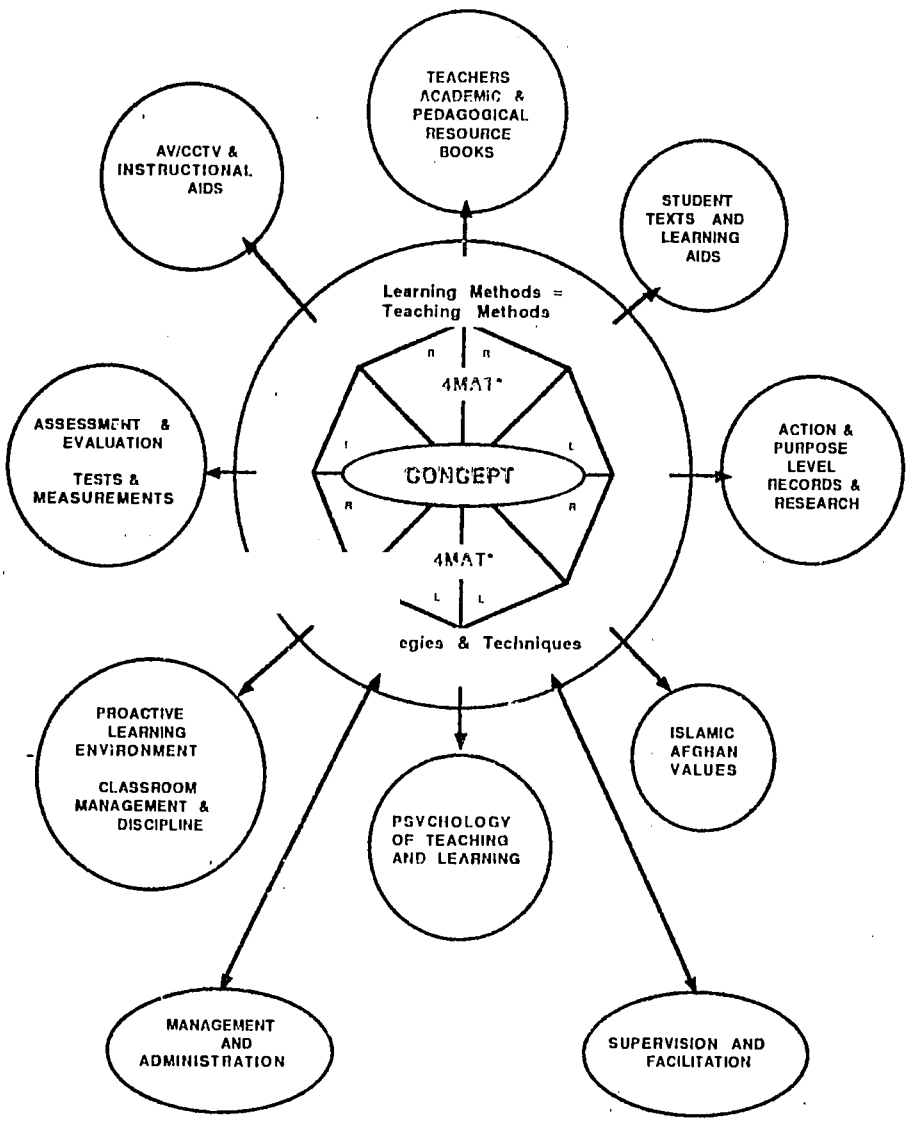
THE EMPOWERING SYSTEM:
TOTAL EDUCATION SYSTEMS DEVELOPMENT

By Dr. Donald G. W. Schutte
Curriculum Design & Educator Training Coordinator
University of Nebraska at Omaha, Education Sector Support Project

July 1993

Trainers Manual



*4MAT IS REGISTERED TRADEMARK OF BERNICE McCARTHY & EXCEL, INC.

Principles of Learning

1. New learning is shaped by the learner's prior knowledge.

2. Much learning occurs through social interaction.

3. Learning is closely tied to particular situations.

4. Successful learning involves the use of numerous strategies.

from:

Learning About Learning
Videotape & Manual - ASCD
Association for Supervision &
Curriculum Development
Alexandria, Virginia, 1992

Total Education Systems Development Process
Transfer Workshop For Master Teacher Trainers
UNO/ESSP Peshawar Pakistan
May-June 1993

Trainers Manual

Prologue

Relationship

by
Donald G. W. Schutte

Neither cup nor tea
contain the meaning.

It is tea-in-the-cup
that makes the difference, but then
neither is it tea-in-the-cup,
but tea-in-the-cup-in-tilted-hand,
moistening lips,
flooding tongue,
standing taste buds on end --
scattering lightning patterns in waves
across miles of brain cells;
disappearing into the vortex,
becoming biochemistry on the way
to end spout and out again.

'Any-thing' is nothing except
as relationship
to 'every-thing'.

FRIDAY NIGHT

by
Prof. Khwaja Qutbuddin Najmi

FRIDAY NIGHT FRIDAY NIGHT FRIDAY NIGHT

Relatives get together.
Everybody comes to my house.

Delicious food on Friday night.
Tea, talk, and cookies on Friday night.

Everybody leaves at midnight.
Time for ablution.
I pray.

I have no gift to convey to my God --
Only Afghan teardrops in my eyes.

Tears for the bloody present and the past,
Tears for the unknown future,
Tears for our brave, but martyred young,
Tears for our crippled youth.

Tears for the shelterless orphans,
Tears for children who missed their chance in life,
Tears for the discord of our leaders,
Tears for the carelessness of our scholars.

I believe the future will not be today.
I will never lose my hope for tomorrow!
I believe the future will not be today!

This is the promise of Almight God.
After darkness comes the light
and we refugees will go home again.
Filled with new knowledge,
we will reconstruct Afghan education.
We will give thanks for peace and freedom,
thanks for a bright future
bought with martyrs' blood.

FRIDAY NIGHT FRIDAY NIGHT FRIDAY NIGHT

Note: This poem was written as a part of an exercise to demonstrate the right-minded strategy of mind-mapping a 'whole' concept. The concept in this case was "Friday Night", a night that has special significance in Afghan culture. Prof. Najmi is a scientist and had never before written a poem.

The Empowering System:
Total Educational Systems Development

Trainers Manual

by
Dr. Donald G. W. Schutte

Table of Contents

The Empowering System:
Total Education Systems Development

Trainers Manual

by
Dr. Donald G. W. Schutte

Introduction

Background:

The Total Education Systems Development (TESD) process began its life when I was Chief of Teacher and Higher Education working as a UNESCO expert for the United Nations Relief and Works Agency in the Middle East. It began as a series of workshops run for Palestinian Teachers, Supervisors, and Key Educators in Jordan, West Bank, Gaza, Syria, and Lebanon. The purpose of these workshops was to introduce Palestinian refugee educators to planning lessons designed to teach learners content rather than teaching content to learners, i.e. to teach learners as well as the subject.

I introduced Bernice McCarthy's 4MAT as the lesson planning method. 4MAT is used to prepare lessons that cater to children with four learning styles and right-brain and left-brain hemisphere preferences. These learners are found in common classrooms worldwide. The 4MAT lesson planning system is more fully described in this Trainers Manual, but to understand how the Total Education Systems Development (TESD) process came to be and to understand the background of this Trainers Manual, I must briefly describe here McCarthy's 4MAT. 4MAT is a registered trademark of Bernice McCarthy and Excel, Inc. of Barrington, Illinois, USA. 4MAT is a play on the word 'format'. The 'MAT' in 4MAT has come to mean for those who use it, Most Appropriate Teaching Techniques.

4MAT takes the shape of a planning cycle divided into four quadrants and the lesson is planned to be presented to learners, moving clockwise from concrete experience, to reflective observation, to abstract conceptualization to active experimentation and, back again, to a more profound concrete experience.

4MAT's Right and Left Mindedness

The lesson is planned to appeal to all the four learning styles found in students in any classroom. Learners in each 'style' category are further subdivided into right-minded and left-minded types.

1) There are learners whose natural preference in any situation is to perceive their world first as concrete or abstract 'wholes'. They process these 'wholes' by reflective observation or active experimentation. Conceived meaning is found by examining the 'parts', seeing relationships between and among the parts and the whole. These learners are 'right-minded' learners. Though both brain hemispheres are at work in any situation, the right hemisphere of the brains of these learners dominate when they initially perceiving an impression from any situation in their environment.

2) There are learners whose natural preference in any situation is to perceive their world first as 'parts'. They process these perceived 'parts' by reflective observation or active experimentation, synthesizing the parts. Conceived meaning is in the 'whole' which grows out of the synthesis. These are the 'left-minded' learners. Though both hemispheres are at work in any situation, the left hemisphere of the brains of these learners dominate when they initially perceive an impression from any situation in their environment.

4MAT's Four Learning Styles

Quadrant 1: In the first quadrant, the lesson appeals to all, but those who will do best are the right-minded and left-minded ***imaginative learners.*** These learners tend to perceive the world first in concrete terms and then process their perceptions by reflecting on them. Teachers plan lessons for this quadrant that connect students personally to the information that is to be taught and that provide students with an opportunity to reflect upon or analyze and examine the personal meanings or relationships they have with knowledge and skills to be learned.

Quadrant 2: In the second quadrant, the lesson appeals to all, but those who will do best are the right-minded and left-minded, ***analytic learners.*** These learners tend to perceive the world first in terms of abstract conceptualizations which they then process by reflecting upon them. Teachers plan lessons for this quadrant that help students to bridge from the personal conceptualizaton of the knowledge and skills to be taught to their broader meanings in the world outside themselves. It is at this point where the information to be learned is defined and presented in an organized manner that allows students to store it in the long-term memory for easy access and later use.

Quadrant 3: In the third quadrant, the lesson appeals to all, but those who will do best are the right-minded and left-minded ***common sense learners.*** These learners tend to perceive the world first in terms of abstract conceptualization which they then process by active experimentation. Teachers plan lessons for this quadrant that provide students with a means to practice the defined givens of the previous lessons. But also teachers provide opportunity in this part of the lesson for a student to add something of themselves, beginning to relate the defined givens to applications of the newly learned knowledge and skills in their own lives.

Quadrant 4: In the fourth quadrant, the lesson appeals to all, but those who will do best are the right-minded and left-minded ***dynamic learners***. These learners tend to perceive the world first in terms of concrete experiences which they then process by active experimentation. Teachers plan lessons for this quadrant which will help students to evaluate the newly learned knowledge and skills in terms of their practical applications in real life and to integrate this knowledge and these skills so as to practically use them in real life situations.

Now back to the story of TESD. The workshops I ran in the Middle East were named, *4MAT On 4MAT*. These workshops were planned to teach 4MAT using McCarthy's 4MAT framework. When it came time, in Quadrant 3, to practice and then add something of oneself to the defined givens of 4MAT, and in Quadrant 4, to evaluate 4MAT in terms of its practical uses and integrate it use into real life situations, I conceived TESD.

I realized that 4MAT could become the focus of much more than lesson planning: That it could be used as the'flywheel' of development for a whole education system and that this was particularly needed in developing countries. A 'whole' system needs to answer five questions:

1. What knowledge and skills should be learned by students at which grade levels and stages of growth and development?

2. What methods, strategies and techniques should be used to teach all students so as to recognize differences in their learning styles and brain hemisphere preferences?

3. What methods, strategies and techniques should be used to assess whether learners are achieving specified learning outcomes and whether the teachers and materials are adequate to ensure expected achievement?

4. What methods, strategies and techniques should be used 1) to supervise and facilitate the work of head teachers (as resident supervisors of learning programs as well as manager in their schools), teachers, and students in order to ensure that the central ministry of education's established standards are maintained throughout the system and 2) to provide leadership in helping parents and community councils to maintain their roles as guardians of their children's educational opportunities?

5. What administrative and management methods, strategies and techniques should be used to ensure that all inputs and activities in the system are contributing to producing the culturally sensitive learning outcomes specified by the system?

The TESD process answers those questions by:

a) helping local educators develop a culturally sensitive and relevant mission statement to guide (1) programs for students in school and (2) as a correlate, teacher education programs so they are directly related to student programs,

b) developing a concept scope and sequence of what students should learn in each subject at each grade level;

c) deciding for each concept what proposition, procedural and conditional knowledge and skills students with different learning styles and brain hemisphere preference should learn in each subject at each grade level;

d) placing each concept at the center of the 4Mat wheel in order to develop (1) a lesson plan for the concept with its related topics and subtopics and (2) to set it out according to modern research-based pedagogical strategies and techniques appropriate to each quadrant.

e) creating the instructional materials and aids and student texts necessary to implement the lesson plan and teachers guide;

f) developing continuous assessment strategies, techniques and tools to evaluate whether learning outcomes specified in the lesson plan and teachers guide have been achieved;

g) developing a system of supervision to facilitate teachers as they implement lesson plans and teachers guides as well as to train them to use TESD.

h) developing a system to involve administrators and other key educators in the system in order to ensure that all inputs and activities contribute to the achievement of learning outcomes with children.

The birth of TESD had to await a gestation period, until, after my retirement from UNESCO. I was recruited by University of Nebraska at Omaha, first to help write the RFP that was presented to and eventually awarded by USAID to UNO and its consortia. The outline of the proposal as written was based on implementing the TESD process. This outline was elaborated in two policy papers written by me during a short-term consultancy in April and May of 1992 to the Educational Sector Support Project (ESSP) that was the forerunner of the present ESSP project.

Thus, the birth of TESD came in July, 1992 after I arrived in Peshawar, Pakistan, and began the work of implementation. The first stage of implementation was to set up a team of Specialist Facilitators (SF). They were to be responsible to transfer the TESD process to other trainers who would, in turn, transfer the process to head teachers and teachers inside Afghanistan. Specialist Facilitators were seen as responsible for fulfilling multiple roles: as trainers of trainers, facilitators, supervisors and resource persons. They were to be drawn from :

a) Afghan educators recruited from human resources already available and established within UNO/ESSP. These included:

i) persons drawn from members of the Education Center for Afghanistan (ECA). The ECA is comprised of persons belonging to the seven mujahudin political parties, headquartered in Peshawar, who were nominated by the parties as educators.

ii) persons drawn from members of the Master Teacher Trainer group. These are persons who were themselves trained in generic pedagogical techniques and who then conducted seminars to train teachers alleged to be teaching in mujahadin schools inside Afghanistan. These seminars took place on both sides of the Afghan-Pakistan border.

b) other qualified Afghan educators who were available but not previously employed by UNO/ESSP.

I arrived on July 24 and began a workshop to train SF's on 29 July. This workshop has been in continuous 4 to 6 hour a day sessions since then, interrupted only by other three day orientation workshops in October, November and December and a ten week TESD Process Transfer workshop from April 24 to June 30, 1993. These workshops were run for Master Teacher Trainers and ECA personnel. Participants in the Specialist Facilitator continuous workshop have changed. Some persons were added and ECA personnel dropped out to attend to other duties.

Those in the original Specialist Facilitator training group are listed below.

1. *Abdul Gheyas -- Lang. Group (Lang. & Lit. Fac)-- **ECA**
2. *Eng. M. Omar Stana Lang. (Exten. Agr)-- **ECA**
3. Najibullah Jehanyar Soc. Stud.Group (Maths)-- **MTT**
4. Mia Shamsuduhu Sayeed Sci. Group (Lang. and Soc. Stud)-- **MTT & I.G.A.**
5. Zalmei Sherzad Soc.Stud.--**UNO/ESSP M & Adm Spec.**
6. *Shah Mohammed Math group (Sci.)--**ECA**
7. M.Aref. Yadgari Maths group (Sci.)-- **BEFARE**
8. Khwaja Qutbuddin Najmi Sci-- Hd, Phys Dept, Dawat & Jehad University -- **MTT**
9. *Gul Jan Wror Wardak - Lang-- **BEFARE (GTZ)**
10. Abdul Ahmad Amuzgar Lang. (Dari) **M.T.T.**
11 * M. Yousuf Jabar Khil Lang. (Pushtu)-- **M.T.T. and Sr. TT Ass't**
12. *M. Zahir Nazm Sci.--**ECA**

Note *Indicates dropped out because of other duties.

On August 18, 1992, I addressed a memorandum to Prof. Azimi, the Deputy Team Leader, concerning the number of persons needed to constitute an adequate team of Specialist Facilitators. It is quoted in part below.

> Can we meet together ... to discuss EMIS matters as this relates to establishing the overall training distribution structure in order to ensure that we can meet the requirements set forth in the CONTRACT as set out in the charts revised by Gibson, Boardman, David, and Yourself?
>
> We must identify the core group who are going to become the SPECIALIST FACILITATORS. I believe this group should eventually be composed of Specialists in each subject area as follows:
>
> Language Arts: (3) Dari, (3) Pushtu, and (2) Other (English);
> Mathematics (4);
> Science, (4);
> Social Studies, (4);
> Educational Administration & Management (2);
> Educational Psychology (2); and
> Translators (4).
>
> It is important that this group have a reasonable command of English since the development resources are largely in English and need to be studied and brought into Dari and Pushtu. Also to be certified as a SPECIALIST FACILITATORs (SFs) each SF must have passed through a training workshop with me. Each SF must have proved that he/she accepts and understands the holistic Total Education Systems Development Process which I have introduced in the ongoing workshop. He or she proves competence by 1) producing the expected product of the workshop, namely model teacher and learner materials and 2) that he can communicate the Systems Development Process to TRAINER FACILITATORS (TFs). SFs, therefore, become trainers of trainers (TFs) who will be located in regions and provinces..
>
> To be certified as TRAINER FACILITATORs (TFs) must be competent to train 1) HEAD TEACHERS AS RESIDENT FACILITATORS (HTRFs), 2) TEACHER-LEARNER FACILITATORS (T-LFS) and 3) COMMUNITY EDUCATION DEVELOPMENT COUNCIL MEMBERS AS GUARDIANS. TFs must prove themselves in the same manner as SFs. The command of English, however, is not essential although desirable. (We should initiate an English language program for SFs and TFs.)
>
> The total number of TFs needed depends on the number of geographic centers which are created. The number of centers depends on how many are necessary in order to cover all Afghanistan. The TFs will be located in these centers and responsible for Head Teachers, Teachers, and Community Councils in the schools designated as related to each center. We must decide if the training will be taken out to local sub-centers or participants will be brought into centers. We must know the number of teachers teaching in grades 1,2,3. This is the first category of Head Teachers, Teachers and Council Members to be trained by the TFs. Therefore, the number of TFs necessary to do the training will depend on the number of Head Teachers, Teachers, and Council Members to be trained and certified. TF groups will repeat the same specialization categories as the SF groups. It is clear as well that SFs will provide leadership in facilitating and evaluating the outcomes of the workshops conducted for Head Teachers, Teachers, and Council Members by TFs.

The Training Facilitators, mentioned above, were to be drawn from the ranks of Teacher Trainers, Master Teacher Trainers and ECA personnel.

Following is a list of the Phase I, three-day Orientation Workshops that were held between October and December, 1992. They were to be the first of a series of *train the trainer* workshops run to transfer the TESD process to Master Teacher Trainers and ECA Personnel.

Mixed MTT and ECA Group --- Quetta ---------- October 26, 27, and 28/92
ECA Group ---------- Peshawar -------- November 3, 4, and 5/92
ECA Group ---------- Peshawar -------- November 19, 21, and 22/92
MTT Group ---------- Peshawar -------- December 1,2, and 3/92
MTT Group ---------- Peshawar -------- December 15, 16, 17/92
Womens TT Group ---------- Peshawar -------- November 8,9,15-18,23,24/92

I conducted these workshops with help from the Specialist Facilitators who translated and helped to explain in Dari and Pushtu their understanding of difficult points in the seminars. Dr. Ivalyn Van Every lectured in one two hour session in each of the men's seminars, explaining 4MAT using the overhead projector and transparencys copied from McCarthy's 4MAT materials.

By April of 1993, the Specialist Facilitator team had not yet reached its ideal strength. Only six of the original group remained. New members had been added sporadically as indicated by the dates below. This required constant reteaching of the TESD process, knowledge and skills which had already been covered by the group as well as teaching new knowledge and skills. Much of the reteaching was done by peers, Specialist Facilitators who had already undergone the training. It was left to me to polish and clarify points as necessary and provide new knowledge and skills daily.

When the TESD Transfer Workshop began in May the Specialist Facilitator group members were as follows:

Name	Subject	Date Joined Project	Comments
1. Mr. Abdul Ahmad Amouzgar	Language Arts	23 July 1992	+ prior ESSP
2. Prof. Khwaja Qutbuddin Najmi	Science	23 July 1992	+ prior ESSP
3. Mr. Najibullah Jehadyar	Social Studies	23 July 1992	+ prior MTT
4. Mr. Zalmel Shirzad	Social Studies	23 July 1992	Part Time 1/10/92 Full Time
5. Mr. Mhmd Aref Yadgari	Mathematics	23 July 1992	BEFARE -- Transfer 1/10/92
6. Mr. Mia Shamsudduha Sayeed	Language Arts	28 July 1992	prior MTT
7. Mr. Besmellah Alekozai	Lanugage Arts	16 Sept 1992	
8. Prof. Mir Abdul Karim Nedai	Science	16 Sept 1992	
9. Mr. Jalat Khan Hekmaty	Social Studies	01 Oct 1992	
10. Mr. Abdul Karim Azizi	Mathematics	01 Nov 1992	
11. Dr. Aziz Ahmad Yusofzai	Social Studies	01 Dec 1992	
12. Dr. Sayed Kamal Bakhtari	Science	16 Dec 1992	
13. Mr. Sultan Aziz Sultani	Language Arts	16 Jan 1992	
14. Mr. Hasangul Banadawal	Language Arts	16 Feb 1992	

Daily 2 to 4 hour workshop sessions were held with this group using the ASCD videotape library to teach new strategies and tactics that were to be used within the scope of 4MAT and its learning styles. Further clarification of the TESD process was also made and a process flow chart was designed and translated

into Dari. Much understanding came from the translation sessions. It is this flow chart that is used in this Trainers Manual and which was used in the workshop

As soon as the TESD Flow Chart translation was completed, the plan was to produce a series of television tapes in English, Dari and Pushtu. These were to be used initially by Specialist Facilitators in the Transfer Workshops for Master Teacher Trainers and, later, by the MTT's acting as Training Facilitators in workshops held inside Afghanistan. This was intended to ensure that the TESD process was transmitted as a whole process.

Instead of producing the television series, the Team Leader asked that Transfer workshops be begun immediately and that these workshops produce instructional materials and student texts which could be tried out inside Afghanistan. It was also agreed to produce a Trainers Manual as a product of the workshop. It is this Manual which you have in your hand. Further it was agreed that initially participants in the workshop would be drawn from Science and Mathematics.

Thus a ten week workshop was planned to run from 24 April to 30 June with a week out for Eid holidays. The three Specialist Facilitators in Science and the two in Maths conducted the workshop for Master Teacher Trainers and ECA personnel. I wrote the Trainers Manual, working day and night and they translated by night and trained in 6 hour workshops during the day. It was ten gruelling weeks during the hottest season in Pakistan, but we did it. The Specialist Facilitators produced with the participants 23 Lesson Units in Science and Mathematics and together we produced the Trainers Manual. Specialist Facilitators in Social Studies and Language Arts kept busy during the Science and Mathematics workshop, helping to translate the Manual as it was produced.

The story of the Trainers Manual has been told above. It is divided into four parts.

Part I:

Part I is comprised of Chapters 1 through 6. Each Chapter is accompanied by the handouts mentioned in the text. Chapters 2-6 are developed on a 4MAT plan.

Part II:

Part II is comprised of the Flow Chart. This describes TESD as the step-by-step process which referred to throughout part I.

Part III:

Part III is comprised of the Teachers Pedagogical Resource Book. It contains information which was taught by me in the two-week session on teaching strategies and techniques. This provides a sample of teaching strategies and techniques. The TPRB book needs to be further developed and used to ensure that Afghan children are educated in a proactive learning environment which honors their differences in learning styles and brain-hemisphere preference.

Part IV:

Part IV is comprised of a list of participants and the lesson units the produced as a product of this workshop, using the TESD process described in Part I and Part II. It also contains two samples of units produced in science and two produced in Mathematics. In each case one is a group product produced as a result of the first four weeks of training and one is an individual product produce as a result of the last three weeks of training. Each individual was required to produce one lesson unit as proof of his mastery of TESD and the first step in being able to transfer the process to head teachers and teachers inside Afghanistan. These products will be taken inside Afghanistan to be tried out with Afghan children and revised as necessary.

When you review the sample lesson units, please note that the first few pages, Form 'O' follows the orientation of other pages in the manual. It is done in English as an index of what is included in the remainder of the Plan and Guide. To read the pages that follow Form 'O' you must turn the Manual upside down. These pages were prepared for Dari speakers who read from right to left .

Part V:

Part V has yet to be completed. It is up to you to read and do and produce your own lesson units. May God Bless your efforts.

THE EMPOWERING SYSTEM: TOTAL EDUCATION SYSTEMS DEVELOPMENT

TRAINERS MANUAL

Donald G. W. Schutte

[FOR THE USE OF SPECIALISTS AND TRAINING FACILITATORS TO BE USED IN PRODUCTION WORKSHOPS TO TRANSFER THE TOTAL EDUCATION SYSTEMS DEVELOPMENT PROCESS TO TRAINERS, HEAD TEACHERS, TEACHERS, AND KEY EDUCATORS.]

1. READING OF THE KORAN AND OPENING WORKSHOP STATEMENTS

2. STATE AIMS AND GOALS OF WORKSHOP (Handout 2.1)

AIMS:

The aim of this workshop is to introduce participants to the Total Education Systems Development Process. This process uses 4MAT as a means to focus the production process on the answers to the following five questions:

1. What do we want Afghan children and youth to learn and, therefore, what should be taught in each subject at each grade level? (The answer is contained in the development of a *Concept Scope and Sequence.*)
2. How do we teach selected concepts to all Afghan children regardless of differences in learning styles and brain hemisphere preferences?
3. How do we continuously evaluate and assess what is learned and taught?
4. How do we effect continuous supervision at all levels within the system?
5. How do we ensure that all inputs and activities in the educational system are directed towards achieving specified learning outcomes with young Afghans. Learning Outcomes, in turn, are expected in the long term to produce the specified social consequences that make up the society's purposes for providing public education.

GOALS:

Teacher Trainers will be trained to use the Total Education Systems Development Process to achieve the following outcomes:

1. To define the idea of *Concept Scope And Sequence* and, guided by a Mission Statement, relate it to developing the Afghan educational system.
2. To select one concept from the agreed *Concept Scope and Sequence* and divide it into topics and subtopics relevant to a particular subject and appropriate grade level.
3. To develop the propositional, procedural and conditional knowledge and skills relevant to understanding the substantive content and structure of the selected concept (see 2, above) and its practical use.
4. To write a "Lesson Unit Guide" relevant to the selected concept and its related topics and subtopics using the 4MAT Model. This model incorporates advanced pedagogical and assessment methods, strategies, and techniques.and honors:
    a. the four learning styles of learners,
    b. left or right brain hemisphere preferences of learners, and
    c. the learners' ages and stages of growth and development at each grade level.
5. To create instructional materials and student texts and learning aids that support the teaching and learning of the selected concept as well as the advanced pedagogical and assessment methods, strategies, and techniques.
6. To demonstrate ability to transfer the TESD Process to Head Teachers (as Resident Facilitators),Teachers, and other Key Educators as a means of reconstructing the Afghan Educational System.

3. INDICATE NATURE AND PURPOSE OF THE RELATIONSHIP BETWEEN AND AMONG SPECIALIST FACILITATORS AND MTTs AS TRAINING FACILITATORS

WORKSHOP GROUPS:

The ultimate organizational and structural goal is to form teams of Trainers who are specialized in a subject area. An ideal team, therefore, will consist of one or more trainers specialized in Maths, one or more in Science , one or more in Social Studies, and one or more in Languages (Dari and Pushto).

Each team will be connected to Specialist Facilitators who will act as TESD process mentors, resource persons, and supervisors of the Trainers as they apply the training program in their field of specialization. The specialized teams will go inside Afghanistan to train head teachers and 'generalist' teachers. Ultimately, Trainers will also train Supervisors, School Management Personnel, and Community Council members.

Although teachers teach all subjects in the primary grades, it is essential that those who train the teachers be specialized to help teachers upgrade their knowledge of a) the specific academic content in each subject area and b) the pedagogical and assessment methods, strategies and techniques appropriate to the concepts and learners being taught. Specific training concerning what and how to teach and assess specific content at a particular grade level is the quickest way to upgrade a system currently employsing unqualified or under qualified teachers and head teachers.

It is this specificity which will allow the development of rational systems of supervision and management. At present head teachers only see their role as school manager. They need to be trained as ***resident supervisors*** responsible to supervise the academic and professional work of the teachers under their authority. This specificity also will provide the basis for informing the community, through a community council, what to expect from the schools, their teachers and head teachers, so that the council can play its role as guardians of its children's education on behalf of the community.

4. HAND OUT MISSION STATEMENT (Handout 4]

SEE INSTRUCTIONS ON HANDOUT 4. USE THINK-PAIR-SHARE STRATEGY AND IDENTIFY IT AS SUCH FOR TRAINEES. THIS IS A SPECIAL CASE WHERE TRAINER PREPARED ANSWERS ARE ON THE REVERSE OF THE QUESTION SHEET TO BE COMPARED BY PAIRS OF TRAINEES WITH THEIR INDIVIDUAL ANSWERS.. (HANDOUT 4.1 AND 4.1.1)

Question 1:

The Mission Statement is divided into two parts. Part one is a Mission Statement for Schools and Part 2 Is a Mission Statement for Educator Training Programs. What is the relationship between the two parts?

Prepared Answer to Question 1:

Part 1 of the Mission Statement is a general guide to help decide what affective, cognitive, and psychomotor learning outcomes should be achieved with Afghan children. All inputs, activities and learning outcomes included in educator programs should be determined so as to promote achievement of specified learning outcomes with Afghan children. Therefore, educator training programs cannot stand alone but must be based on understanding what is to be taught to Afghan children who have different learning styles and brain hemisphere preferences in each subject at each grade level. In other words, to be effective, every statement in Part 2, the educator training program, must somehow be related to implementing some aspect of Part 1, the school's learning program for children.

Question 2:

Teachers teach lessons in a variety of subjects each day. These lessons cover many ideas, i.e., concepts, topics and subtopics. Is it necessary that 1.1.1, 1.1.2, and 1.1.3 (a) to (k) be covered in each lesson?

Prepared Answer to Question 2:

No! It is not necessary that every lesson implement every element of the Mission Statement. Every element, however, should have been addressed and implemented in each subject one or more times during each semester.

Question 3:

You have heard and understood the goals of this workshop. We hope both to transfer to you the Total Education Systems Development Process and at the same time end up with the production of Instructional Materials for Teachers and Students. Is this workshop, therefore, one means of implementing Part 2 of the Mission Statement?

Yes! Success in this workshop will help you to expand your academic and professional knowledge at the same time you are improving instructional design and developing instructional materials for students and teachers. At the same time, the academic cognitive knowledge, skills, and procedures and the pedagogical methods, strategies and techniques employed in the course are based on the latest information and most advanced research available in the world today. In seeking the answers to the questions of 1) What to teach, 2) How to teach to children with different learning styles and brain hemisphere preferences, 3) How to assess and evaluate what is taught and learned, 4) How to Supervise, and 5) How to manage and administer an educational system ensures that the entire second part of the Mission Statement is being implemented within this workshop.

5. BRIEFLY REVIEW THE ASSUMPTIONS UNDERLYING THE UNO/ESSP PROJECT

Trainees should read the assumptions document outside the classroom on their own time. (Handout 5) Trainer presents the following orally.

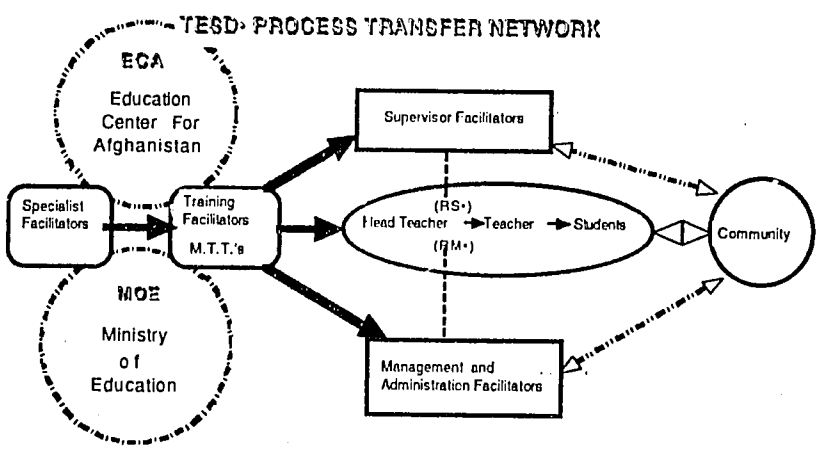
Briefly, the assumptions that underlie the UNO/ESS PROJECT are :

5.1. that the Project works according to its Mission Statement. This Statement has been developed by and agreed upon by Afghans.

5.2. that the curriculum and instructional materials previously developed by the ECA in conjunction with UNO/ESSP are valid. They sustained the Afghan educational system during a distressing period of Afghan history. The present curriculum design and instructional materials development for students and teachers represent an effort to complement those efforts. Efforts to improve do not imply criticism. Improvements in design and materials must be seen, therefore, as going from good to better, not from bad to good. Nor is the emphasis in this workshop on specialist and training facilitators intended to exclude the participation and/or supervision of the ECA. All are welcome and all materials produced in this workshop will be submitted to the ECA for approval and therefore have the status of 'draft.

5.3. that the quickest way to reconstruct the Afghan system of school education is to qualify and certify groups of teachers in terms of knowing what to teach, how to teach, and how to assess teaching and learning, first for grades 1 to 3, then 4 to 6, then 7-9, and finally 10-12.. Further, groups of head teachers must be trained to assume a role beyond school manager. This is the role of **resident supervisor** with the responsibility to supervise a) the academic content taught and learned in his school, b) the professional methods used by teachers, and c) the learning environment created by teachers under their authority

5.4. that training programs will involve transferring the Total Education Systems Development Process by way of production workshops having similar purposes and goals as this workshop (see Handout 2.1) through a network illustrated on Handout 5.1.



* Total Education Systems Development

•RS = Head Teacher as Resident Supervisor
•RM = Head Teacher as Resident Manager/Administrator

Chapter 1: Handout 5.1 (Paragraph 5)

6. BRIEFLY REVIEW LEARNING STYLES AND BRAIN HEMISPHERE PREFERENCES AS A BASIS FOR 4MAT PLANNING AND PRODUCTION ACTIVITIES

LEARNING STYLE INVENTORY

1. Trainer says, "Every classroom contains learners with different learning styles and brain hemisphere differences. Research indicates that there are four possible learning styles and two possibilities for brain hemisphere differences".

2. Distribute face down Handout 6.1, Kolb's Learning Styles Inventory. Put the example item on the white board and demonstrate ranking their choices for each row from 4 to 1 with (4) meaning most like me, (3) meaning next most like me, (2) meaning next most like me, and (1) meaning least like me.

3. Have trainees turn the Learning Styles Inventory face up. Read the instructions with them. Ask if there are any questions. Give them five minutes to complete the inventory. Make sure they understand this is not a test and that there are no "correct" answers, only their own answers. This means the answers must be their own and not, repeat, not shared with their neighbors.

4. When everyone has completed the inventory, ask Trainees to find the sum of the numbers in each vertical column. Then to add the horizontal row of sums. The total of the sums in the row must be 120 = (4 x 12) + (3 x 12) + (2 x 12) + (1 x 12) . If there is another sum look for errors in calculations or review each item to ensure that during ranking no number has been left out or used twice .

   Column 1 = CE Column 2 = RO Column 3 = AC Column 4 = AE

5. Subtract (AE - RO). Plot result on the horizontal axis of the Learning-Style Type Grid.

6. Subtract (AC - CE). Plot result on the vertical axis of the Learning-Style Type Grid.

7. Trainer will tally on the board the number of participants in the Diverger Quadrant, the number in the Assimilator Quadrant, the number in the Converger Quadrant, and the number in the Accommodator Quadrant.

8. The tally (7 above) will demonstrate the principle that in almost every group , including this group, there are people who exhibit different styles of learning. (See principle stated in 1, above.)

9. What are Learning Styles?

   People learn in different ways. These differences depend on many things:
   1) who we are, 2) where we are, 3) how we see ourselves, and 4) what people ask of us.

10. There are two major differences in how people learn. Not everyone learns in the same way. The **first** difference in how people learn is caused by how they PERCEIVE ideas, things, people or situations. The **second** difference in how people learn is caused by how a person PROCESSES the information that is perceived. The way in which people perceive ideas, things, people , and situations, therefore, affects the way people behave when they process information or act upon and operate their world.

11. PERCEIVING:

Some people "sense or feel", others think things through. Those who usually approach life from the sensing, feeling direction connect information, experience, and meaning to their own person. They tend to get "inside" a concrete situation and perceive it from within themselves. They are intuitive and tend to perceive things as *concrete wholes* first and then act upon that perception.

Other people tend to "think through" an experience or see the *abstract dimensions* of their realities. They tend to stand "outside" a situation, treating it objectively without subjecting the experience to the biases within their own personality. They approach situations logically, letting their intellect appraise a situation. They tend to reason through an experience.

What about you? In a learning situation do you tend to "sense or feel' your way through or do you tend to "think through" the situation.? Do you tend to get inside a situation and view it through your own personality or do you tend to stand outside a situation and try to view it objectively without involving your own personality. The particular way you favor most when perceiving new situations is a major determinant of your learning style. The perceiving orientation of your students is a major determinant of their learning styles as well. What about your spouse, your children, or memorable children you have taught? What do they do?

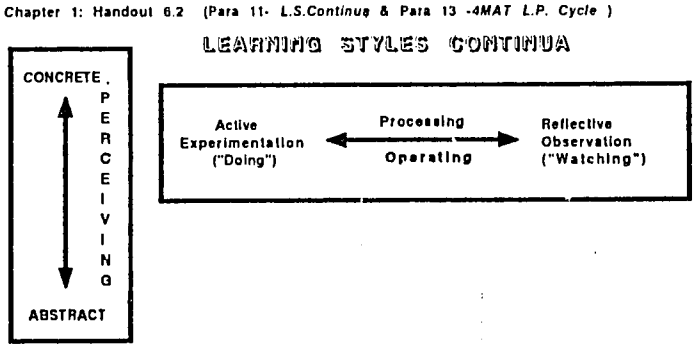
We want ALL STUDENTS , NOT JUST SOME STUDENTS, to learn. It is important, therefore, that we make lesson plans that incorporate both *concrete* and *abstract* ways of perceiving to match the ways which affect the learning styles of our students. Most teachers prepare lessons, however, that favor their own perceptive orientation. They give little or no thought or attention to ways in which others may perceive a situation. Remember the perception orientation which a student favors will affect their learning behavior in a particular situation.

Both ways of perceiving information, *concretely* or *abstractly* are equally valuable. They are only different.

(((See Handout 6.2 which illustrates the Perception Continuum from CONCRETE at one extreme to ABSTRACT at the other extreme.)))

(((See Handout 6.2 which illustrates the Processing or Operating Continuum from REFLECTIVE at one extreme to ACTIVE at the other extreme. Processing is discussed below.)))

Chapter 1: Handout 6.2 (Para 11- *L.S.Continua* & Para 13 -*4MAT L.P. Cycle*)



12.. PROCESSING:

The second major difference in how people learn is caused by how they process experience and information or how they take ownership of it by making it a part of themselves. The way people perceive affects the way they process.

When processing information, some people are "watchers" and others are "doers". When some people get new information or meet a new experience, they jump right in and try to do something with it. "Doers" act on new information immediately. They reflect on it only after they have tried it out. In order to make information their own, they need to use it, to extend it into their own world of reality. Others stand back, watch what is happening and reflect upon it. They tend to filter new things through their own experience, creating meaningful connections.

Both *reflective and active* processing are equally valuable. They are just different.

13. 4MAT Cycle (See Handout 6.2: 4MAT Lesson Plan Cycle)

When you place the two ways of perceiving and two ways of processing in a circle, allowing them to intersect at the center point with the concrete to abstract perception continuum on the vertical axis and the active to reflective continuum on the horizontal axis, you have constructed the 4MAT circle of learning styles.

In quadrant 1, you have the person who perceives experience **concretely** and stands back to **watch and reflect** upon that experience. Kolb, whose test you have taken, categorizes this type of person as a DIVERGER.

From Kolb's research, McCarthy developed a framework for planning lessons that would appeal to the four learning styles exhibited by learners. She calls these "feeling-watcher" persons, located in Quadrant 1, IMAGINATIVE LEARNERS. They **perceive** experience **concretely** and then **process** the information perceived **by reflection** . Their basic question is, "Why?", used in a personal sense of "Why is this concept or information important to me personally?" "Why should I know it?"

In quadrant 2, you have the person who **perceives** experience **abstractly** and stands back to **watch and reflect** upon it before taking overt action. Kolb categorizes this type of person as an ASSIMILATOR. McCarthy calls these "thinker-watcher" persons, located in Quadrant 2, ANALYTIC LEARNERS. They **perceive** experience **abstractly** and then **process** it by **reflecting on** it. Their basic question is, "What is the experience all about?" "Can I analyze it to make meaning of it?"

In quadrant 3, you have the person who perceives experience abstractly and immediately actively experiments with it or tries it out to see if it works. Kolb categorizes this person as a CONVERGER. McCarthy calls these "thinker-doer" persons, located in Quadrant 3, COMMON SENSE LEARNERS. They **perceive** experience **abstractly** and **process by active experimentation.** Their basic question is, "How can I use the experience of this concept?" " What is its practical value or applications?"

In quadrant 4, you have the person who **perceives** experience **concretely** and immediately **actively experiments** with it. Kolb categorizes this person as an ACCOMMODATOR. McCarthy calls these "feeling-doer" persons, located in Quadrant 4, DYNAMIC LEARNERS. They **perceive** experience **concretely** and immediately **process by active experimentation** Their basic question is, "What can I make of this concept or experience?" "What can it become?"

See Handout 6.3a and Handout 6.3b. Use as basis for Think-Pair-Share discussion.

14. Each learning style is valuable! **None is better than another.** 4MAT is McCarthy's framework for planning lessons so that ALL students are provided with the Most Appropriate Teaching Techniques for teaching to different learning styles. She adds another factor, learning modes, to learning styles. Each style of learner may be either a "Right-Brained" Learner or a Left-Brained Learner. [4MAT is a registered Trademark owned by Excel, Inc., and Bernice McCarthy of Barrington, Illinois.]

15. RIGHT AND LEFT MINDEDNESS:

    Distribute Handout 6.4, *Hemisphere Mode Indicators*. Follow the directions for taking the H.M.I. inventory. Put the example item on the board. Show trainees how to mark a circle under either column A or column B in one of the category spaces marked " a lot" or "somewhat". Give them 5 to 10 minutes to complete the test. When all have completed, have them place their scores from the scoring key within the circles and find the total for each column. Follow the directions to compute the difference between their "minus" numbers and "plus" numbers. Have them place their scores on the scale at the top of the page. Ask the trainees the following questions: "How many are "right-minded?" "How many are left-minded?" By tallying this on the board, it will be obvious that there are both right-minded and left-minded people in the room.

    Review the list of Right/Left Mode Characteristics contained in Handout 6.4.

16. The way people prefer to perceive persons, places, things, or ideas affects their subsequent behavior or action. When one first perceives a person, place , thing or idea as a "whole", one's natural response is to take it apart or to analyze it in order to construct or expand its meaning. When one first perceives a person, place, thing or idea as a "series of parts", the natural response in constructing meaning is to make a synthesis or put the parts together to make a "whole".

17. TRAINERS WILL use the large picture puzzle (prepared by UNO/ESSP'S IMDC) to DEMONSTRATE THAT THE WAY ONE PERCEIVES AFFECTS THE WAY ONE PROCESSES INFORMATION OR ACTS UPON IT. When the picture is first perceived as a whole, the only action possible is to take it apart. When the pieces are first perceived as pieces of something, the only action possible is to put it together if one is to make sense of it.

18. Right-Minded People

    People who are right minded prefer to perceive ideas, things, people, and situations as "wholes" first. Then they process the information taken as a whole by breaking it into its parts or analyzing it. This affects their learning style because they prefer to be presented new information as a whole first and then act upon it. To ensure that every pupil has a chance to learn, teachers should use pedagogical methods, strategies and techniques which appeal to "right-minded" students. Most teachers however use "left-minded" approaches which ignores the needs of "right-minded" students.

19. Left-Minded People

    People who are left minded prefer to perceive ideas, things, people and situations in terms of their "parts" first. They then process the information taken in as parts by synthesizing it or putting it together to make "wholes". This way of perceiving and operating their world affects their learning style. They prefer that new information be presented in terms of its parts first and that it then be organized into "wholes". This is the approach most teachers use. "Right-minded" students suffer unless their needs as well as those of the "left-minded" students are taken care of in the same classroom.

20. **Neither way of perceiving is superior to the other.** Both are valid! Both right-minded and left-minded learners are found among students in each 4MAT learning style quadrant. Right and Left Mindedness becomes a part of each learning style. Thus, there are left and right minded learners in each style category: There are Imaginative Learners (Right and Left), Analytic Learners (Right and Left), Common Sense Learners (Right and Left), and Dynamic Learners (Right and Left.)

21. Trainers will review the Right/Left Mode cloth charts produce by IMDC and discuss the typical way in which the right and left brains function to perceive and integrate information. Also review with them Handout 6.5.

22. Bernice McCarthy's 4MAT Lesson Planning Model (Handout 6.3) illustrates the four learning styles and brain hemisphere preference which characterize the students in any ordinary classroom. We will see at a later stage in this workshop how the 4MAT model is expanded and used as a driving force within the Total Education Systems Development Process used by UNO/ESSP.

23. Trainers will take time to discuss the questions of the trainees concerning learning styles and brain hemipshere preferences. Trainers are reminded of the cloth visual aids which are available when discussing right and left mindedness. Use a think-pair-share strategy to elicit formulated questions from trainees.

Chapter 1: Handout 6.5 (paragraph 21)

Bernice McCarthy On Mindedness

Extracted from B. McCarthy: The 4MAT System: Teaching to Learning Styles with Right/Left Mode Techniques. Excel, Inc., Barrington Il

The left and rignt hemispheres of the bra9in process information and experience differently.

The left does verbal things.
The left likes sequence.
The left sees the trees.
The left likes structure.

Left brains love school.

The right brain does visual-spatial things.
The right likes random patterns.
The right sees the forest.
The right is fluid and spontaneous.

Right brains hang around school and hope they catch on.

School teaches us not to trust our right mode of knowing; so our subsequent use of it makes us feel guildty, less rational, less intelligent. Whereas the reality is our virtually exclusive emphasis on the left mode makes us "stiff with techniques far from the scanning eye", constrained to miss the mystery.

It is not that our right mode stops functioning in school; it is just that our ability to hear it, to respond to it, to believe in it, suffers terrible neglect.

The right mode sees relationships.
It grabs for the whole.
It draws the big circle.
It goes after the significant idea, the ideas that connect.

(Content is relatively easy to master once it has been given a conceptual framework, a connection that mkes meaning.)

While the left mode recongizes the relation of the new to the old, the right mode explores all the new material.

Together they move toward wholeness.

Knowledge is not fragmented.
Knowledge is coherent and whole.

How well we remember the things we learn depends on how well engaged both hemispheres were when we first learned it.

Chapter 1 : Handout 4 (paragraph 4)

MISSION STATEMENT

AFGHANISTAN'S EDUCATIONAL MISSION TO
YOUNG AFGHANS AND THEIR TEACHERS

This **Mission Statement** is intended as a **general guide** to help decide inputs and activities intended to achieve **specific learning outcomes** with young Afghans at each grade level in each subject area. These learning outcomes, in turn, serve to guide preservice and inservice training programs for teachers, head teachers, supervisors and other key educators and administrators.

Part 1: Mission Statement for Schools

1.1 The primary mission of Afghan schools is to equally prepare all Afghan children and youth as individuals living in a spiritual and material community: --

1.1.1 To fully participate as Muslim citizens of the Islamic State of Afghanistan, imbued with a sense of jihad spirit with their Islamic Afghan identity and cultural heritage and sensitive to their individual rights and needs, while maintaining a sense of responsibility to balance their individual rights and needs with their responsibility to their family and community within a multi-cultural and global society in an effort to improve the quality of spiritual and material life for all based on Islamic principles.

1.1.2 To fully participate as Islamic Afghan citizens of their local, provincial, national, and international communities with the competencies to contribute their full spiritual, personal, intellectual, and physical potential to face the uncertainties of the rapidly changing world of the 21st Century.

1.1.3 To fully participate as Islamic Afghan citizens who:

a) are spiritually alert;
b) are Islamic value oriented;
c) are morally guided;
d) are directed toward a productive life in the future;
e) are competent in communication and problem-solving skills;
f) are skillful in the use of imaginative and critical thinking strategies and techniques;
g) are able to comprehend and use their knowledge of science and technology;
h) are aware of the beauty, heritage, and wisdom found in the study of the humanities and can appropriately apply this information;
i) are aware of their interdependence and the need to tolerate culture, races, and language differences among and between individuals and ethnic, social, and linguistic groups which make up the multi-cultural and global societies of which they are a part;
j) are alert to their need to develop and maintain the beauty and cleanliness of their surroundings;
k) are willing to contribute to the conservation of nature and preservation of the delicate balance between man and his environment.

Part 2: Mission Statement for Educator Training Programs

2.1 Afghan inservice and preservice training institutions in the Islamic State of Afghanistan have a mission. It is related to the educational program of the schools. Their primary mission is to plan, organize, coordinate, implement, monitor, and evaluate training programs which efficiently and effectively use the limited resources available for education. These resources include personnel, time, space and facilities, books and materials, supplies and equipment, and finances as well as information input and feedback, including reputation. Training programs will assist educators to act intelligently on behalf of their clients, i.e., pupils, parents, trainees, practicing educators, and citizens of the community. Inservice and preservice training programs, therefore, should empower training course participants: ---

2.1.1 to continuously develop educational curricula and instructional materials, as well as their own academic and professional backgrounds, and to be able to teach or supervise and administer programs that facilitate teaching and learning.

2.1.2 to continuously improve pedagogical , assessment, and research methods, strategies, and techniques, as well as academic and pedagogical training programs by:--

a) giving attention to differences in learning styles of students;

b) promoting life-long learning and personal academic and professional growth;

c) building self-discipline; and

d) developing personal and professional sustaining values, attitudes, knowledge and skills.

The most important of these skills is how to think efficiently, how to learn effectively, and how to use what is learned for the benefit of self and others.

2.1.3 to continuously improve their own personal, academic, professional, and Islamic civic competencies and those of teachers, head teachers, supervisors, and other administrators through development training programs.

2.1.4 to continuously improve a support system with cooperation and understanding. This system is formed by establishing partnerships among and between schools, training centers, parents, and the general community. Special attention is to be paid in this regard to Community Education Councils.

CHAPTER 1: Handout 2.1 (Paragraph 2, p. 1)

AIMS AND GOALS OF WORKSHOP

AIMS:

The aim of this workshop is to introduce participants to the Total Education Systems Development Process. This process uses 4MAT as a means to focus the production process on the answers to the following five questions:

1. What do we want Afghan children and youth to learn and, therefore, what should be taught in each subject at each grade level? (The answer is contained in the development of a *Concept Scope and Sequence.*)
2. How do we teach selected concepts to all Afghan children regardless of differences in learning styles and brain hemisphere preferences?
3. How do we continuously evaluate and assess what is learned and taught?
4. How do we effect continuous supervision at all levels within the system?
5. How do we ensure that all inputs and activities in the educational system are directed towards achieving specified learning outcomes with young Afghans. Learning Outcomes, in turn, are expected in the long term to produce the specified social consequences that make up the society's purposes for providing public education.

GOALS:

Teacher Trainers will be trained to use the Total Education Systems Development Process to achieve the following outcomes:

1. To define the idea of *Concept Scope And Sequence* and, guided by a Mission Statement, relate it to developing the Afghan educational system.
2. To select one concept from the agreed *Concept Scope and Sequence* and divide it into topics and subtopics relevant to a particular subject and appropriate grade level.
3. To develop the propositional, procedural and conditional knowledge and skills relevant to understanding the substantive content and structure of the selected concept (see 2, above) and its practical use.
4. To write a "Lesson Unit Guide" relevant to the selected concept and its related topics and subtopics using the 4MAT Model. This model incorporates advanced pedagogical and assessment methods, strategies, and techniques.and honors:
    a. the four learning styles of learners,
    b. left or right brain hemisphere preferences of learners, and
    c. the learners' ages and stages of growth and development at each grade level.
5. To create instructional materials and student texts and learning aids that support the teaching and learning of the selected concept as well as the advanced pedagogical and assessment methods, strategies, and techniques.
6. To demonstrate ability to transfer the TESD Process to Head Teachers (as Resident Facilitators),Teachers, and other Key Educators as a means of reconstructing the Afghan Educational System.

Chapter 1 Handout 4.1 (paragraph 4)

THINKING ABOUT THE MISSION STATEMENT: QUESTIONS

INSTRUCTIONS:

1. You have 10 minutes to review the Mission Statement by reading it silently to yourself.
2. Before read ing the Mission Statement, read Handout 4.1 , entitled "Thinking about the Mission Statement: Questions."
3. As you read think about the questions and try to formulate an answer to each. You have another 10 minutes to think about and formulate your answers.
4. When you have formulated your answers to the questions, turn to the reverse side of Handout 4.1, labelled Handout 4.1.1 and compare your answers with the prepared answers.
5. Now discuss and compare your answers with the answers a person sitting next to you and, together, compare your answers with the prepared answers (Handout 4.1.1). Bring any further questions or discussion points you agree upon to the SF Trainer (10 Minutes)
6. SF Trainer will take your further questions and lead a large group discussion (10 Minutes]

[** Note: This demonstrates a form of the Think-Pair-Share Strategy]

Question 1:

The Mission Statement is divided into two parts. Part one is a Mission Statement for Schools and Part 2 is a Mission Statement for Educator Training Programs. What is the relationship between the two parts?

Question 2:

Teachers teach lessons in a variety of subjects each day. These lessons cover many ideas, i.e., concepts, topics and subtopics. Is it necessary that 1.1.1, 1.1.2, and 1.1.3 (a) to (k) listed on Part I of the Mission Statement be covered in each lesson?

Question 3:

You have heard and understood the goals of this workshop. We hope both to transfer to you the Total Education Systems Development Process and at the same time end up with the production of Instructional Materials for Teachers and Students. Is this workshop, therefore, one means of implementing Part 2 of the Mission Statement?

Chapter 1 Handout 4.1.1 (paragraph 4)

THINKING ABOUT THE MISSION STATEMENT: ANSWERS

Question 1:

The Mission Statement is divided into two parts. Part one is a Mission Statement for Schools and Part 2 is a Mission Statement for Educator Training Programs. What is the relationship between the two parts?

Prepared Answer to Question 1:

Part 1 of the Mission Statement is a general guide to help decide what affective, cognitive, and psychomotor learning outcomes should be achieved with Afghan children. All inputs, activities and learning outcomes included in educator programs should be determined so as to promote achievement of specified learning outcomes with Afghan children. Therefore, educator training programs cannot stand alone but must be based on understanding what is to be taught to Afghan children who have different learning styles and brain hemisphere preferences in each subject at each grade level. In otherwords to be effective, every statement in Part 2 must somehow be related to implementing some aspect of Part 1.

Question 2:

Teachers teach lessons in a variety of subjects each day. These lessons cover many ideas, i.e., concepts, topics and subtopics. Is it necessary that 1.1.1, 1.1.2, and 1.1.3 (a) to (k) listed on Part 1 of the Mission Statement be covered in each lesson?

Prepared Answer to Question 2:

No! It is not necessary that every lesson implement every element of the Mission Statement. It would be impossible to do so! Every element, however, should have been addressed and implemented in each subject area one or more times during each semester.

Question 3:

You have heard and understood the goals of this workshop. We hope both to transfer to you the Total Education Systems Development Process and at the same time to end up with the production of Instructional Materials for Teachers and Students. Is this workshop, therefore, one means of implementing Part 2 of the Mission Statement?

Prepared Answer to Quesion 3:

Yes! Success in this workshop will help you to expand your academic and professional knowledge at the same time you are improving instructional design and developing instructional materials for students and teachers. At the same time, the academic cognitive knowledge, skills, and procedures and the pedagogical methods, strategies and techniques employed in the course are based on the latest information and most advanced research available in the world today. In seeking the answers to the questions of 1) What to teach, 2) How to teach to children with different learning styles and brain hemisphere preferences, 3) How to assess and evaluate what is taught and learned, 4) How to Supervise, and 5) How to manage and administer an educational system ensures that the entire second part of the Mission Statement is being implemented within this workshop.

Chapter 1 : Handout 5 (paragraph 5)

Basic Assumptions Underlying UNO/ESSP Educator Training Program

Overview

The goal of educator training programs is to improve the quality of student learning in schools by improving the academic and professional knowledge, skills, values and attitudes of teachers, head teachers and key educators. This is to be done through a system which implements current curriculum using approved textbooks and teacher guides. The system simultaneously promotes 1) curriculum development, 2) textbook and instructional aids development, 3) academic and professional development of instructional, supervisory, and administrative staff, and 4) the development of systems for assessing and evaluating personnel and program efficiency and effectiveness. Effectiveness is rated, in the short-term, by individual student and school group achievement of specified learning outcomes that prepare students to enter the world of work or higher levels of education. In the long-term, these outcomes must be studied and judgements made as to the impact the school programs (learning outcomes) have had on the social, economic, civic, and family life of the Nation.

Basic Assumptions

**Basic Assumption 1:

It is assumed that there is an agreed Mission Statement. It is to be used as a general guide for deciding inputs and activities intended to achieve specified learning outcomes with young Afghans in each subject at each grade level. Further, it is assumed that these specified learning outcomes for school students will guide a) preservice and inservice training programs for teachers, head teachers, supervisors, and administrators and b) the development of instructional materials and assessment strategies. *(Note: See Chapter 1, Handout 4 for the Mission Statement. This statement has been developed, approved to date by over 200 Afghan educators)*

Basic Assumption 2:

It is assumed that what has been done up to the present by the Education Center for Afghanistan (ECA) in coordination with the Education Sector Support Project (ESSP) and the Afghan Education Authority (AEA) in terms of curriculum, books, and instructional aids development and teachers guides and educator training programs has provided a sound foundation for further cooperation and development.

Basic Assumption 3:

It is assumed that there is a quick way to further qualitative as well as quantitative development. The first step is to focus future development and training programs and activities on qualifying and certifying a cadre of teachers who are competent to produce specified learning outcomes with students in schools. Head teachers and teachers associated with grades 1-3 should be trained in a first round of workshops, then those associated with grades 4-6, then grades 7-9, then grades10-12. This means deciding what concepts are to be taught in each subject at each grade level, beginning with grades 1-3 and moving consecutively in three grade segments to grade 12. These workshops should also focus on training educators to use the latest researched pedagogical strategies and techniques which give consideration to learning styles and brain-hemipshere preferences of learners.

Basic Assumption 4:

It is assumed that the specified learning outcomes will have been agreed and published in a *Concept Scope and Sequence* document and that a group of ECA, AEA, and ESSP personnel will work with consultants to analyze each concept to determine the topics and subtopics related to it that is appropriate to be taught at a specific grade level. Further it is assumed that for the concept and its related topics and subtopics research will be done and decisions made as to what propositional, procedural and conditional information should be learned by students as a minimum.

Basic Assumption 5:

It is assumed that having decided what should be taught and setting it out in a *Concept Scope and Sequence* document that decisions will be made concerning the appropriate methods, strategies and techniques to use to teach the specified concepts to students who differ a) by ages and stages of growth and development, b) by learning styles, and c) by being right or left brain hemisphere dominant.

Basic Assumption 6:

It is assumed that Bernice McCarthy's 4MAT Lesson Planning System provides the best framework within the Total Education System Development process to:--

1) map lessons,
2) apply a variety of teaching strategies and techniques that appeal to students with varying learning styles and brain hemisphere preferences, and
3) to develop instructional materials and teacher and student texts to support the strategies and techniques selected to teach the concept content.

Basic Assumption 7:

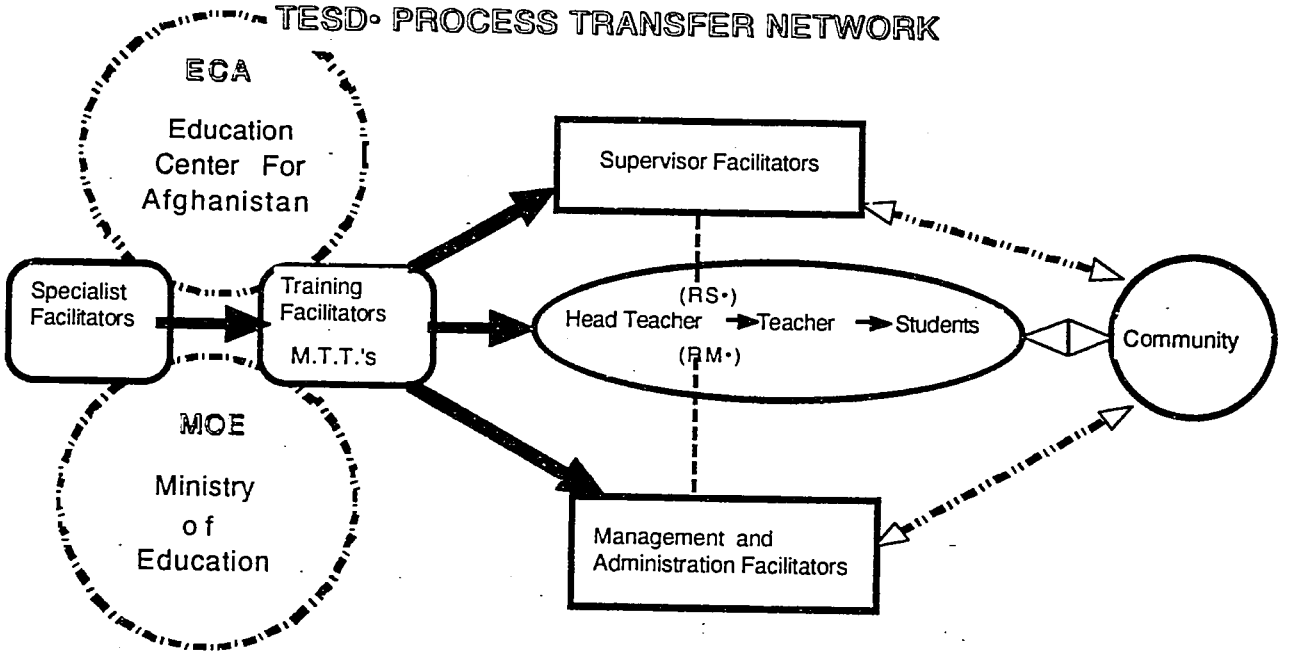
It is assumed that knowing what to teach and setting it out in a pedagogically sound 4MAT framework will include the assessment design to evaluate student achievement as well as teacher and school performance based on student achievement. Further it is assumed that by keeping records, an aggregate base can be stored to be used to establish purpose level indicators to judge whether the system is achieving the short-term outcomes and long-term social consequences it is supposed to achieve.

Basic Assumption 8:

It is assumed that the basic purpose of education activity is to produce students and teachers who can achieve the system's specified learning outcomes. Further it is assumed that the aforementioned activities provide the basis for efficient and effective administration and management. The clearly specified outcomes allow educational managers and administrators to combine inputs and activities to produce the wanted learning outcomes and social consequences.

Basic Assumption 9:

It is assumed that given the previously mentioned assumption, training and development workshops can be organized to offer training to a) trainers of trainers, b) head teachers, c) teachers, d) supervisors, e) other key educators and council members. The purpose of these workshops will be to help participants to understand and take as their own the principles, policies, processes and procedures necessary to implement reform and reconstruct the Afghan education system to provide quality education to all young Afghans.



◦ Total Education Systems Development

•RS = Head Teacher as Resident Supervisor
•RM = Head Teacher as Resident Manager/Administrator

Chapter 1: Handout 6.1 (Paragraph 1)

LSI

LEARNING-STYLE INVENTORY

McBER & COMPANY

Name: _____

Position: _____

Organization: _____

Date: _____

Inventory

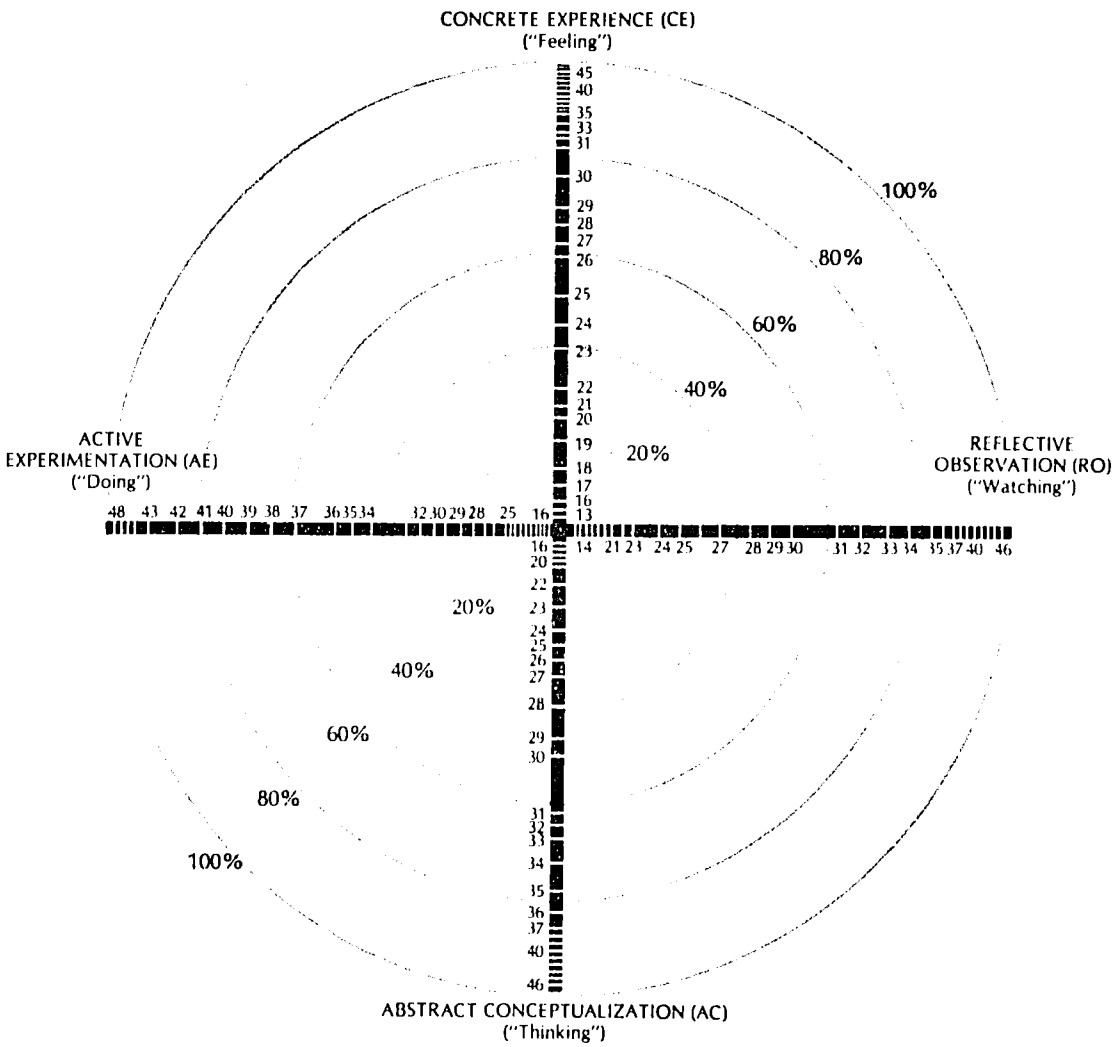
McBer & Company
Training Resources Group
137 Newbury Street
Boston, Massachusetts 02116
(617) 437-7080

Learning-Style Inventory: Instructions

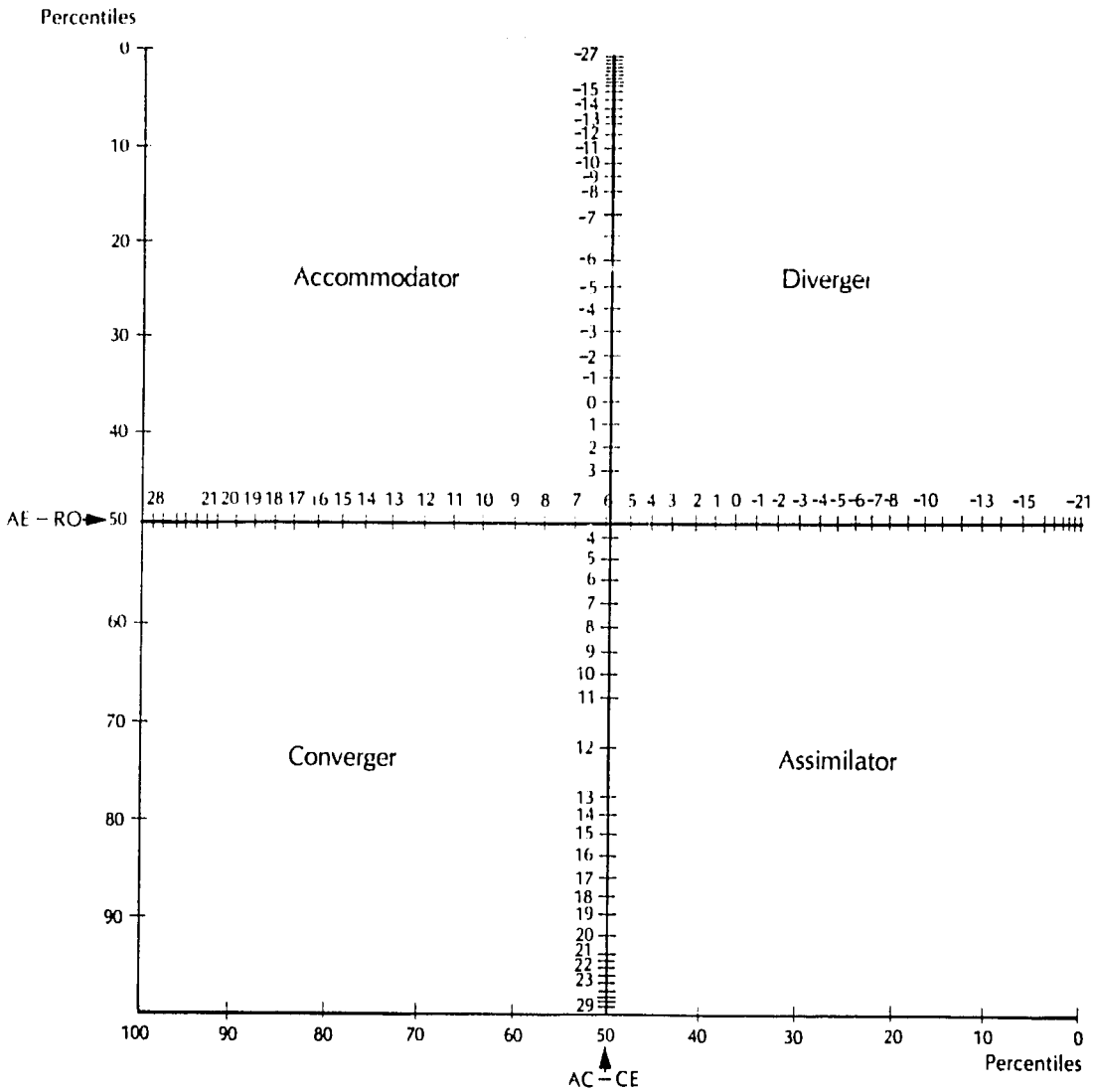
The Learning-Style Inventory describes the way you learn and how you deal with ideas and day-to-day situations in your li
Below are 12 sentences with a choice of four endings. Rank the endings for each sentence according to how well you thi
each one fits with how *you* would go about learning something. Try to recall some recent situations where you had to lea
something new, perhaps in your job. Then, using the spaces provided, rank a "4" for the sentence ending that describes how y
learn *best*, down to a "1" for the sentence ending that seems *least* like the way you would learn. Be sure to rank all the endin
for each sentence unit. Please do not make ties.

Example of completed sentence set:				
0. When I learn	4 I am happy	1 I am fast	2 I am logical	3 I am careful
1. When I learn	____ I like to deal with my feelings	____ I like to watch and listen	____ I like to think about ideas	____ I like to be doing things
2. I learn best when:	____ **I trust my hunches and feelings.**	____ **I listen and watch carefully.**	____ **I rely on logical thinking.**	____ **I work hard to get things done.**
3. When I am learning	____ I have strong feelings and reactions	____ I am quiet and reserved	____ I tend to reason things out	____ I am responsible about things
4. I learn by:	____ **feeling.**	____ **watching.**	____ **thinking.**	____ **doing.**
5. When I learn	____ I am open to new experiences	____ I look at all sides of issues	____ I like to analyze things, break them down into their parts	____ I like to try things out
6. When I am learning:	____ **I am an intuitive person.**	____ **I am an observing person.**	____ **I am a logical person.**	____ **I am an active person.**
7. I learn best from	____ personal relationships	____ observation	____ rational theories	____ a chance to try out and practice
8. When I learn:	____ **I feel personally involved in things.**	____ **I take my time before acting.**	____ **I like ideas and theories.**	____ **I like to see results from my work.**
9. I learn best when	____ I rely on my feelings	____ I rely on my observations	____ I rely on my ideas	____ I can try things out for myself
10. When I am learning:	____ **I am an accepting person.**	____ **I am a reserved person.**	____ **I am a rational person.**	____ **I am a responsible person.**
11. When I learn	____ I get involved	____ I like to observe	____ I evaluate things	____ I like to be active
12. I learn best when:	____ **I am receptive and open-minded.**	____ **I am careful.**	____ **I analyze ideas.**	____ **I am practical.**

he Cycle of Learning



Learning-Style Type Grid



LEARNING STYLES CONTINUA

CONCRETE

PERCEIVING

ABSTRACT

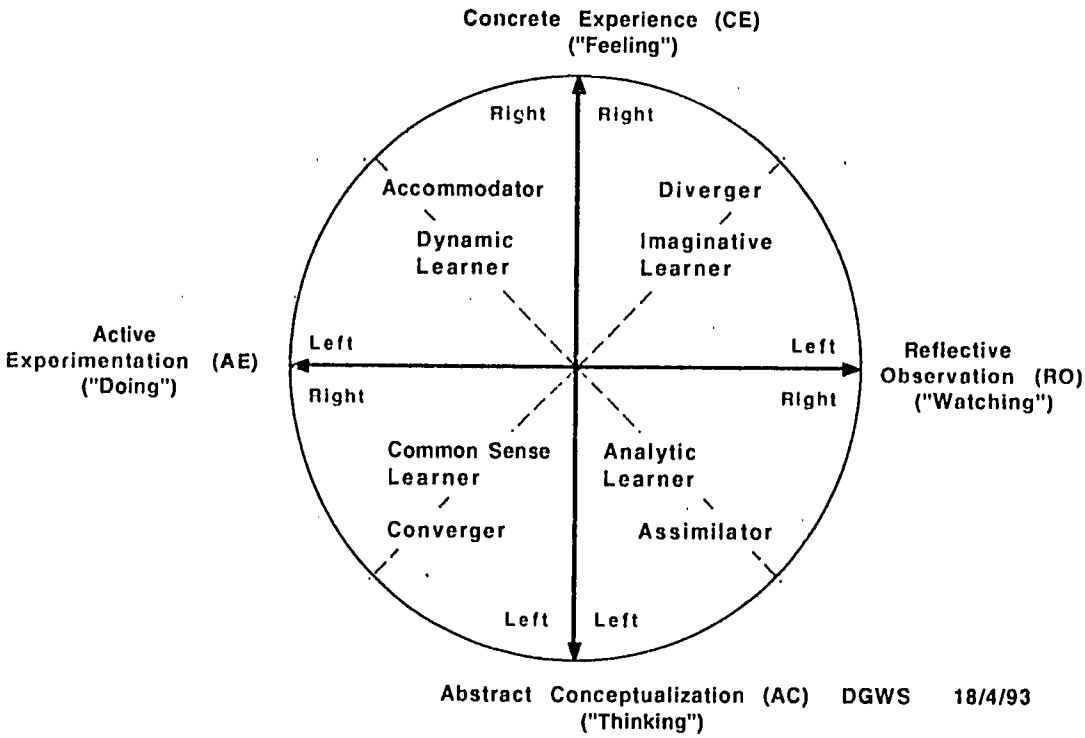
Active Experimentation ("Doing")

Processing

Operating

Reflective Observation ("Watching")

4MAT Lesson Plan Cycle



DGWS 18/4/93

Chapter 1: Handout 6.3a (paragraph 13)

GENERAL LEARNING STYLE CHARACTERISTICS OF CHILDREN & ADULTS

Bob Samples on Bernice McCarthy's 4 -MAT*

d trademark of Excel Incorporated and Bernice McCarthy]

The following are all quotations concerning Bernice McCarthy's 4MAT taken from Bob Samples' book, OPENMIND WHOLEMIND: Parenting and Teaching Tomorrow's Children Today, Jalmar Press, Rolling Hills Estates, CA 90274, 1987. Parenthesis are my own.

The four learning styles ... are combinations of the intent and behavior involved in the learning experience. Each quadrant represents two qualities. For example, Quadrant 1 learners are committed to CONCRETE EXPERIENCE AND REFLECTIVE OBSERVATION. Quadrant 3 learners are guided by an intent on ABSTRACT CONCEPTUALIZATION and their behavior is reflected in direct action via ACTIVE EXPERIMENTATION. [Quadrant 2 learners perceive things ABSTRACTLY and act upon them through REFLECTIVE OBSERVATION. Quadrant 4 learners perceive things CONCRETELY and act upon them through ACTIVE EXPERIMENTATION.] (**SEE HANDOUT 6.2, Lesson Planning Cycle)

... McCarthy's format systematically frames an expression of differences in learning habits and preferences. It also guides teachers and parents to methods that offer each learner a chance for success. ...

...Even more important is the fact that adults (teachers and/or parents) also have learning styles. ...Teachers (tend to) teach to their own learning style or the style the school demands via their style policies (typically Quadrant 2). What this means is that, if I am your teacher, I will teach from my own style or the school's preferred style, not necessarily from yours. .[What that means is you may not learn.]

McCarthy's system is a framework for identifying learning styles, and even more importa it-- a process for systematically allowing children to explore options in learning. ...If a teacher or parent can systematically provide learning modality and learning style options, the child is more likely to experience whole-minded learning. The child is more apt to excel in all areas, to have a positive self image and to experience feelings of success and accomplishment.

LEARNING STYLES: GENERAL CHARACTERISTICS

Quadrant 1 Learners: Preference for Concrete Experience and Reflective Observation

Personal meaning is of primary importance to Quadrant 1 learners. They must gain some personal worth from instruction and may resist starting until they are satisfied that [personal] meaning will be there. They prefer to listen and then conversationally discuss ideas. Group discussion, particularly small group discussions which nurture conversation, is their favorite classroom method. They are very interested in people and believe strongly in their own experience. They model [their behavior] after people they respect. They are innovative in the realm of ideas that relate to people. They seek to establish unity and agreement among all members of a group. Discord and lack of consensus leave them uneasy and uncomfortable.

Healthy Quadrant 1 learners are empathic, considerate and cooperative. Interpersonal involvement is a product of the joy of being together and emphasizes the benefits of cooperation.

Pathological Quadrant 1 learners are manipulative and hold extremely high expectations of others. Unhealthy Quadrant 1 people are imprisoned in their own ego demands. They require constant attention to their well being and enforce dependency in relationships.

Quadrant 2 Learners: Preference for **Reflective Observation and Abstract Conceptualization**

Learners in this quadrant are the keepers of the truth. They require facts, accuracy and orderliness. They are comforted by rules and they form reality from them. They are attentive to experts but are less interested in people in general. However, if they believe in a person's scholarship or authority, they may admire him or her enthusiastically and establish him or her as a role model. These learners are driven toward "right" answers and their loyalty to what is right is quite strong. When they need to make decisions, their first cry is for facts. They believe rationality and logic are primary virtues.

They are happiest when they are operating in a field of endeavor that is well defined., (where] the expectations are explicit and attainable.

As children they might like .... games with definite rules and boundaries. In school, they are grade-conscious and pursue the things that produce the "right' answer.

Healthy Quadrant 2 learners are marvels of detail and accuracy. They prize form and procedures in expression and can be depended on to be thorough and precise. When they offer something, you can be sure that it has been researched and checked for accuracy. They often require more time than seems necessary, but this is only to check and counter check the accuracy of their work.

Pathological 2's are marked by compulsion to be complete. They are never satisfied that enough data are available and often will obstruct progress with their insatiable need for more information. Often the unhealthy demand for precision will make the Quadrant 2 learner (parent or teacher) a closed-system totalitarian of order and rules. Of all the 4MAT System learners, the 2's are the most susceptible to being closed. This inclination makes sense if we remember that the weight of history and tradition has established the precedents which they can easily see as "right."

Quadrant 3 Learners: Preference for **Active Experimentation & Abstract Conceptualization**

Almost before one can blink an eye these learners are engaged in action. Matching their compulsion to act is the requirement that what they learn be useful and applicable. Their primary attraction to the arena of abstract conceptualization is that it provides theories to be actively tested. They detest the disclosure of answers before they have had enough time to explore possible solutions. They are practical and want to learn things they can use in everyday life. They cherish "facts," which are seen as the raw material for action.

As children they are the ones who don't discover until ...(Eide -ul-Fitr) ...that instructions were included in the gifts they received ...(Eide-ul-Azha). They are always out of their seats when the bell rings. ....Teachers and parents find these children to be uncooperative in that they are unable to "wait for instructions." They are reluctant to defer action and rewards.

Healthy 3's get things done. They can be depended upon to meet deadlines and produce high quality work. Since they are so action-oriented , their skills often show great maturity. As soon as they feel confident in your trust, they are quick to recognize the need for action before others do and will often save the day. They never forget to feed the hamster and check the fish tank.

Pathological Quadrant 3 learners are compulsive meddlers. They take action reflexively and tend to snarl things up -- they over-act on events. If they have an idea, they might immediately attempt to test it without regard for the needs of others involved.

Quadrant 4 Learners: Preferences for **Concrete Experience and Active Experimentation**

These are self-discovery learners. They have a strong need to experience freedom in their learning and have a tendency to transform whatever it is they attempt. They are at home with making decisions since they are so flexible. A bad decision will only be a temporary setback. They are highly intuitive and often come to valid conclusions that are not logically justified. Quadrant 4 learners are born risk takers and for them failure is positive feedback. They are often seen as inconsiderate of others. This is not intentional as they are frequently lost in a task and will seem to abandon common courtesies. Once reminded of the breach of consideration they tend to apologize and get back on task.

As children, Quadrant 4 learners are highly inventive and self-entertaining. It seems their only encounter with teachers and parents is when they are seeking more tools or advice on a self-designated task. For them any assignment is appropriate since they will do with it what they want anyway. Their life pattern is a search for possibility and change. ...

The healthy learners in Quadrant 4 are self-reliant and self-directing. They respect form and procedure but recognize the need for it out of their own inquiry. Once it is recognized, they will discipline themselves and acquire whatever skills they need for accomplishing their purposes.

Pathological 4's are nearly always over committed and fragmented. They never seem to develop the discipline to finish one task before they attempt another. This is different from being able to do several things at once. Being fragmented means they know at the outset they will never finish the commitment but can't resist the novelty of beginning. For them newness is so seductive they are drawn in regardless of the consequences. The result is that they seldom develop the skills or acquire the information to complete work with integrity.

Chapter 1: Handout 6.3b (paragraph 13)

LEARNING STYLE CHARACTERISITCS [Extract from Bernice McCarthy. *The 4MAT System: Teaching to Learning Styles with Right/Left Mode Techniques.* Excel Inc., Barrington, Illinois. Parentheses are mine.]

Type One: The Imaginative Learners

As **learners** they perceive information concretely and process it reflectively. They integrate experience with the self. They learn by listening and sharing ideas. They are imaginative thinkers who believe in their own experience. They excel in viewing direct experience from many perspectives. They value 'insight-thinking'. They work for harmony. They need to be personally involved. They seek commitment [from others]. They are interested in people and culture. They are thoughtful and enjoy observing others. They absorb reality. They seek meaning and clarity.

As **teachers** they are interested in facilitating individual growth. They try to help people become more self-aware. They believe curricula should enhance the ability to be authentic. They see knowledge as growth in personal insight and encourage authenticity in their students. They like discussions, group work, and realistic feedback about feelings. They are caring people who seek to engage their students in cooperative efforts. They are aware of social forces that affect human development.

[As **teachers**] they are able to focus on meaningful goals. They tend to become fearful under pressure and sometimes lack daring.

As **leaders** they thrive on developing good ideas, even though this is very time-consuming. They tackle problems by first reflecting alor e and then brainstorming with staff. They exercise authority with trust and participation. They work for organizational solidarity. They need staff who are supportive and share their sense of mission.

Strength:	Imaginative ideas
Function by:	Value clarification
Goals:	To be involved in important issues and to bring harmony
Careers:	Counseling, teaching, organizational development, humanities & social sciences
Favorite Question:	Why?

Type Two: The Analytic Learners

As **learners** they perceive information abstractly and process it reflectively. They devise theories by integrating their observations into what is known. They seek continuity. They need to know what the experts think. They learn by thinking through ideas. They form reality. They value sequential thinking. They need details. They critique information and collect data. They are thorough and industrious. They will re-examine the facts if situations perplex them. They enjoy traditional classrooms. They find ideas fascinating. They prefer to maximize certainty and are uncomfortable with subjective judgments. They seek intellectual competence and personal effectiveness.

As **teachers** they are interested in transmitting knowledge. They try to be as accurate and knowledgeable as possible. They believe curricula should further understanding of significant information and should be presented systemically. They see knowledge as deepening comprehension. They encourage outstanding students. They like facts and details and organized sequential thinking. They are traditional teachers who seek to imbue a love of knowledge. They believe in the rational use of authority. Sometimes their dominating attitude tends to discourage creativity.

As **leaders** they thrive on assimilating disparate facts into coherent theories. They tackle problems with rationality and logic. They lead by principles and procedures. They exercise authority with assertive persuasion and by knowing the facts. They work to enhance their organization as an embodiment of tradition and prestige. They need staff who are well organized, write things down with diligence and care, and follow through on agreed decisions.

Strength:	Creating concepts and models
Function by:	Thinking things through
Goals:	Intellectual recognition
Careers:	Mathematics, research and planning, natural sciences
Favorite Question:	What?

Type Three: The Common Sense Learners

As **learners** they perceive information abstractly and process it actively. They integrate theory and practice. They learn by testing theories and applying common sense. They are pragmatists. They believe if it works, use it. They are down-to-earth problem-solvers, who resent being given answers. They do not stand on ceremony but get right to the point. They have a limited tolerance for fuzzy ideas. They value strategic thinking They are skills oriented. They experiment and tinker with things They need to know how things work They edit reality, cut right to the heart of things. Sometimes they seem bossy and impersonal. They seek utility and results.

As **teachers** they are interested in productivity and competence. They try to give students the skills they need to be economically independent in life. They believe curricula should be geared to this kind of focus. They see knowledge as enabling students to be capable of making their own way. They encourage practical applications. They like technical things and hands-on activities. They are exacting and seek quality and productivity. They believe the best way is determined pragmatically. They use measured rewards. They tend to be inflexible and self-contained and lack team-work skills.

As **leaders** they thrive on plans and time lines. They tackle problems by making unilateral decisions. They lead by personal forcefulness inspiring quality. They exercise authority by reward/punishment. (The fewer the rules the better but enforce rigorously the ones you have.) They work hard to make their organization productive and solvent. They need staff who are task oriented and move quickly.

Strength:	Practical application of ideas
Function by:	Factual data gathered from hands-on experiences
Goals:	To bring their view of the present in line with future security
Careers:	Engineering, applied sciences, surgeons
Favorite question:	How does this work?

Type Four: The Dynamic Learners

As **learners** they perceive information concretely and process it actively. They integrate experience and application. They learn by trial and error. They are believers in self discovery. They are enthusiastic about new things. They are adaptable, even relish change. They excel when flexibility is needed. They often reach accurate conclusions in the absence of logical justification. They are risk takers who are at ease with people. They enrich reality by taking what is and adding something of themselves to it. They are sometimes seen as manipulative and pushy. They seek to influence.

As **teachers** they are interested in enabling student self-discovery. They try to help people to act on their own visions. They believe curricula should be geared to learners' interests. They see knowledge as a tool for improving the larger society. They encourage experiential learning. They like variety in instructional methods. They are dramatic teachers who seek to energize their students. They attempt to create new forms, to stimulate life and to draw new boundaries. They tend to rashness and manipulation.

As **leaders** they thrive on crisis and challenge. They tackle problems by looking for patterns, scanning possibilities. They lead by energizing people. They exercise authority by holding up a vision of what might be. They work hard to establish their organizations as front runners. They need staff who can follow up and implement details.

Strength:	Action and presenting challenges
Function by:	Acting, testing, and creating new experiences
Goals:	To bring action to ideas
Careers:	Marketing, sales, entertainment, education, social professions
Favorite Question:	What if?

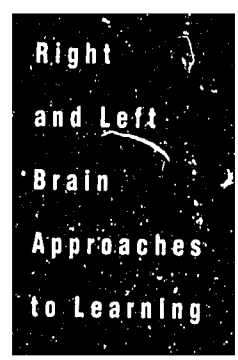
Chapter 1: Handout 6.4 (Paragraph 15)

_____

_____

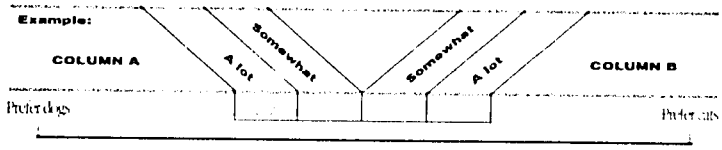
_____

_____



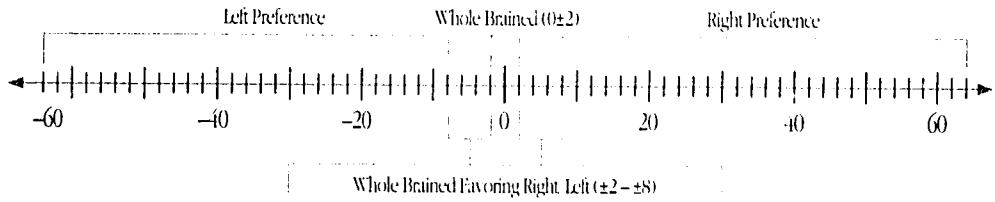
INSTRUCTIONS

For each numbered item there are four possible choices. Either choose "a lot" or "somewhat" from the column A side, or "a lot" or "somewhat" from the column B side. For example: I prefer dogs "a lot" or "somewhat" — or — I prefer cats "a lot" or "somewhat". Choose one answer for each numbered item. Place an O in the appropriate blank.



COLUMN A	A lot	Somewhat	Somewhat	A lot	COLUMN B
1. bases decisions on facts					bases decisions on feelings
2. prefers organized structure in a work setting					prefers open-ended work setting
3. carefree, spontaneous					careful, deliberate
4. understands how the pieces fit together					understands from experience
5. tries hunches					approaches problems logically
6. like an athlete or artist					like an accountant or chemist
7. like a tax lawyer					like a criminal lawyer
8. neat					sloppy
9. process oriented					product oriented
10. improvising new ideas					thoughtful, both feet on the ground
11. prefers change and the unusual					prefers order and stability
12. recalls information, names					recalls faces, dress, actions
13. precise in language					free, sweeping terms
14. focus on words said and the message					takes in body language, emotional tone
15. holistic, intuitive					orderly, sequential
16. words and numbers					space and form
17. synthesizing					analyzing
18. abstract					concrete
19. emotional					rational
20. objective					subjective
21. waking					dreaming
22. timebound					timeless
23. realistic					idealistic
24. lead by the heart					lead by the mind
25. specific					ambiguous
26. community					agency
27. outlook					insight
28. cause and effect					resemblances
29. lumper					splitter
30. intellectual rigor					imagination
31. soft					sharp
32. persist					encompass

HEMISPHERIC MODE INDICATOR SCORING KEY



	Column A		Column B	
1.	-2	-1	+1	+2
2.	-2	-1	+1	+2
3.	+2	+1	-1	-2
4.	-2	-1	+1	+2
5.	+2	+1	-1	-2
6.	+2	+1	-1	-2
7.	-2	-1	+1	+2
8.	-2	-1	+1	+2
9.	+2	+1	-1	-2
10.	+2	+1	-1	-2
11.	+2	+1	-1	-2
12.	-2	-1	+1	+2
13.	-2	-1	+1	+2
14.	-2	-1	+1	+2
15.	+2	+1	-1	-2
16.	-2	-1	+1	+2
17.	+2	+1	-1	-2
18.	-2	-1	+1	+2
19.	+2	+1	-1	-2
20.	-2	-1	+1	+2
21.	-2	-1	+1	+2
22.	-2	-1	+1	+2
23.	-2	-1	+1	+2
24.	+2	+1	-1	-2
25.	-2	-1	+1	+2
26.	+2	+1	-1	-2
27.	+2	+1	-1	-2
28.	-2	-1	+1	+2
29.	+2	+1	-1	-2
30.	-2	-1	+1	+2
31.	+2	+1	-1	-2
32.	-2	-1	+1	+2

1.) Total all the minus numbers.

Total minus = _____

2.) Total all the plus numbers.

Total plus = _____

3.) Compute the difference.

= [ ]

4.) Mark your score above.

You may now complete your Learning Type Measure® Profile (if applicable).

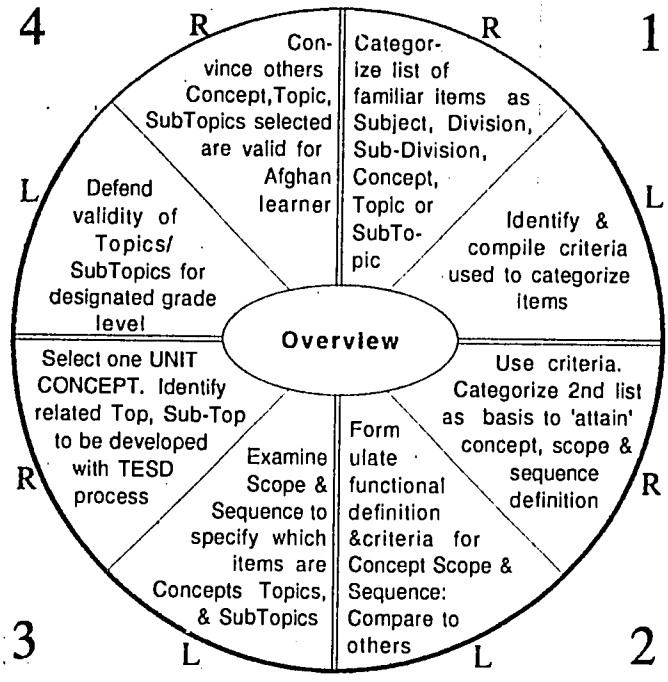
RIGHT/LEFT MODE CHARACTERISTICS

LEFT MODE

- Rational
- Responds to verbal instructions
- Controlled, systematic experiments
- Problem solves by logically and sequentially looking at the parts of things
- Makes objective judgements
- Looks at differences
- Is planned and structured
- Prefers established, certain information
- Analytic reader
- Primary reliance on language in thinking and remembering
- Prefers talking and writing
- Prefers multiple choice tests
- Controls feelings
- Responsive to structure of environment
- Prefers hierarchical (ranked) authority structures
- Sequential
- Is a splitter; distinction important
- Talks, and talks, and talks
- Is logical, sees cause and effect
- Draws on previously accumulated, organized information

RIGHT MODE

- Intuitive
- Responds to demonstrated instructions
- Open-ended, random experiments
- Problem solves with hunches, looking for patterns and configurations
- Makes subjective judgements
- Looks at similarities
- Is fluid and spontaneous
- Prefers elusive, uncertain information
- Synthesizing
- Primary reliance on images in thinking and remembering
- Prefers drawing and manipulating objects
- Prefers open-ended questions
- Free with feelings
- Essentially self-acting
- Prefers collegial (participative) authority structures
- Simultaneous
- Is a lumper—connectedness important
- Is mute—uses pictures, not words
- Is analogic, sees correspondences, resemblances
- Draws on unbounded qualitative patterns that are not organized into sequences, but that cluster around images of crystallized feelings



Title: Ch 2 Wheel& OVonly 1-3 — Ref. Code: FlowChart

Grade level: Adult — Duration: 2 days

Subject: TESD Flow Chart Transfer

Author(s): D. Schutte with Specialist Facilitators (see note)

Concept: Steps 1 - 3 TESD Flow Chart

Keys/Cross-refs: See D. Schutte, Total Education Systems Development Flow Chart 4MAT materials. 4MAT is registered trademark of Excel, Inc. & Bernice McCarthy, Barrington, Il.

— Overview —

7. TESD Flow Chart Steps 1 - 3

UNDERSTANDING THE IDEA OF CONCEPT SCOPE AND SEQUENCE AND ITS RELATION TO THE DEVELOPMENT OF THE CONTENT WHICH IS TO BE TAUGHT TO AFGHAN CHILDREN AND YOUTH IN ALL SUBJECTS AT EACH GRADE LEVEL.

OVERVIEW: Goals, Aim, Outcomes:

1. Trainees will discriminate between, LABELS for academic classifications of subject matter, i.e. SUBJECTS further subdivided into DIVISIONS, and LABELS given in TESD curriculum design to substantive cognitive content which is to be taught and learned in

2. Given the general definition for each of the words, "Concept", "Scope", and "Sequence", Trainees will synthesize to construct a functional definition of the whole idea, *Concept Scope and Sequence* and will explain its relationship to TESD at the center of 4MAT* Lesson Planning.

3. Trainees will establish criteria for determining whether a particular content item from a specific grade level in the *Concept Scope and Sequence* is placed in a specific 'Subject' or 'Division' category under the heading "Concept", "Topic", or "SubTopic/Sub-Subtopic. They also will be able to discriminate between Concepts, Topics, and SubTopics included in the prepared *Concept Scope and Sequence* and explain their relevance to the development of teachers resource books, instructional materials, and student texts.

4. Trainees will recognize the need to compare the culturally sensitive *Concept Scope and Sequence* prepared for Afghan children and youth with research-based scope and sequence prepared for children in other countries. This is to ensure Afghan children have equal access to an education which will allow them to cooperate and compete in the modern world.

About the Authors:

These Materials were developed by Dr. Donald G.W. Schutte. They were written for and modified during a Master Teacher Training Workshop held in Peshawar, Pakistan. This workshop was supervised by Dr. Schutte but was conducted by trained Afghan Specialist Facilitators. They responded to the materials and suggested changes to them during the process of implementation. The facilitators' full names are listed in the credits section of the introduction. Alphabetically, they are -- Amouzgar, Azizi*, Bakhtari*, Bandawal, Besmellah, Hekmaty, Najibullah, Najmi*, Nedai*, Sayeed, Sherzad, Sultani, Yadgari*, Yusofzai. Those marked with an asterisk are Science and Mathematics specialists who actually conducted the workshop for Master Teacher Trainers. The others are either Social Studies or Language Arts specialists. Together, along with those conducting the workshop, they were busy during the workshop period translating this Trainers Manual into Dari and Pushtu.

At the time of the writing, Dr. Schutte, was a permanent Team Member of the University of Nebraska at Omaha, Education Sector Support Project. He was the Project's Teacher Training and Curriculum Design Coordinator.

Dr. Gerald Boardman, Chief of Party, and Professor Abdul Salaam Azimi, his Deputy lead the Project. It is sponsored by USAID. UNO/ESSP is a cross-border project supporting the reconstruction of Afghan education. It is located in Peshawar, Pakistan.

*4MAT is a registered Trademark of Excel Incorporated of Barrington, IL, and Bernice McCarthy.

Quadrant 1

Overall aim for Quadrant 1, Right and Left Mode: Trainers will create an experience that allows trainees to reflect on and analyze that experience in order to: 1) differentiate among and between subjects, divisions, concepts, topics or subtopics; 2) describe the characteristics that define the criteria which underlie their choices., and 3) compare and contrast these terms with terms of classification with which they are more familiar, i.e., Subject, Parts, Major Topics, Minor Topics and Sub-Minor Topics.

Quadrant 1, Right Mode

Outcome: Given a list of potential subjects, divisions, concepts, topics, or subtopics and told which is the most inclusive in terms of hierarchy, participants will be able to identify and classify an item on the list in one of the following categories: subject, division, concept, topic or subtopic.

Trainer Directed Activities:

1. Differentiate among and between SUBJECT, DIVISION, SUB-DIVISION, and CONCEPTS, TOPICS, SUBTOPICS, and SUB-SUBTOPICS.

   1.1. Distribute (Handout 7.1) face up. BEFORE YOU BEGIN THE DISTRIBUTION, TELL TRAINEES NOT TO TURN THE SHEET OVER. The diagram shows a tree arranged as an hierarchy. Trainees are given the terms-- Subject, Division, Concepts, Topics, SubTopics and are instructed to rank them in order from the most inclusive to the least.

      1.1,1. Trainer will tell trainees that when they have completed their ranking they are to turn to the reverse side of the sheet (Handout 7.1.1) to check their responses. They are to discuss with their neighbor the criteria on which they based their choice and any differences between their own answers and the prepared answers (Handout 7.1.1). In the large group discussion Trainer will explain the following: a) that the most inclusive term is SUBJECT. It designates an area of human knowledge that has been marked off as subject matter for the purpose of study. Divisions and Sub-divisions designate self-contained units of knowledge within a Subject. These are marked off for specialized study. Division, therefore, is subordinate to Subject. Sub-divisions are subordinates to Divisions.

      1.1.1. Examples:

Subject:	Mathematics	Science	Social Studies	Language Arts
Division:	Geometry	Biology	History	Reading
SubDivision:	Solid Geometry	Life Science	Geography	Phonics

   1.2. Under the headings of Subject, Division, and Sub-Division, the next most inclusive term is CONCEPT because TOPICS are subordinate ideas related to the main idea contained in the Concept. In turn, SUBTOPICS are subordinate to the ideas contained in the TOPICS. Thus, the next most inclusive term after CONCEPT is TOPIC. TOPICS include SUBTOPICS. In turn, Subtopics include the least inclusive terms, SUB-SUBTOPICS. Trainer tells trainees that Concepts, Topics, SubTopics and Sub-SubTopics make up the substantive cognitive content learners should learn in a specific subject at a particular grade level. Therefore, it makes up the "academic" content that we teach ti students. Teacher training courses, therefore, must ensure that teachers, as a minimum, are taught what to teach, i.e., the specified "academic content," and that they are taught the background necessary to teach it.

   1.3. Trainer distributes Handout 7.2. It includes a List of items that trainees are to identify and classify as Subjects, Divisions, Sub-Divisions, or Concepts, Topics, SubTopics or Sub-SubTopics.

1.4. Trainees will read and follow the instructions on Handout 7.2 and complete the task by placing a check in the column of their choice to indicate whether they think an item on the list should be classified as Subject, Division, Sub-Division, or Concept, Topic, Subtopic., or Sub-Subtopic.

Evaluation:

Divide the group into groups of two or three. Trainees will identify from their previous experience and name possible curriculum items which could be classified under one of the following headings -- Subject, Division, Sub Division, Concept, Topic, Subtopic or Sub-Subtopic. Trainees will cite the characteristics of each item named that they have used as criteria to support their classification. The small group, monitored by the Specialist Facilitators will discuss the validity of the classification and the criteria.

Quadrant 1, Left Mode

Outcomes: Trainees will be able to name, describe and explain the attributes that they used as criteria to classify an item in one category or another. They will recall the different purposes for which the labels 'Subject' and 'Division' are used in contrast to the purpose served in curriculum development by the labels, 'Concept', 'Topic', 'Subtopic'. They will be able to correlate these terms with those with which they are already familiar, i.e., Subject, Parts, Major Topics, Minor Topics and Minor Sub-Topics, They will be able to substitute the terms used in TESD for those terms.

Trainer Directed Activities:

1. Trainees will name, describe and explain in writing the characteristics they used as criteria to place an item in one category or another. Trainer will ask them to describe the different purposes served in curriculum development by the terms, 'Subject' and 'Division', contrasted with the terms, 'Concept', 'Topic', and 'Sub-topic'. When they develop their criteria for classifying items, Trainer asks if grade level affects the classification when placing an item in one category or another.

   1.1 Trainees will share their descriptions and explanations with a neighbor. (Use Think -- Pair--Share strategy.)

   1.2 Trainer will tally responses on the board. Trainer will conduct a discussion to identify differences and agree on criteria for alternative classifications of the same item, depending on the grade level of learning as the point of departure.

2. Trainees will be given a list of similar terms with which they are already familiar, i.e., "Subject, Parts, Major Topics, Minor Topics and Minor Sub-Topics. Trainees will be able to correlate these terms with those used in TESD to develop a *CONCEPT SCOPE AND SEQUENCE*, i.e., Subject, Division, Sub-division, or Concept, Topic, Subtopic or Sub-Subtopic. Be sure that trainees agree to use the terminology as it is used in TESD in order not to be confused with the old terminology.

2.1 Trainer will make two columns on the board or on a separate prepared chart:

In COLUMN ONE list terms:	In COLUMN TWO list terms:
Subject	Subject
Division	Part
SubDivision	
Concept	Main Topic
Topic	Minor Topic
Subtopic	
Concept	Main Topic
Topic 1	Minor Topic
Sub topic 1.1	Minor Sub Topic
Sub topic 1.2	
Topic 2	
Sub topic 2.1	
Topic 3	
Sub topic 3.1	

3. Trainer will distribute Handout 7.3, K-W-L + Think-Pair-Share Strategy for Defining *Concept Scope and Sequence*.

4. Trainees will: a) briefly write in column 1 *What They Know About* : i) Concept, ii) Scope, iii) Sequence

   b) briefly write in column 2 *What They Want to Know About:* i) Concept, ii) Scope, iii) Sequence

5 Trainees will share and compare *what they know* and *want to know about* the words, "concept," "scope," and "sequence," with their neighbors.

6. (Trainer Note: This is in preparation for constructing a functional definition of *Concept Scope and Sequence*.) Trainer will conduct a large group discussion, summarizing what the trainees know and want to know about the three words, "Concept," "Scope," and "Sequence."

Evaluation:

Trainer will use a 'brainstorm' strategy to add to the possible criteria that could used to classify curriculum items under one heading or another. (Trainer note: The Q 1 assessments are more in the way of 'Concept Attainment' strategy than 'Concept Formulation' since trainees at this point are in the beginning stagesof this unit. Are trainees able to correlate their prior personal experiences with those of their peers in order to begin a process of agreeing on characteristics which allow curriculum developers to classify items within a *Concept Scope and Sequence* statement?) Trainees will have completed What they know and what they want to know on the K-W-L form and as they work on *attaining and formulating* a definition for the terms, 'concept', 'scope,' and 'sequence,' they will continuously complete the what I have learned column on the form.

Quadrant 2:

Overall Aims of Quadrant 2;: Trainers will integrate into the broader concept the reflective analysis based on the experience of the personalized concept. Organize knowledge and skills related to the idea of *Concept Scope and Sequence* in terms of the principles and techniques of memory and the strategy of 'Mastery Lecture'.

Quadrant 2, Right Mode

Outcomes: Trainees will discriminate between Subjects and Divisions as labels and concepts, topics, and subtopics which comprise the substantive cognitive content learners are expected to learn. Given a list of items that have been drawn from their own subject specialty and which have been identified with symbols representing Subject, Division, Concept, Topic, Subtopic or Sub-Subtopic, trainees will state and defend with reason their agreement or disagreement with the stated classifications.

Trainer Directed Activities.

1. Trainer will divide Trainees into subject area specialty groups, i.e., Science group, Social Studies group, Language Arts group, and Mathematics group.

2. Trainer will distribute Handout 7.4 on which a list of curriculum items have been classified as being in one category or another of the following categories: Subject, Division, Concept, Topic, SubTopic or Sub-SubTopic.

3. Trainer will also distribute three cards to each Trainee. One card will have written on it in large letters easily seen at a distance the word "AGREE". The second card will have written on it in large letters the word "DISAGREE". The third card will have written on it "DON'T KNOW".

4. TRAINEES will review the classifications that are indicated by each item in the List on Handout 7.4. They will place an "A" next to those classifications with which they agree , a "D" next to those classifications with which they disagree and a "DK" next to those about which they have a doubt..

5. On a separate sheet of paper or on the back of the Handout 7.4, Trainees will identify the number of the items with which they disagree. They will indicate their own classification and briefly indicate in writing the rationale and criteria they used to reclassify the item.

6. Working first in pairs or threes within their specialty groups and then with the whole group, trainees will discuss the rationale and criteria they use to decide whether they agree or disagree with a particular item's classification. Then as a group they will agree on sets of attributes, including purposes served, that they use as criteria for classifying an item as Subject, Division, Concept, Topic, SubTopic or Sub-SubTopic.

7. Trainer will call to attention the whole group to review each item. On signal, for each item, the Trainer will ask those who agree with the classification to hold up their "AGREE" card. Those who disagree with the classification will hold up their "DISAGREE" card. Those who have doubts will hold up their "DON'T KNOW" card.

8. Trainer will record on the board or 'news sheet' the rationales elicited from the group in terms of the attributes to be used as criteria for classifying an item in one category or another. Trainer, with the trainees will make a written summary to be referred to in further workshop activities.

Evaluation:

Specialist trainee groups will select a group leader. The leader is responsible to work with the Trainer to develop the list of attributes that can be used as criteria to classify curriculum items in one category or another. They are responsible for reporting the group consensus to the large group. Participants will use their AGREE card or DISAGREE card to indicate their approval or disapproval of the consensus. Trainers will help to resolve any remaining differences.

Quadrant 2, Left Mode

Outcomes: Trainees will construct functional definitions of *Concept Scope and Sequence*. The definitions will operationally relate the three independent underlying ideas, "Concept", "Scope", and "Sequence" so that the definition may be used as a tool to select a Concept and divide it into Topics and Subtopics as the first step in using the TESD process. Trainees will also compare the *Concept Scope and Sequence* document with a Scope and Sequence document developed for children at the same grade levels in other countries. Trainees will positively assess the need for a modern, but culturally sensitive, *Concept Scope and Sequence* for Afghan children as a basis for creating curriculum design, instructional materials, and student texts that are necessary if the Mission Statement is to be implemented.

1. Trainer will distribute Handout 7.5, Defining *Concept Scope and Sequence*.

2. Trainer will indicate that trainees are to: a) consider the dictionary definitions of the three words, "Concept", "Scope', and "Sequence", b) construct a specific definition for the composite idea of *Concept Scope and Sequence*. Trainer will refer trainees to the two definitions of *Concept Scope and Sequence* and ask them to restate those definitions in their own words. Trainer will be sure that their restatements contain all the elements given in the prepared definition contained in Handout 7.5.

3. Trainer will indicate that CONCEPTS with their TOPICS and SUBTOPICS make up the content we want Afghan children to learn. When the concepts are sequenced according to a research-determined depth and breadth of knowledge in a specific subject area is appropriate to be learned by children specific age and grade levels, we have constructed a *Concept Scope and Sequence*. Having constructed it, we are able to select one concept, identify the important topics and subtopics related to it, place it at the center of the 4MAT lesson planning cycle, and plan lessons centered on a "concept unit". The lesson guide is planned using Bernice McCarthy's 4MAT* system.

4. McCarthy's 4MAT is the "flywheel" of Schutte's Total Education Systems Development (TESD) Process. It is a heavy-rimmed rotating wheel used to keep the shaft of the "educational development machine" turning at the steady pace necessary for the reconstruction of the Afghan educational system. 4MAT's force within TESD is centrifugal. Acting outward from a central axis of identified and sequenced concepts, the 4MAT wheel is used to develop more than a lesson plan. It emits:
   a) a Lesson Guide for Teachers and Students, containing the "concept unit" lesson plan,
   b) a Teacher's Academic Resource Book that is necessary to upgrade a teacher's basic propositional, procedural and conditional knowledge and skills if the plan of the lesson is to be implemented,
   c) Student texts, learning aids, and Instructional materials,
   d) a Teacher's Pedagogical Resource Book which uses specific applications to upgrade a Teacher's professional knowledge and skills. These include classroom management. Attention is also given to establishing a proactive environment.
   e) Continuous Assessment and Evaluation Strategies and Techniques.

   In turn, 'a' to 'e', above, form a sound foundation to complete the Total Education Systems Development Process. This foundation allows the development of strategies and tactics necessary for: a) facilitative supervision, and b) outcomes-based, purpose level management and administration.

(Note: 4MAT* is a registered Trademark owned by Excel, Inc. of Barrington, Il. and Bernice McCarthy.)

5 Trainer will distribute (to Trainees as appropriate to their Subject Areas) Handout 7.6, the draft suggested *Afghan Concept Scope and Sequence* for Mathematics or Science. (Social Studies or Language Arts Scope and Sequence documents for grades 1-3 are in appendix.)

9. Trainer will distribute (to Trainees as appropriate to their Subject Areas) Handout 7.7, Scope and Sequence statements from other countries as a basis for comparison. .

10. Trainees will compare and contrast concepts contained in the *Concept Scope and Sequence* suggested for Afghan children with those prescribed for children in other countries. Trainees will use a Think-Pair-Share Strategy to consider the following questions: "If the MISSION STATEMENT IS TO BE IMPLEMENTED, should Afghan Children in Grades 1, 2, 3, or 4 to 6, 7-9, 10-12 have the same opportunity to learn as other children in the world? For example: Should Afghan children in grade one learn to solve addition and subtraction problems containing one and two column numbers? Should Afghan children learn about living and non-living things in grade one science or must they wait until 4th grade? If they must wait until 4th grade, what is the rationale? Would this indicate a (false) belief that Afghan children are not as capable as children in other countries? Trainees should provide a rational argument for their statements. Can "time limits" be used as a rational argument? Who limits time and how do those who limit time in school schedules justify their decisions in terms of children's welfare instead of other criteria?

11. Trainer will list on the board and discuss with the group other questions which are raised in making this comparison between the two scope and sequence statements.

Quadrant 3, Left Mode

Outcomes: Trainees will be able to differentiate between and among concepts, topics, and subtopics found in the suggested Afghan *Concept Scope and Sequence*. Trainee will use previously established criteria to justify the writers choice of the designated categories. Included in the justification, The appropriateness of teaching particular concepts to Afghan learners at the grade level that is under consideration at the moment should be included in the justification..

Trainer Directed Activities

Trainers will group Trainees in their subject area specialty groups

1. Trainees will use the previously distributed Handout 7.6, suggested draft *Afghan Concept Scope and Sequence*. Trainer will read to trainees the paragraph, above, which describes the intended outcome of this exercise.

2. Trainees will: a) study the suggested draft *Afghan Concept Scope and Sequence* and b) will identify specific items and c) will describe those items according to their classification as either a Concept, Topic, Subtopic, or Sub-Subtopic.

Evaluation:

Trainees will justify the classifications used by the writers of the <u>suggested</u> *Afghan Concept Scope and Sequence* previously established criteria, including appropriateness for Afghan learners at the grade level being considered.

Quadrant 3, Right Mode

Outcome: Within each small group which has been established within the Subject Area Groupings of Trainees, the group will agree with Trainer to select one class 1 level Concept with its Topics and/or SubTopics and Sub-Subtopics which is to be developed by the group using the TESD step-by-step process following the TESD Flow Chart.

Trainer Directed Activity:

1. Trainer will group trainees into smaller production groups matched according to their relationship with a designated Specialist Facilitator (SF). Each SF will act as his assigned group's facilitator and mentor during the group production sessions. Each eventually will become the facilitator and mentor for individual Trainees as they produce their individual projects.)

2. Trainees will study the suggested *Concept Scope and Sequence* .

3. Trainees will select, in consultation and agreement with the specialist facilitator, one Concept and will identify the Topics and Subopics related to it which are to be developed using the TESD process.

Evaluation:

Trainees will make their selection. Both individually and as a group, they must be able to agree on the classifications of the selected Concept with its Topics and Subtopics within their Subject and Division. At this point they must not only justify the classifications but they must begin to verbalize their thinking about the possible content to be included in the teaching of the selected Concept with its related Topics and Subtopics.

Quadrant 4, Left Mode

Outcome: Trainers will be able to defend the validity for Afghan children in class 1.of the Concept (with its Topics and Subtopics) they have selected to develop.

Trainer Directed Activities.

1. Trainees, working in their small group within their subject area specialty, will construct rational arguments to defend the validity of the chosen Concept, Topics and SubTopics for Afghan children in class one. The rationale should be based on a) established criteria and comparison with what children in other countries are learning in the same subject at the same class level, b) establishing a rationale justifying the teaching of the selected concept to meet the special needs of Afghan children.

Evaluation:

Agreement by peers and Specialist Facilitator concerning the validity of the justification in terms of comparing Afghan children to other children in the world and meeting any special needs which Afghan children have due to the war or other reasons.

Quadrant 4, Right Mode

Trainees will convince others that the concepts they chose as well as others in the suggested *AfghanConcept Scope and Sequence* are valid for Afghan learners in Classes 1, 2, and 3 and that they are able, using the same trainee active methods as were used with them, to transfer to Teachers inside Afghanistan, faithfully and without distortion, the information contained in Chapter 2 of this Trainers Manual

Outcomes:

1. Trainer will group trainees within their subject specialties in groups of 3, 4, or 5.

2. Trainees will review Chapter 2 of the Trainers Manual as well as the Handouts which accompany the manual.

3. Trainees will return to Handout 7.4. (Think-Pair-Share Strategy). They will complete the last column on the form, i.e., What I have learned about Concept Scope and Sequence, and share their new knowledge first with their neighbor and, then, with the larger group of subject specialists.

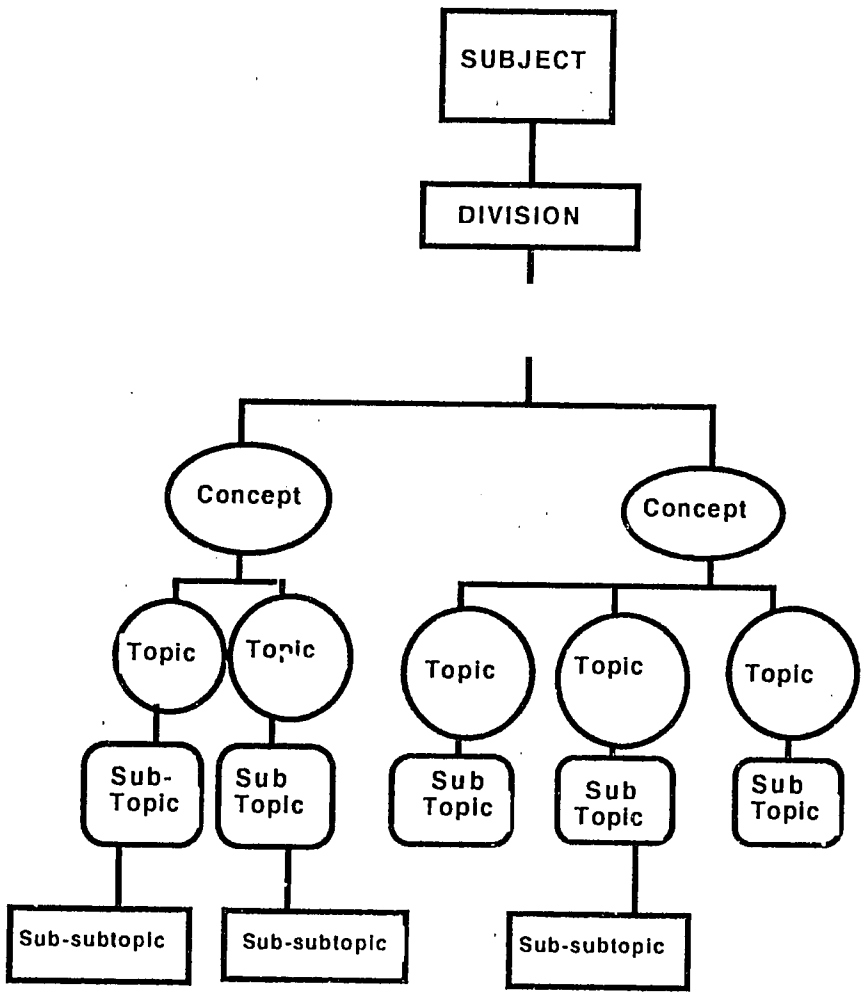
4. Trainees will select one or two partners. They will use the information in the Trainers Manual and from item 3, above, to role play transferring that information to Head Teachers and Teachers inside Afghanistan.

Evaluation:

Trainees will keep a Journal indicating both their successes and their problems in transferring the information to others during the role playing exercises. The Journals will be shared with the large group. Where there are still problems to be resolved the Specialist Facilitators and UNO/ESSP Staff will help to resolve them. Solutions will be recorded in the Journal for future reference.

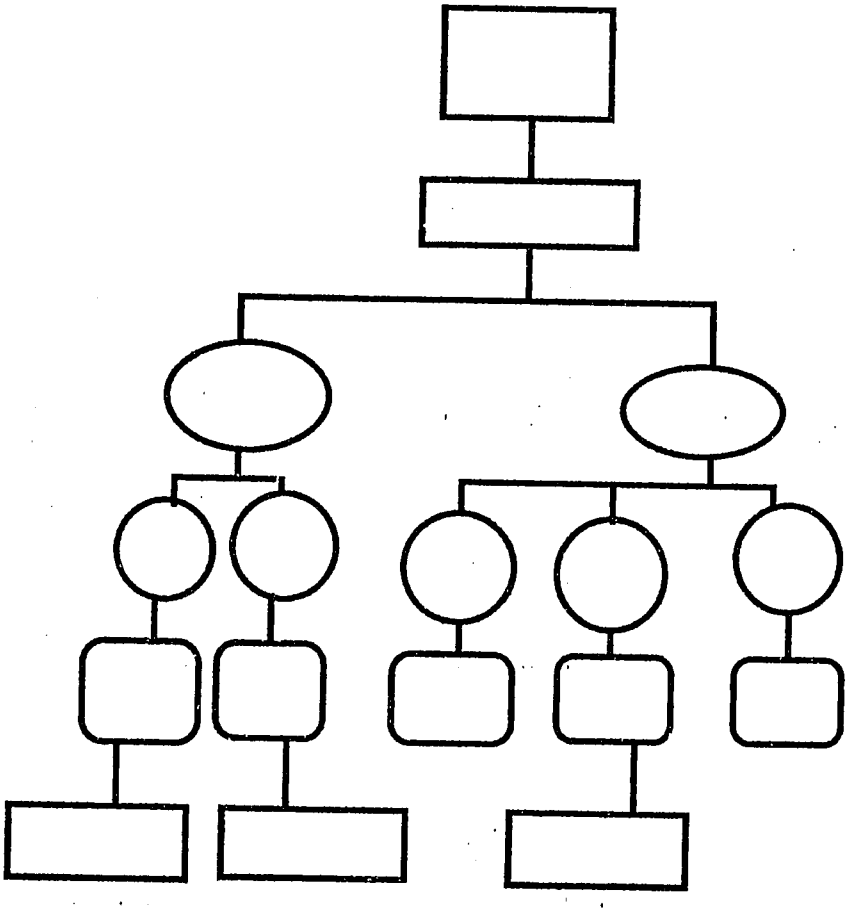
HIERARCHY OF *CONCEPT SCOPE AND SEQUENCE* TERMS

(See Instructions on Reverse before studying this diagram)



HIERARCHY OF *CONCEPT SCOPE AND SEQUENCE* TERMS

Instructions: Given the terms *SUBJECT, DIVISION, CONCEPT, TOPIC, SUBTOPIC , & SUB-SUBTOPIC* , you are to indicate their order. Write in the blanks below which term is subordinate** to the other terms. Check your answers with those on the rev side of this sheet (Handout 7.1.1). Discuss your answers and any differences you had your classifications, first with your neighbor and then with the large group.



**Subordinate means to place in order of inclusiveness from most to least inclus
The least inclusive is subordinate to the most inclusive.

Chapter 2: Handout 7.2 (Q1, RM--paragraph 1.3)

Concept Scope & Sequence Items for Classification

INSTRUCTIONS: From the list below, discriminate among Subjects, Divisions, Concepts, Topics or Subtopics. Place an "X" in the box which seem to you to be subjects? divisions? concepts? topics? subtopics? Is it possible there could be valid disagreement among professionals about which category to place an item in? What criteria did you use to make decisions as to whether to place an item in one category or another? Would it make any diference in your choice of classification if the curriculum item is to be placed the a concept scope and sequence at differen t grade levels? What is the reason can you give for the difference, if there is a difference.

CATEGORIES					ITEMS
Subject	Division	Concept	Topic	Subtopic	
					Mechanics
					Use & Misuse of Earth
					Physical Science
					Addition
					Social Studies
					Plant Use
					Consumers
					Rhyming Words
					Science
					Reading Whole Numbers
					Grammar
					Question Words
					Body Parts of Animals
					Physics
					Producers
					Punctuation
					Political Systems
					Community
					Comprehension/Critique
					Islamic Democracy
					Free Speech
					Food Chain
					Language Arts
					Interdependency
					North, South, East, West
					Missing Addends
					Safety
					Human Rights
					Medicine
					Literary Appreciation
					Poisons
					Informational Reading
					Map Symbols
					Mathematics

Chapter 2: Handout 7.3 (Q1,LM-paragraph 3)

CONCEPT SCOPE AND SEQUENCE
K-W-L FORM FORM FOR ATTAINING AND FORMULATION DEFINITIONS

	WHAT DO I KNOW ABOUT	WHAT DO I WANT TO KNOW ABOUT	WHAT HAVE I LEARNED ABOUT.....
CONCEPTS			
SCOPE			
SEQUENCE			

Chapter 2: Handout 7.4 (Q2, RM-paragraph 2)

Concept Scope and Sequence Subject Area List For Classification

INSTRUCTIONS: Select your own subject area. Categorize the items under the subject heading by placing a letter in front of the item. "D" = Division ,"C" = Concept, "T" = Topic, "ST" = SubTopic, and "SST" = Sub-SubTopic

Mathematics

____	T	Addition
____	C	Whole Number Operations and Computation
____	ST	Missing addends
____	ST	Column Addition
____	SST	Patterns
____	T	Place Value
____	ST	Prime Numbers
____	SST	Zero
____	ST	Common Denominator
____	T	Ratio
____	T	Division of Whole Number
____	T	Areas
____	ST	Pythagorean Theory
____	T	Decimals
____	D	Geometry

Science

____	C	Animals
____	D	Life Science
____	T	Kinds of Animals
____	T	Habitat
____	C	Land
____	ST	Polar
____	ST	Mammals
____	T	Soil
____	ST	Desert
____	ST	Clay
____	ST	Birds
____	T	Earth & Sun
____	T	Water
____	T	Season
____	T	Planets
____	ST	Mass

Social Studies

____	T	Symbols
____	C	Location
____	T	Direction
____	ST	Map Symbols
____	T	Oceans
____	C	Land and Water
____	T	Land Forms
____	T	Continents
____	ST	Forests
____	C	Hemispheres
____	ST	Deserts
____	T	Longitude
____	ST	North Pole
____	T	Islands
____	T	Leaders
____	D	Geography
____	C	Afghanistan
____	C	Culture and Society
____	T	Pre Islamic Afghanistan

Language Arts

____	C	Speaking
____	T	Choral Reading
____	T	Reciting
____	T	Dramatization
____	D	Literature
____	D	Comprehension
____	D	Vocabulary
____	C	Writing
____	T	Exposition
____	C	Punctuation
____	C	Parts of Speech
____	T	Group Discussion
____	T	Verbs
____	T	Question words
____	ST	Active Verbs
____	T	Poetry
____	ST	Rhyming Words
____	T	Critique
____	ST	Intransitive Verb

Chapter 2: Handout 7.5 (Q2, Left Mode--paragraph 1)

K-W-L Strategy

DEFINITION = CONCEPT + SCOPE + SEQUENCE = Concept Scope and Sequence

K= WHAT DO I KNOW ABOUT:

W = WHAT DO I WANT TO KNOW ABOUT:

L = WHAT HAVE I LEARNED ABOUT:

Learning to make meaning of our world means making connections, means moving from wholes to parts or parts to wholes. If we already know something about the whole, then we may learn more by analyzing its parts. If we already know something about the parts, then we may learn more through synthesizing to make a whole. In this case what we want to know is the definitions of the idea *Concept Scope and Sequence*. We begin by thinking about what we know about each term that makes up the idea. Thenwe go to the dictionary to get the broad or generalized meaning of each of the terms. The next step is to apply those general meanings to our specific case. Since this concept contain multiple terms it means we must synthesize both general and specific meanings to define it.

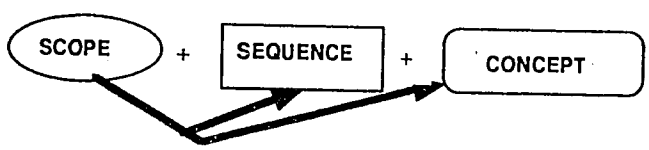
Dictionary Definitions: (Those appropriate for our purpose here are marked with **)

Scope = 1) The range of one's perceptions, thought, or actions; 2) Breadth or opportunity to function; **3) The area covered by a given activity or subject

Sequence = **1) A following of one thing after another; succession; 2) An order of succession ; arrangement; 3) a related or continuous series.

Concept = **1) A general idea or understanding, especially one derived from specific instances.

Synthesis



Specific Definition for Idea of *Concept Scope and Sequence*

The content area of propositional, procedural, and conditional knowledge, skills, attitudes and values (CONCEPTS) that a) covers a specified depth and breadth of information in a given subject area (SCOPE) and b) is sequenced in ordered relationships between and among concepts between and within specific grade levels (SEQUENCE).

OR

The breadth and depth of the content area covered (SCOPE) with respect to a concept and its related topics, and subtopics (CONCEPT) ordered by the sequence in which it is to be presented to learners at and within specific grade levels (SEQUENCE).

DRAFT

MATHMATICS DEPARTMENT

SUBJECT:: Mathematics

Concept Scope and Sequence

For

Grades 1-2-3

Prepared by

UNO/ESSP

Specialist Facilitators, Advised by UNO Staff

JUNE, 1993

To be Submitted to Dr. Boardman and Prof. Azimi
for Approval and Forwarding to ECA for Review, Recommendations and Approval

Concept scope and sequence | مفهوم وسعت و تسلسل | دوسعت او تسلسل مفهوم

Subject: Mathematics | مضمون : ریاضی | مضمون : ریاضی

Grade level: 1-2-3- | صنوف: ۱-۲-۳ | تولګیو: (۱ـ۲ـ۳)

First Division: Arithmetic | بخش اول : حساب | لړی برخه : شمیر

English انګلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
1: Number and Number theory	۱: عدد و نظریه عدد	۱: عدد او عددی نظریه			
1.1: Counting	۱.۱: شمار کردن	۱.۱: شمیرل			
1.1.1: Counting Numbers from (1-99)	۱.۱.۱: شمار کردن اعداد از (۱تا ۹۹)	۱.۱.۱: داعدادو شمیر (۱ـ۹۹)	X		
1.1.2: Counting Numbers from(100-999)	۲.۱.۱: شمار کردن اعداد از (۱۰۰ تا ۹۹۹)	۲.۱.۱: داعدادو شمیر (۱۰۰ـ۹۹۹)		X	
1.1.3: Counting Numbers form (1000-9999)	۳.۱.۱: شمار کردن اعداد از (۱۰۰۰ تا ۹۹۹۹)	۳.۱.۱: داعدادو شمیرل له (۱۰۰۰ تر۹۹۹۹) پوری			X
1.2: One -to- one Corespondence	۲.۱: مطابقت یك ـ به ـ یك	۲.۱: یو ـ په ـ یو مطابقت	X	X	X
1.3: Ordinal and Cardinal Numbers	۳.۱: اعداد اصلی و ترتیبی	۳.۱: اصلی او ترتیبی عددونه	X	X	X
1.4: Reading and writing Numbers	۴.۱: خواندن و نوشتن اعداد	۴.۱: داعداو لوستل او لیکل			
1.4.1: Reading and writing Numbers from (1-99)	۱.۴.۱: خواندن و نوشتن اعداد از (۱ تا ۹۹)	۱.۴.۱: داعدادو لوستل او لیکل له (۱تر۹۹) پوری	X		
1.4.2: Reading and writing Numbers from (100-999)	۲.۴.۱: خواندن و نوشتن اعداد از(۱۰۰ تا۹۹۹)	۲.۴.۱: داعداو لوستل او لیکل له (۱۰۰ تر ۹۹۹) پوری		X	
1.4.3: Reading and writing Numbers from (1000-9999)	۳.۴.۱: خواندن و نوشتن اعداد از (۱۰۰۰ تا ۹۹۹۹)	۳.۴.۱: داعدادو لوستل او لیکل له (۱۰۰۰ تر۹۹۹۹) پوری			X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
1.5: Place Value of Whole Numbers	۱.۵: قیمت مقامی اعداد کل	۱.۵: دبشپر اعدادو مقامی قیمت:			
1.5.1: Place Value of Whole Numbers from (1-99)	۱.۵.۱: قیمت مقامی اعداد کل از (۱تا ۹۹)	۱.۵.۱: دبشپر اعدادو مقامی قیمت له (۱تر۹۹) پوری	X		
1.5.2: Place Value of Whole Numbers from (100 - 999)	۲.۵.۱: قیمت مقامی اعداد کل از(۱۰۰ تا۹۹۹)	۲.۵.۱: دبشپر اعدادو مقامی قیمت له (۱۰۰ تر ۹۹۹) پوری		X	
1.5.3: Place Value of Whole Numbers from (1000- 9999)	۳.۵.۱: قیمت مقامی اعداد کل از (۱۰۰۰ تا ۹۹۹۹)	۳.۵.۱: دبشپر اعدادو مقامی قیمت له (۱۰۰۰ تر ۹۹۹۹) پور			X
1.6: Compare and Order of Whole Numbers	۶.۱: مقایسه و ترتیب اعداد کل	۶.۱: دبشپر اعدادو پرتله او ترتیبول	X	X	X
1.7: Rounding Whole Numbers to nearest tens	۷.۱: تخمین کردن اعداد کل به نزدیکترین ده ها	۷.۱: دبشپر اعدادو اتکل ددیر نژدی لسیزونو سره			X
1.8: Patterns and Relationships of Numbers	۸.۱: نمونه ها و روابط اعداد	۸.۱: داعدادو نمونی او اریکی	X	X	X
1.9: Understanding of Sets	۹.۱: دانستن ست ها	۹.۱: دستونو زده کړه	X	X	
1.10: Similar Sets	۱۰.۱: ست های مشابه	۱۰.۱: ورته ستونه			X
1.11: Assessment	۱۱.۱: بررسی	۱۱.۱: بررسی	X	X	X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
2: Whole Numbers Operation	۲: عملیات عدد کل	۲: عدد او عددی نظریه			
2.1: Addition	۱.۲: جمع	۱.۲: جمع			
2.1.1: Understanding Concept of Addition by using (+and =) Symbols	۱.۱.۲: دانستن مفهوم جمع با استفاده از علامه های (+ و =)	۱.۱.۲: دجمعی پر مفهوم پوهیدل او د(+ او =) نسو په کار اچول	X	X	X
2.1.2: properties of Whole Numbers	۲.۱.۲: خاصیت های اعداد کل	۲.۱.۲: دبشپړ اعدادو خواص	X	X	X
2.1.2.1: Commutative property	۱.۲.۱.۲: خاصیت تبدیلی	۱.۲.۱.۲: دبدلولو خاصیت	X	X	X
2.1.2.2: Zero property	۲.۲.۱.۲: خاصیت صفر	۲.۲.۱.۲: دصفر خاصیت	X	X	X
2.1.2.3: Associastive Property	۳.۲.۱.۲: خاصیت دسته بندی	۳.۲.۱.۲: دګیدی کولو خاصیت	X		X
2.1.3: Basic Numbers Facts	۳.۱.۲: حقایق اساسی اعداد	۳.۱.۲: داعدادو بنیادی حقایق	X	X	X
2.1.4: Missing Addends	٤.۱.۲: اجزای نامعلوم (غائب) جمع	٤.۱.۲: دجمعی غایب اجزاوی	X	X	X
2.1.5: Column Addition (1 and 2) and (2 and 2) digit Numbers without regrouping	٥.۱.۲: جمع ستون اعداد (۱ و ۲) و (۲و۲) رقمی بدون حاصل	٥.۱.۲: دستونی اعدادو جمع (۱ او ۲) او (۲ او۲) رقمی پرته له حاصله	X	X	X
2.1.6: Column Addition (2 and 1) and (2 and 2) and (3 and 3) digit Numbers with Regrouping	٦.۱.۲: جمع ستونی اعداد (۲ و۱)، (۲ و ۲) و (۳ و۳) رقمی با حاصل	٦.۱.۲: دستونی اعدادو جمع (۲ او۱)، (۲ او۲) او (۳ او۳) رقمی له حاصل سره		X	X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
2.1.7: Column Addition Greater than 3digit Numbers up to 9999	۲.۱.۷: جمع اعداد بزرگتر ازسه رقمی تا ۹۹۹۹	۲.۱.۷: دهغو لوپو اعدادو جمع چې له دری رقمی اعدادو خخه لوی او تر۹۹۹۹ پوری وړسیزی			X
2.1.8: Estimating Sums	۲.۱.۸: تخمین نمودن حاصل جمع	۲.۱.۸: دجمعې اټکل حاصل		X	X
2.1.9: Mental Addition	۲.۱.۹: جمع ذهنی	۲.۱.۹: ذهنی جمع	X	X	X
2.1.10: Checking Addition	۲.۱.۱۰: میزان کردن جمع	۲.۱.۱۰: دجمعې میزان		X	X
2.1.11: Assessment	۲.۱.۱۱: بررسی	۲.۱.۱۱: بررسی	X	X	X
2.2: Subtraction:	۲.۲: منفی	۲.۲: منفی			
2.2.1: Understanding Concept of Subtraction by using (- ,=) Symbols	۲.۲.۱: دانستن مفهوم منفی با استفاده علامه های (-- و =)	۲.۲.۱: دمنفی په مفهوم پوهیدل او (ـ ، =) نسو په کار اچول	X	X	X
2.2.2: Missing Subtrahends	۲.۲.۲: جزهای نامعلوم (غائب) تفریق	۲.۲.۲: دتفریق غایب اجزا	X	X	X
2.2.3: Column Subtraction (1 and 1) and (1 and 2) digit Numbers without Regrouping	۲.۲.۳: تفریق ستونی اعداد (۱و ۱) و (۱ و ۲) رقمی بدون حاصل	۲.۲.۳: دستونی اعدادو تفریق (۱ او۱) او (۱ او ۲) رقمی پرته له حاصله	X	X	X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
2.2.4: Column Subtraction (1 and 2), (2 and 2) and (2 and 3) digits with Regrouping	٤.٢.٢: تفریق ستونی اعداد (۲ و۱)، (۲ و ۲) و و (۲ و۳) رقمی با حاصل	٤.٢.٢: دستونی اعدادو تفریق (۲ او۱) ، (۲ او۲) او(۲ او۳) رقمی له حاصله سره		X	X
2.2.5: Column Subtraction greater than 3 digit Numbers up to 9999	٥.٢.٢: تفریق ستونی اعداد بزرگ تر ازسه رقمی الی ۹۹۹۹	٥.٢.٢: دستونی اعدادو تفریقول چه له دری رقمی ۹۹۹۹ خخه لوی وی			X
2.2.6: Estimation Diffrences	٦.٢.٢: تخمین کردن حاصل تفریق ها	٦.٢.٢: دتفریق دحاصل اتکلول		X	X
2.2.7: Mental Subtraction	٧.٢.٢: تفریق ذهنی	٧.٢.٢: ذهنی تفریق	X	X	X
2.2.8: Assessment	٨.٢.٢: بررسی	٨.٢.٢: بررسی	X	X	X
2.3: Multiplication	٣.٢: ضرب	٣.٢: ضرب			
2.3.1: Understanding Concept of Multiplication	١.٣.٢: دانستن مفهوم ضرب	١.٣.٢: دضرب په مفهوم پوهیدل	X		
2.3.2: Multiplication by using (x and=) Symbols	٢.٣.٢: ضرب با استفاده از علامه های (x و=)	٢.٣.٢: په ضرب کښی د(x او =) علامو خخه ګته اخیستل		X	X
2.3.3: Basic Number Facts	٣.٣.٢: حقایق اساسی اعداد	٣.٣.٢: داعدادو بنیادی حقایق		X	X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
2.3.4: Properties of Whole Numbers	۲.۳.٤: خاصیت های اعداد کل	۲.۳.٤: دبشپر اعدادو خاصیتونه			
2.3.4.1: Cummutative property	۲.۳.٤.۱: خاصیت تبدیلی	۲.۳.٤.۱: دبدلول خاصیت		X	X
2.3.4.2: Identity property	۲.۳.٤.۲: خاصیت عینیت	۲.۳.٤.۲: دعینیت خاصیت		X	X
2.3.4.3: Associative property	۲.۳.٤.۳: خاصیت دسته بندی	۲.۳.٤.۳: دگیدی کولو خاصیت		X	X
2.3.5: Missing Factors	۲.۳.۵: جزهای نامعلوم (غائب) اجزای ضربی	۲.۳.۵: دضربی اجزاو غائب فکتورونه			X
2.3.6: Multiplication with and without Regrouping	۲.۳.٦: ضرب با و یا بدون حاصل	۲.۳.٦: ضرب دحاصل اوپرته له حاصل خخه			X
2.3.7: Estimation Products	۲.۳.۷: تخمین کردن حاصل ضرب ها	۲.۳.۷: دحاصل ضرب اتکل کول			X
2.3.8: Column Mulitiplication (1 and 1) digit Numbers	۲.۳.۸: ضرب ستون اعداد (۱ـ۱) رقمی	۲.۳.۸: دستونی اعدادو ضرب (۱ـ۱) رقمی		X	X
2.3.9: Checking Mulitiplication	۲.۳.۹: امتحان کردن ضرب	۲.۳.۹: دضرب میزان			X
2.3.10: Mental Mulitiplication	۲.۳.۱۰: ضرب ذهنی	۲.۳.۱۰: ذهنی ضرب			X
2.3.11: Assessment	۲.۳.۱۱: بررسی	۲.۳.۱۱: بررسی	X	X	X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
2.4: Division	۲.٤.: تقسیم	۲.٤.: ویش			
2.4.1: Understanding Concept of Division by using (÷, =) Symboles	۲.٤.۱: دانستن مفهوم تقسیم با استفاده از علامات (÷ ، =)	۲.٤.۱: دویش پر مفهوم پوهیدل او د (÷، =) نسو په کارولو		X	X
2.4.2: Basic Facts	۲.٤.۲: حقایق اساسی	۲.٤.۲: بنیادی حقایق			X
2.3.4: Missing Factors	۲.٤.۳: جزهای نامعلوم (غایب) تقسیم	۲.٤.۳: دویش غایب اجزاء			X
2.4.4: Dividing with and without Remainders	۲.٤.٤: تقسیم با و یا بدون باقیمانده	۲.٤.٤: ویش دباقی او پرته له باقی سره			X
2.4.5: Dividing by one digit Number Divisor	۲.٤.٥: تقسیم با قاسم (مقسوم علیه) عدد یك رقمی	۲.٤.٥: ویش دیر رقمی عدد مقسوم علیه پواسطه			X
2.4.6: Understanding of Remainder	۲.٤.٦: دانستن باقیمانده	۲.٤.٦: دباقیمانده پیژندنه			X
2.4.7: Rules for Dividing Numbers by 2, 5 and 10	۲.٤.۷: قوانین برای تقسیم کردن اعداد به ۲، ۵ و ۱۰	۲.٤.۷: پر۲، ۵ او۱۰ باندی دویشولو قاعدی			X
2.4.8: Mental Division	۲.٤.۸: تقسیم ذهنی	۲.٤.۸: ذهنی ویش			X
2.4.9: Checking Division	۲.٤.۹: امتحان کردن تقسیم	۲.٤.۹: دویش میزان			X
2.4.10: Assessment	۲.٤.۱۰: بررسی	۲.٤.۱۰: بررسی			X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
3: Fractions	۳: کسرها	۳: کسرونه			
3.1: Parts of Groups and Parts of Regions	۳.۱: حصه های گروپ ها و ساحه ها	۳.۱: دګروپونو برخې او سیمې	X	X	X
3.2: Reading and Writing Fraction	۳.۲: خواندن و نوشتن کسرها	۳.۲: دکسرونو لوستل او لیکل		X	X
3.3: Representing Fractions on a Number Line	۳.۳: نشان دادن کسرها بالای خط اعداد	۳.۳: دکسرونو سودل پر عددی کرښوباندې			X
3.4: Reading and Writing Mixed Fractions	۳.٤: خواندن و نوشتن کسرهای مخلوط	۳.٤: دمخلوط کسرونو لوستل او لیکل			X
3.5: Equivalent Fractions	۳.٥: کسرهای معادل	۳.٥: معادل کسرونه			X
3.6: Comparing and Ordering Fractions	۳.٦: مقایسه و ترتیب کردن کسرها	۳.٦: دکسرونو پرتله او ترتیبول			X
3.7: Assessment	۳.۷: بررسی	۳.۷: بررسی	X	X	X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
4: Decimal Numbers	٤: اعداد اعشاری	٤: اعشاری اعداد			
4.1: Understanding Concept of Decimal	١.٤: دانستن مفهوم اعشاریه	١.٤: په اعشاری مفهوم پوهیدل			X
4.2: Relating Fraction and Decimal	٢.٤: ارتباط کسر و اعشاریه	٢.٤: دکسر او اعشاری اعدادو ارتباط			X
4.3: Place Value of Decimal Numbers	٣.٤: قیمت مقامی اعداد اعشاریه	٣.٤: داعشاری اعدادو مقامی ارزښت			X
4.4: Comparing and Ordering Decimal Numbers	٤.٤: مقایسه و ترتیب کردن اعداد اعشاریه	٤.٤: داعشاری اعداو ترتیبول او پرتله کول			X
4.5: Assessment	٥.٤: بررسی	٥.٤: بررسی			X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
5: Units	۵: واحد ها	۵: واحدونه			
5.1: Length Unit	۱.۵: واحد طول	۱.۵: داوزدوالی واحد			
5.1.1: Using other Units to Measure	۱.۱.۵: استفاده کردن دیگر واحد ها برای اندازه گیری	۱.۱.۵: داندازه کولو لپاره دنورو واحدونو استعمالول	X	X	X
5.1.2: Using Metric Units to Measure	۲.۱.۵: استفاده کردن واحد های متریك برای اندازه گیری	۲.۱.۵: داندازه کولو لپاره دنورو متریك واحددنو استعمالول	X	X	X
5.1.3: Estimating Length	۳.۱.۵: تخمین طول	۳.۱.۵: داوزدوالی اتکل	X	X	X
5.1.4: Assessment	٤.۱.۵: بررسی	٤.۱.۵: بررسی	X	X	X
5.2: Mass/Weight Unit	۲.۵: واحد کتله/ وزن	۲.۵: کتله/ دروندوالی			
5.2.1: Using other Units to Measure	۱.۲.۵: استفاده کردن دیگر واحدها برای اندازه گیری	۱.۲.۵: داندازه کولو لپاره دنورو واحدونو استعمالول	X	X	X
5.2.2: Using Metric Units to Measuer	۲.۲.۵: استفاده کردن واحد های متریك برای اندازه گیری	۲.۲.۵: داندازه کولو لپاره دمتریك واحدونو استعمالول	X	X	X
5.2.3: Estimating Weight	۳.۲.۵: تخمین کردن وزن	۳.۲.۵: دوزن اتکل	X	X	X
5.2.4: Assessment	٤.۲.۵: بررسی	٤.۲.۵: بررسی	X	X	X

(11)

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
5.3: Volume Unit	۳.۵: واحد حجم (ظرفیت)	۳.۵: د حجم واحد			
5.3.1: Using other Units to Measure	۱.۳.۵: استفاده کردن دیگر واحد ها برای اندازه گیری	۱.۳.۵: داندازه کولو لپاره دنورو واحدونو استعمالول	X	X	X
5.3.2: Using Metric Units to Measure	۲.۳.۵: استفاده کردن واحد های متریك برای اندازه گیری	۲.۳.۵: داندازه کولو لپاره دمتریك واحدونو استعمالول	X	X	X
5.3.3: Estimating Volume	۳.۳.۵: تخمین کردن حجم (ظرفیت)	۳.۳.۵: د حجم اتکلول	X	X	X
5.3.4: Assessment	۴.۳.۵: بررسی	۴.۳.۵: بررسی	X	X	X
5.4: Time Unit	۴.۵: واحد وقت	۴.۵: وخت واحد			
5.4.1: Understanding Concepts of	۱.۴.۵: آموختن مفهوم های	۱.۴.۵: دمفهوم زده کره			
5.4.1.1: Hour	۱.۱.۴.۵: ساعت	۱.۱.۴.۵: گری	X	X	X
5.4.1.2: Half an hour	۲.۱.۴.۵: نیم ساعت	۲.۱.۴.۵: نیمه گری	X	X	X
5.4.1.3: Minute	۳.۱.۴.۵: دقیقه	۳.۱.۴.۵: دقیقه		X	X
5.4.1.4: Second	۴.۱.۴.۵: ثانیه	۴.۱.۴.۵: ثانیه			X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
5.4.2: Estimting Time	۵.٤.۲: تخمین کردن وقت	۵.٤.۲: دوخت اتکلول	X	X	X
5.4.3: Understanding of Day,Week, Month, Season and Year	۵.٤.۳: آموختن روز، هفته، ماه، فصل و سال	۵.٤.۳: دورحی، اونی، میاشتی، موسم اوکال زده کره	X	X	X
5.4.4: Relating Units of Times	۵.٤.٤: ارتباط دادن واحد های وقت	۵.٤.٤: دوخت دواړه اتو اریکی		X	X
5.4.5: Elapse Time (Day,Week,Month, Season and Year)	۵.٤.۵: گذشت زمان در روز، هفته، ماه، فصل و سال	۵.٤.۵: دوخت تیریدل (ورح، اونی)، میاشت، موسم اوکال)	X	X	X
5.4.6: Using Calendar	۵.٤.٦: استعمال جنتری	۵.٤.٦: دکلیز (جنتری) استعمال		X	X
5.4.7: Assessment	۵.٤.۷: بررسی	۵.٤.۷: بررسی	X	X	X
5.5: Money	۵.۵: پول	۵.۵: پیسی			
5.5.1: Identifying Coins	۵.۵: شناختن سکه ها	۵.۵.۱: دسیکو پیژندنه	X	X	X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
5.5.1.1: Use of Coins	۱.۱.۵.۵: استعمال سکه ها	۱.۱.۵.۵: دسکو استعمالول	X	X	X
5.5.1.2: Making Change	۲.۱.۵.۵: تبدیل سکه	۲.۱.۵.۵: دسکی ماتول	X	X	X
5.5.2: Identifying Bills	۲.۵.۵: شناختن بانکنوت ها	۲.۵.۵: دبانکنوتونو پیژندنه	X	X	X
5.5.2.1: Using Bills	۱.۲.۵.۵: استفاده کردن بانکنوت ها	۱.۲.۵.۵: دبانکنوتونو استعمالول	X	X	X
5.5.2.2: Changing of Bills	٤.۲.۵.۵: تبدیل کردن بانکنوت ها	٤.۲.۵.۵: دبانکنوتونو ماتول		X	X
5.5.2.3: Making Change and Using Coins	۳.۲.۵.۵: تبدیل سکه ها و بانکنوت ها	۳.۲.۵.۵: دسکی او باکنوتونو ماتول		X	X
5.5.3: Assessment	۳.۵.۵: بررسی	۳.۵.۵: بررسی	X	X	X

Second-Division: Geometry

بخش دوم : هندسه

دوهمه برخه: هندسه

Sub- division-I- Plane Geometry

بخش فرعی I ـ هندسه مسطحه

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
6: plane Geometry	٦: هندسه مسطحه	٦: مسطحه هندسه			
6.1: Identifying plane Figures	١.٦: شناختن اشکال مسطحه	١.٦: دمسطح اشکالو پېژندنه	X	X	X
6.2: Pattern of Geometric Figures	٢.٦: اشکال هندسی نمونه یی	٢.٦: دهندسی اشکالو نمونی		X	X
6.3: Point, Line, Line-Segement and plane	٣.٦: نقطه، خط، قطعه خط و سطح	٣.٦: تکی، کرسه، قطعه کرسه، او سطح			X
6.4: Angles, Rays, Vertixes	٤.٦: زاویه ها، شعاعها، راس ها	٤.٦: زاویی، شعاری، خوکه (راس)			X
6.5: Classifying Angles	٥.٦: تصنیف کردن زاویه ها	٥.٦: دزاویو تصنیفول			X
6.6: Classifying Polygons	٦.٦: تصنیف کردن کثیر الاضلاع ها	٦.٦: دکثیر الاضلاعو تصنیفول			X
6.7: Congruent Figures	٧.٦: اشکال انطباق پذیر	٧.٦: دانطباق ور شکلونه			X
6.7: Symmetry	٨.٦: تناظر	٨.٦: تناظر		X	X
6.9: Assessment	٩.٦: بررسی	٩.٦: بررسی		X	X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
7. perimeter and Area Units	۷. واحد های محیط و مساحت	۷. دمحیط او مساحت واحدونه			
7.1: perimeter Unit	۷.۱: واحد محیط	۷.۱: دمحیط واحد	X	X	X
7.1.1: Using Concrete Models	۷.۱.۱: استفاده کردن مودل های عینی	۷.۱.۱: دعینی مودلونو استعمال		X	X
7.1.2: Measuring perimeter of Object and Geometric Fignres	۷.۱.۲: اندازه گیری کردن محیط اجسام و اشکال هندسی	۷.۱.۲: داجسامو دمحیط او هندسی اشکالو اندازه کول			X
7.1.3: Estimanting perimeter of Object and Geometric Figures	۷.۱.۳: تخمین کردن محیط اجسام و اشکال هندسی	۷.۱.۳: داجسامو دمحیط او هندسی اشکالو اتکلول			X
7.1.4: Assessment	۷.۱.٤: بررسی	۷.۱.٤: بررسی	X	X	X
7.2: Area Unit	۷.۲: واحد مساحت	۷.۲: دمساحت واحد			
7.2.1: Using Concrete Models	۷.۲.۱: استفاده کردن مودل های عینی	۷.۲.۱: دعینی مودلونو استعمالول			X
7.2.2: Measuring Areas of	۷.۲.۲: اندازه گیری نمودن مساحت های	۷.۲.۲: دساحی اندازه کول			X
7.2.2.1: Squares and Rectangle	۷.۲.۲.۱: مربع و مستطیل	۷.۲.۲.۱: مربع او مستطیل			X
7.2.2.2: Irregular Figures	۷.۲.۲.۲: اشکال غیر منظم	۷.۲.۲.۲: غیر منظم شکلونه			X
7.2.3: Estimating	۷.۲.۳: تخمین کردن	۷.۲.۳: اتکل کول			X
7.2.4: Assessment	۷.۲.٤: بررسی	۷.۲.٤: بررسی			X

Sub- Division II: Space Geometry — بخش فرعی II : هندسه مجسمه — II ـ برخه : مجسمه هندسه

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
8: Space Geometry	۸. هندسه مجسمه	۸. مجسمه هندسه			
8.1: Identifying Space Figures	۸.۱: شناختن اشکال مجسم	۸.۱: دمجسم اشکالو پیژندنه	X	X	X
8.2: Using Concrete Models	۸.۲: استفاده کردن مودل های عینی	۸.۲: دعینی مودلونو استعمالول		X	X
8.3: Assessment	۸.۳: بررسی	۸.۳: بررسی	X	X	X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
9: Probabilities	۹: احتمالات	۹: احتمالات			
9.1: Uderstanding Concept of Probabilities	۱.۹: دانستن مفهوم احتمالات	۱.۹: داحتمالاتو بر مفهوم پوهیدل	X	X	X
9.2: Conducting Experiments of Sample Events	۲.۹: تنظیم کردن تجارب حادثه های ساده	۲.۹: دساده حوادثو تجربه او تنظیمول	X	X	X
9.3: Making prediction	۳.۹: پیشبینی کردن	۳.۹: پیشبینی کول	X	X	X
9.4: Assessment	٤.۹: بررسی	٤.۹: بررسی	X	X	X

English انگلیسی	Dari دری	Pashto پشتو	Grd.1 صنف ۱	Grd.2 صنف ۲	Grd. 3 صنف ۳
10 : Statistics	۱۰: احصائیه	۱۰: احصائیه			
10.1: Collecting and Organizing datas	۱.۱۰: جمع آوری و تنظیم نمودن معلومات	۱.۱۰: دمعلوماتو تولول او تنظیمول	X	X	X
10.1.1: Taking Survey	۱.۱.۱۰: سروی نمودن	۱.۱.۱۰: سروی کول	X	X	X
10.2: Recording and Interpreting Datas	۲.۱۰: تثبیت و تعبیر نمودن معلومات	۲.۱۰: دمعلوماتو تثبیت او تعبیرول	X	X	X
10.2.1: Making and Using Tally Marks	۱.۲.۱۰: ساختن و استفاده کردن علامه های چوب خط (تالی)	۱.۲.۱۰: دچوب خط (تالی) دنسو جوړول او استعمال	X	X	X
10.2.2: Making and Using Tables and Charts	۲.۲.۱۰: ساختن و استفاده کردن جدول ها و چارت ها	۲.۲.۱۰: دجدولونو او چارتونو جوړول او استعمال	X	X	X
10.2.3: Making and Using Graphs	۳.۲.۱۰: ساختن و استفاده کردن گراف ها	۳.۲.۱۰: دګرافونو جوړول او استعمال	X	X	X
10.2.4: Graphing	۴.۲.۱۰: رسم کردن گراف	۴.۲.۱۰: دګراف رسمول	X	X	X
10.2.4.1: Numbers Line	۱.۴.۲.۱۰: بالای خط اعداد	۱.۴.۲.۱۰: داعدادو پر کرښه	X	X	X
10.2.4.2: Pictographs	۲.۴.۲.۱۰: نشان تصویری	۲.۴.۲.۱۰: تصویری نسه	X	X	X
10.2.4.3: Bar Graph	۳.۴.۲.۱۰: گراف خطی	۳.۴.۲.۱۰: خطی ګراف	X	X	X
10.3: Assessment	۳.۱۰: بررسی	۳.۱۰: بررسی	X	X	X
End	پایان	پای			

DRAFT

SCIENCE DEPARTMENT

SUBJECT:: Science

Concept Scope and Sequence

For

Grades 1-2-3

Prepared by

UNO/ESSP

Specialist Facilitators, Advised by UNO Staff

JUNE, 1993

To be Submitted to Dr. Boardman and Prof. Azimi
for Approval and Forwarding to ECA for Review, Recommendations and Approval

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE

بخش : علم حیات

برخه : علم حیات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
1. The creation of universe.	۱. خلقت کاینات.	۱. دکاینناتو خلقت.	x	x	x
1.1 God created our world	۱.۱ خداوند(ج) جهان راخلق کرده است.	۱.۱ خدای (ج) نړی پیدا کړیده.	x	x	x
1.2 God created living and non-living things.	۲.۱ خداوند(ج) اشیا جاندار وبی جان را خلق کرده است.	۲.۱ خدای (ج) ژوند لرونکی او ژوند نه لرونکی موجودات پیدا کړیدی.	x	x	x
1.3 God enabled the living things to grow, eat and move.	۳.۱ خداوند(ج) اشیا جاندار را قابلیت نموکردن، تغذی و حرکت کردن داده است.	۳.۱ خدای (ج) ژوند لرونکوموجوداتو ته د ودی، خوړلواوحرکت قابلیت ورکړیدی	x	x	x
1.4 God created the animals plants, and minerals for people use.	٤.۱ خداوند(ج)حیوانات، نباتات ومنرالهارا برای استفاده انسانهاخلق کرده است.	٤.۱ خدای (ج) حیوانات، نباتات او منرالونه د انساناتودګټی د پاره پیدا کړیدی.	x	x	x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC

SUBJECT: SCIENCE

DIVISION: LIFE SCIENCE-LIVING THNGS بخش : علم حیات - اشیا جاندار

برخه : علم حیات ژوندی موجودات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
2. Living things:	۲. اشیای جاندار:	۲. ژوندی موجودات :	x		
2.1 Common characteristics of living thngs:	۱.۲ خواص عمومی اشیای جاندار :	۱.۲ د ژوندی موجوداتو عمومی خواص :	x		
2.1.1 Growth	۱.۱.۲ نمو	۱.۱.۲ وده	x		
2.1.2 Movement	۲.۱.۲ حرکت	۲.۱.۲ حرکت	x		
2.1.3 Eating	۳.۱.۲ تغذی	۳.۱.۲ خوړل	x		
2.2 Food for living things:	۲.۲ غذا برای اشیای جاندار	۲.۲ دژوندیو موجوداتو دپاره خواړه :			x
2.2.1 Food producers	۱.۲.۲ تولیدکننده گان غذا	۱.۲.۲ د خوړو تولید کوونکی			x
2.2.2 Food consumers	۲.۲.۲ مصرف کننده گان غذا	۲.۲.۲ د خوړو مصرف کوونکی			x
2.2.2.1 Preditors	۱.۲.۲.۲ شکاریان	۱.۲.۲.۲ ښکاریان			
2.2.2.2 Prey	۲.۲.۲.۲ شکار	۲.۲.۲.۲ ښکار			
2.2.3 Scavengers and decomposers	۳.۲.۲ لاش خوران وتجزیه کننده گان	۳.۲.۲ لاښ خوړونکی او تجزیه کوونکی			x
2.2.4 Food and commuity	۴.۲.۲ غذا و جامعه	۴.۲.۲ خواړه او ټولنه			x
2.2.4.1 Food webs	۱.۴.۲.۲ بافت غذایی	۱.۴.۲.۲ د خوړلو اودون (بافت)			

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
3. Plants:	۳. نباتات :	۳. نباتات :	x		x
3.1 Parts of plants:	۱.۳ قسمتهای نباتات :	۱.۳ د نباتاتو برخی :	x		x
3.1.1 Roots	۱.۱.۳ ریشه‌ها	۱.۱.۳ ریشی	x		x
3.1.2 stem	۲.۱.۳ ساقه	۲.۱.۳ ډنډر	x		x
3.1.3 Leaves	۳.۱.۳ برگها	۳.۱.۳ پاڼی	x		x
3.1.4 Flowers	٤.۱.۳ گلها	٤.۱.۳ ګلان	x		x
3.1.5 Seeds	٥.۱.۳ تخمها	۱.٤.۳ دانی	x		x
3.1.6 Bulb	٦.۱.۳ پیاز	٦.۱.۳ پیاز (غوزه)	x		x
3.1.7 Fruits	۷.۱.۳ میوه‌ها	۷.۱.۳ میوي	x		x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
3.2. Diffrent plants of our community:	۳.۲. نباتات مختلف ماحول ما:	۳.۲. زمونږ د چاپیریال مختلف نباتات :	x		
3.2.1. Grass	۳.۲.۱. علف	۳.۲.۱. وابه	x		
3.2.2. Flowers	۳.۲.۲. گل های زینتی	۳.۲.۲. د سنبکلا گلان	x		
3.2.3. Vegetables	۳.۲.۳. سبزیها	۳.۲.۳. سابه	x		
3.2.4. Crops (cereals)	۳.۲.٤. حبوبات	۳.۲.٤. حبوبات	x		
3.2.5. Trees	۳.۲.٥. درختها	۳.۲.٥. وني	x		
3.2.6. Mosses	۳.۲.٦. خزّها	۳.۲.٦. خزی		x	
3.2.7. Ferns	۳.۲.۷. سرخسها	۳.۲.۷. سرخسونه		x	

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
3.3. What plants need to grow?	۳.۳. نباتات برای نموی خود به چه ضرورت دارند؟	۳.۳. نباتات د خپلې ودې دپاره څه شی ته اړتیا لری؟	x	x	
3.3.1. Soil	۱.۳.۳. خاک	۱.۳.۳. خاوره	x		
3.3.2. Water	۲.۳.۳. آب	۲.۳.۳. اوبه	x		
3.3.3. Light and temprature	۳.۳.۳. روشنی و حرارت	۳.۳.۳. رڼا او تودوخه	x		
3.3.4. Air	۴.۳.۳. هوا	۴.۳.۳. هوا	x		
3.3.5. Nutrients	۵.۳.۳. مواد غذائی	۵.۳.۳. خواړه			
3.4. Plants make and store their own food:	۴.۳. نباتات غذای خودرامیسازندوذخیره میکنند :	۴.۳. نباتات خپل خواړه جوړوی اوذخیزه کوی نی :		x	
3.5. Plants use their stored food:	۵.۳. نباتات غذائی ذخیره شدهٔ خود را استعمال میکنند:	۵.۳. نباتات خپل زیرمه شوی خواړه استعمالوی:		x	
3.6. How seasonal changes affect plants?	۶.۳. تغییرات موسمی بالای نباتات چه تاثیر دارد؟	۶.۳. موسمی بدلونونه پر نباتاتوڅه اغیزه لری؟		x	
3.7. Conservation of plants:	۷.۳. حفاظت نباتات:	۷.۳. د نباتاتو ساتنه :	x		x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
3.7.1 Our environment	۱.۷.۳ در محیط ما	۱.۷.۳ زمونږ په چاپیریال کی	x		x
3.7.2 Home	۲.۷.۳ در منزل	۲.۷.۳ په کورکی	x		x
3.7.3 Neighbourhood	۳.۷.۳ در ماحول خانه	۳.۷.۳ د کور په شاوخوا کی	x		x
3.7.4 Our province	٤.۷.۳ در ولایت ما	٤.۷.۳ زمونږ په ولایت کی	x		x
3.7.5 Our country	٥.۷.۳ در وطن ما	٥.۷.۳ زمونږ په هیواد کی	x		x
3.8 How people use plants?	۸.۳ انسانها ازنباتات چطوراستفاده میکنند؟	۸.۳ دنباتاتو څخه خلك څرنګه ګټه اخلی ؟	x		x
3.8.1 For food	۱.۸.۳ برای غذا	۱.۸.۳ دخوړو دپاره	x		x
3.8.2 Ways that people use plants	۲.۸.۳ طریقه های استفاده مردم از نباتات	۲.۸.۳ دخلکودګټی اخستلو لاری دنباتاتو څخه	x		x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE علم حیات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
4. People:	٤. انسانها :	٤. خلك :	x	x	x
4.1 Body parts of people, (outside):	١.٤ قسمتهای بدن انسان، (قسمتهای بیرونی):	١.٤ د انسان د بدن برخی (بهرنی برخی) :	x -	x	
4.1.1 Head	١.١.٤ کله	١.١.٤ سر	x		
4.1.2 Arms	٢.١.٤ بازو ها	٢.١.٤ متان (متی)	x		
4.1.3 Hands	٣.١.٤ دستها	٣.١.٤ لاسونه	x		
4.1.4 Legs	٤.١.٤ لینگ ها	٥.١.٤ لینگی	x		
4.1.5 Feet	٥.١.٤ پاها	٦.١.٤ پښی	x		
4.2 Body parts of people, (inside)	٢.٤ قسمتهای بدن انسان(قسمتهای داخلی) :	٢.٤ دانسان دبدن برخی (دننی برخی):	x		
4.2.1 Heart	١.٢.٤ قلب	١.٢.٤ زړه	x		-
4.2.2 Lungs	٢.٢.٤. ششها	٢.٢.٤ سږی	x		
4.2.3 Stomach	٣.٢.٤ معده	٣.٢.٤ معده	x		
4.2.4 Bones	٤.٢.٤ استخوانها	٤.٢.٤ هډوکی	x		

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE علم حیات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
4.3 Five senses:	۴.٤ حواس پنجگانه :	۴.٤ پنځګونی حواس :	x		
4.3.1 Seeing	۱.۴.٤ بینائی (حس باصره)	۱.۴.٤ لیدل (دباصری حس)	x		
4.3.2 Hearing	۲.۴.٤ شنوائی (حس سامعه)	۲.۴.٤ اوریدل (دسامعی حس)	x		
4.3.3 Feeling	۳.۴.٤ تماس نمودن (حس لامسه)	۳.۴.٤ تماس کول (دلامسی حس)	x		
4.3.4 Tasting	٤.۴.٤ چشیدن (حس ذائقه)	٤.۴.٤ خوندکتل (دذایقی حس)	x		
4.3.5 Smelling	۵.۴.٤ بوی نمودن (حس شامه)	۵.۴.٤ بوی کول (دشامی حس)	x		

69

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE علم حیات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
4.4 Composition of human body :	٤.٤ ترکیب بدن انسان :	٤.٤ د انسان د بدن جوړښت :			x
4.4.1 Cells	١.٤.٤ حجرات	١.٤.٤ حجرات			x
4.4.2 Tissues	٢.٤.٤ انساج	٢.٤.٤ انساج			x
4.4.3 Organs	٣.٤.٤ اعضا	٣.٤.٤ غړی			x
4.5 Human body systems :	٥.٤ سیستمهای بدن انسان :	٥.٤ د انسان د بدن سیستمونه :			x
4.5.1 Digestive system	١.٥.٤ سیستم هاضمه	١.٥.٤ دهاضمی سیستم			x
4.5.2 Circulatory system	٢.٥.٤ سیستم دوران خون	٢.٥.٤ دوینی د دوران سیستم			x
4.5.3 Muscular system	٣.٥.٤ سیستم عضلات	٣.٥.٤ د غړو سیستم			x
4.5.4 Respiratory system	٤.٥.٤ سیستم تنفسی	٤.٥.٤ تنفسی سیستم			x
4.5.5 Urinary system	٥.٥.٤ سیستم بولی یا جهاز بولی	٥.٥.٤ بولی سیستم			x
4.5.6 Nervous system	٦.٥.٤ سیستم اعصاب	٦.٥.٤ عصبی سیستم			x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE علم حیات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
4.5.7 Skeletal system	۷.۵.٤ استخوانبندی	۷.۵.٤ دهډونو سیستم			x
4.5.8 Endocrine system	۸.۵.٤ سیستم غدوات	۸.۵.٤ دغدواتو سیستم			x
4.6 Uniqueness of indiviuals :	٦.٤ خواص منحصر به فرد :	٦.٤ هغه خواص چې ځانې توپیرونو پوری اړه لري:		x	
4.6.1 In terms of size	۱.٦.٤ از لحاظ جسامت	۱.٦.٤ د جسامت په لحاظ		x	
4.6.2 Thinking	۲.٦.٤ از لحاظ فکری	۲.٦.٤ د فکر په لحاظ		x	
4.6.3 Doing	۳.٦.٤ از لحاظ عملکرد	۳.٦.٤ د کړنو وړوپه لحاظ		x	
4.6.4 Compare people	٤.٦.٤ مقایسه انسانها	٤.٦.٤ د خلکو پرتله کول		x	
4.6.5 Heridity influences people	۵.٦.٤ تاثیر وراثت بالای انسانها	۵.٦.٤ پرخلکو د وراثت اغیزه		x	
4.7 Individual characteristics :	۷.٤ خواص فردی :	۷.٤ ځانې خواص :		x	
4.7.1 Individual similarities	۱.۷.٤ شباهتهای فردی	۱.۷.٤ ځانې ورته والی		x	

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE علم حیات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
4.7.2 Individual dissimilarities	۲.۷.٤ تفاوتهای فردی	۲.۷.٤ ځانی توپیرونه		x	
4.8 Growing up :	۸.٤ نمو :	۸.٤ وده :		x	
4.8.1 Physical growth	۱.۸.٤ رشد فزیکی	۱.۸.٤ فزیکی وده		x	
4.8.2 Mental growth	۱.۸.٤ رشد دماغی	۲.۸.٤ دماغی وده		x	
4.9 Health :	۹.٤ صحت :	۹.٤ روغتیا :	x	x	x
4.9.1 Food	۱.۹.٤ غذا	۱.۹.٤ خواړه	x	x	x
4.9.1.1 Healthful food	۱.۱.۹.٤ غذای صحی	۱.۱.۹.٤ صحی خواړه	x		
4.9.1.2 Different kinds of food	۲.۱.۹.٤ انواع مختلف غذا	۲.۱.۹.٤ د خواړو مختلفه ډولونه		x	
4.9.1.3 Serving five groups of healtful food	۳.۱.۹.٤ صرف کردن، پنج گروپ غذای صحی	۳.۱.۹.٤ دصحی خوړودپنځوګروپونوخوړل			x
4.9.2 Exercise :	۲.۹.٤ تمرین (سپورت) :	۲.۹.٤ تمرین (سپورت) :	x	x	x
4.9.2.1 Different kinds of exercises	۱.۲.۹.٤ اقسام مختلف سپورت	۱.۲.۹.٤ د سپورت مختلف ډولونه	x		
4.9.2.2 Exercises in fresh air	۲.۲.۹.٤ سپورت در هوای آزاد	۲.۲.۹.٤ سپورت په آزاده هوا کی		x	

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE علم حیات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
4.9.2.3 Exercise in environment	۴.۲.۹.٤ سپورتهای خارج از منزل	۴.۲.۹.٤ د کورځنه بهر سپورتونه	.	x	
4.9.3 Safety:	۴.۹.٤ بی خطری (سلامتی) :	۴.۹.٤ خوندیتوب (سلامتی) :	x	x	
4.9.3.1 Staying safe	۱.۳.۹.٤ بیخطری بودن	۱.۳.۹.٤ خوندی پاتی کیدل	x		
4.9.3.2 Safety rules	۲.۳.۹.٤ مقررات بی خطری	۲.۳.۹.٤ دخوندیتوب مقررات	x		
4.9.3.3 Need for safety	۳.۳.۹.٤ ضرورت برای بی خطری	۳.۳.۹.٤ دخوندیتوب د پاره اړتیا	x		
4.9.3.4 Growing up healthy	٤.۳.۹.٤ نمو با صحت	٤.۳.۹.٤ وده د روغتیاسره		x	
4.9.3.5 Growing up safety	۵.۳.۹.٤ نمو با سلامت	۵.۳.۹.٤ وده دخوندیتوب سره		x	
4.9.4 Illness:	٤.۹.٤ مریضی :	٤.۹.٤ ناروغی :			x
4.9.4.1 Diseases	۱.٤.۹.٤ امراض	۱.٤.۹.٤ ناروغتیاوی			x
4.9.4.2 Immunity	۲.٤.۹.٤ معافیت	۲.٤.۹.٤ معافیت			x
4.9.4.3 Vaccine	۳.٤.۹.٤ واکسین	۳.٤.۹.٤ واکسین			x
4.9.4.4 Rest	٤.٤.۹.٤ استراحت	٤.٤.۹.٤ هوسایینه (آرام کول)			x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE علم حیات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
4.9.5 Drugs people use:	٤.٩.٥ ادویه که مردم استعمال میکنند:	٤.٩.٥ درمل خلك استعمالوی :			x
4.9.5.1 Good drugs	٤.٥.٩.١ ادویه مفید	٤.٥.٩.١ ګټور درمل			x
4.9.5.2 Bad drugs	٤.٥.٩.٢ ادویه مضر	٤.٥.٩.٢ ناوړه درمل			x
5. Animals :	٥. حیوانات :	٥. ژوی (حیوانات) :	x		
5.1 Body parts of anima's (out side) :	٥.١ قسمت های بدن حیوانات (بیرونی) :	٥.١ د ژویو د بدن برخی، (بهرنی) :	x		
5.1.1 Head	٥.١.١ سر	٥.١.١ سر	x		
5.1.2 Trunk	٥.١.٢ تنه	٥.١.٢ تنه	x		
5.1.3 Legs	٥.١.٣ پاها	٥.١.٣ پښې	x		

CONCEPT CONTENT-SPECIFIC

SUBJECT: SCIENCE

DIVISION: LIFE SCIENCE علم حیات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
5.2 Body parts of animals (inside):	۲.۵ قسمتهای بدن حیوانات (داخلی) :	۲.۵ دحیواناتو د بدن برخی (دننی برخی) :	x		
5.2.1 Heart	۱.۲.۵ قلب	۱.۲.۵ زړه	x		
5.2.2 Bones	۲.۲.۵ استخوانها	۲.۲.۵ هډونه	x		
5.2.3 Lungs	۳.۲.۵ ششها	۳.۲.۵ سږي	x		
5.2.4 Stomach	٤.۲.۵ معده	٤.۲.۵ ګیډه	x		
5.3 Kinds of animals:	۳.۵ اقسام حیوانات :	۳.۵ دژوپر ډولونه		x	
5.3.1 Insects	۱.۳.۵ حشرات	۱.۳.۵ حشرات		x	
5.3.2 Fish	۲.۳.۵ ماهیها	۲.۳.۵ ماهیان (کبان)		x	
5.3.3 Amphibians	۳.۳.۵ ذومعشتین (بقه ها)	۳.۳.۵ چنګښې (ذومعشتین)		x	
5.3.4 Reptiles	٤.۳.۵ خزنده گان	٤.۳.۵ خزنده گان		x	
5.3.5 Birds	۵.۳.۵ پرنده گان	۵.۳.۵ الوتونکی		x	
5.3.6 Mamals	٦.۳.۵ پستانداران	٦.۳.۵ تی لرونکی		x	

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE علم حیات

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
5.4 Survival :	٤.٥ بقا :	٤.٥ پاتیت :		x	x
5.4.1 Protection :	١.٤.٥ حمایه :	١.٤.٥ ساتنه :		x	x
5.4.1.1 Natural	١.١.٤.٥ طبیعی	١.١.٤.٥ طبیعی		x	x
5.4.1.2 Hair	٢.١.٤.٥ توسط مو	٢.١.٤.٥ دوښتو په واسطه		x	x
5.4.1.3 Shells	٣.١.٤.٥ توسط قشر	٣.١.٤.٥ دتښی پواسطه		x	x
5.4.1.4 Scales	٤.١.٤.٥ توسط فلس	٤.١.٤.٥ د فلس پواسطه		x	x
5.4.1.5 Feather	٥.١.٤.٥ توسط پر	٥.١.٤.٥ دبنې په واسطه		x	x
5.4.1.6 Skin	٦.١.٤.٥ توسط جاد	٦.١.٤.٥ د پوټکی پواسطه		x	x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE

P.

English	Dari دری	Pashto پشتو	Grd1	Grd2	Gr
5.4.2 By people:	۲.٤.٥ توسط انسانها :	۲.٤.٥ دخلکو پواسطه :		x	x
5.4.2.1 Giving animals food	۱.۲.٤.٥ غذا دادن به حیوانات	۱.۲.٤.٥ ژوبو ته خواړه ورکول		x	x
5.4.2.2 Shelter	۲.۲.٤.٥ سرپناه	۲.۲.٤.٥ سرپټونی		x	x
5.4.2.3 Health care	۳.۲.٤.٥ وقایه صحی	۳.۲.٤.٥ روغتیایی څارنه		x	x
5.4.2.4 Shelter for animals	٤.۲.٤.٥ سرپناه برای حیوانات	٤.۲.٤.٥ د ژوبو د پاره سرپناه		x	x
5.5 Adaptation:	٥.٥ توافق :	٥.٥ سمون :			x
5.5.1 Body covering	۱.٥.٥ پوش بدن	۱.٥.٥ د بدن پوښ			x
5.5.2 Mouth/Teeth	۲.٥.٥ دهن / دندانها	۲.٥.٥ خوله / غاښونه			x
5.5.3 Behavior	۳.٥.٥ سلوك :	۳.٥.٥ کړه وړه :			x
5.5.3.1 Learned	۱.۳.٥.٥ سلوك کسبی	۱.۳.٥.٥ کسبی کړه وړه			x
5.5.3.2 Instinct	۲.۳.٥.٥ سلوك شموری	۲.۳.٥.٥ شموری کړه وړه			x
5.5.3.3 Reflex	۳.۳.٥.٥ سلوك انعکاسی	۳.۳.٥.٥ انعکاسی کړه وړه			x

47

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: LIFE SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
5.6 Habitat: Men, Animals, Plants	٦.٥ جای زیست : انسانها، حیوانات، نباتات	٦.٥ استوګن ځای : انسانان، ژوي، نباتات	x		x
5.6.1 Man made habitats:	١.٦.٥ جای های زیست ساخته انسان :	١.٦.٥ دانسان په واسطه جوړکړی شوی استوګن ځایونه :	x		x
5.6.1.1 People-houses, tents, apartaments	١.١.٦.٥ انسانها-خانه ها، خیمه ها، اپارتمانها	١.١.٦.٥ انسانان-کورونه، خیمې، اپارتمانونه	x		
5.6.1.2 Animals-stable,zoo, ranch, hencoop	٢.١.٦.٥ حیوانات-طویله باغ وحش، آغل، مرغانچه	٢.١.٦.٥ ژوی - غوجل ژوبن، پندغالی(شپول دچرګانو خونه	x		
5.6.1.3 Plants-gardens, orchards, parks, green houses	٣.١.٦.٥ نباتات-باغها، باغهای میوه، پارکها، گلخانه ها	٣.١.٦.٥ نباتات-بڼونه، میوه لرونکی بڼونه، پارکونه، ګلخانی		x	
5.6.2 Natural habitats:	٢.٦.٥ جای های زیست طبیعی :	٢.٦.٥ طبیعی استوګن ځایونه :	x		
5.6.2.1 People-caves	١.٢.٦.٥ انسانها مغارها	١.٢.٦.٥ انسانان - مغاری	x		
5.6.2.2 Animals-forest, deserts, caves, water, polar, tundra, grassland mountains, hills, plains	٢.٢.٦.٥ حیوانات - جنگل، صحراها، آب، مناره ها، قطبی، منطقه سردسیر، قطب شمال، منطقه سبزه زار، کوه ها، تپه ها، زمین های هموار	٢.٢.٦.٥ ژوی - ځنګلونه، دښتی، مغاری، اوبه، قطبی، شمال، قطب، سړه سیمه، ویښیانه سیمه، غرونه، غونډی، اواری ځمکی.	x		x
5.6.2.3 Plants-water, mountains, hills, plains,desert, polar, tundra,grass lend	٣.٢.٦.٥ نباتات - آب، کوه هاتپه هازمین های هموار، دشت، قطبی، منطقه سردسیر قطب شمال، منطقه سبزه زار	٣.٢.٦.٥ نباتات - اوبه، غرونه، غونډی، اواری ځمکی، دښته، د شمالی قطب سړه سیمه، ویښیانه سیمه .	x		x
5.6.3 Conservation	٣.٦.٥ محافظت	٣.٦.٥ ساتنه	x		x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: EARTH SCIENCE

بخش : زمین شناسی

برخه : حمکه پیژندنه

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
6. Land:	٦. خشکه :	٦. وچه :	x	x	x
6.1 Land forms :	١.٦ اشکال زمین:	١.٦ د ځمکی بڼی (اشکال):	x	x	x
6.1.1 Mountians	١.١.٦ کوهها	١.١.٦ غرونه	x	x	
6.1.2 Hills	٢.١.٦ تپه ها	٢.١.٦ غونډی	x	x	
6.1.3 Plains	٣.١.٦ سطوح هموار	٣.١.٦ اواری سیمی	x	x	
6.1.4 Deserts	٤.١.٦ دشتها	٤.١.٦ دښتی	x	x	
6.2 Rocks and earth layers:	٢.٦ احجار و طبقات زمین :	٢.٦ احجار او ډبرمکی طبقی :	x	x	
6.2.1 White	١.٢.٦ سفید	١.٢.٦ سپین	x	x	x
6.2.2 Black	٢.٢.٦ سیاه	٢.٢.٦ تور	x	x	
6.2.3 Grey	٣.٢.٦ خاکستری	٣.٢.٦ خړ	x	x	
6.2.4 Pink	٤.٢.٦ گلابی	٤.٢.٦ گلابی	x	x	
6.2.5 Minenal	٥.٢.٦ مینرال	٥.٢.٦ مینرال	x	x	
6.2.6 Crust	٦.٢.٦ قشر	٦.٢.٦ قشر			x
6.2.7 Mantle	٧.٢.٦ عمقیه	٧.٢.٦ ژور			x
6.2.8 Core	٨.٢.٦ احجار مرکزی زمین	٨.٢.٦ ډبرمکی د تل احجار			x

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: EARTH SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
6.3 How rocks form?	۳.٦ چطور احجارتشکیل میشوند؟	۳.٦ احجار څرنګه جوړیږی؟	x		x
6.3.1 Magma	۱.۳.٦ مگما(احجارگداخته شدهٔ عمق زمین)	۱.۳.٦ مگما (دځمکی دتل ویلی شوی احجار)			x
6.3.2 Lava	۲.۳.٦ لاوا (احجارگداخته شدهٔ سطح زمین)	۲.۳.٦ لاوا (دځمکی دمخ ویلی شوی احجار)	x		x
6.3.3 Sediments	۳.۳.٦ ترسبات	۳.۳.٦ ترسبات	x		x
6.4 Soil (kinds):	٤.٦ انواع خاك :	٤.٦ دخاوری ډولونه :	x		x
6.4.1 clay	۱.٤.٦ خاك زرد	۱.٤.٦ ژیړه خاوره	x		x
6.4.2 Black	۲.٤.٦ خاك سیاه	۲.٤.٦ توره خاوره	x		x
6.4.3 Sand	۳.٤.٦ خاك ریگی	۳.٤.٦ شګلنه خاوره	x		x
6.4.4 Soil and erosion	٤.٤.٦ خاك و احتكاك	٤.٤.٦ خاوره او دتوږنی عملیه	x		x
7. Weather:	۷. آب و هوا :	۷. اوبه او هوا :	x		x
7.1 Wind	۱.۷ باد	۱.۷ باد		x	x
7.2 Tempreture	۲.۷ درجه حرارت	۲.۷ دتودوخی درجه		x	
7.3 Water	۳.۷ آب	۳.۷ اوبه		x	x
7.3.1 Clouds	۱.۳.۷ ابرها	۱.۳.۷ وریځی		x	
7.3.2 Water vapor	۲.۳.۷ بخار آب	۲.۳.۷ د اوبو بخار		x	

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: EARTH SCIENCE

English	Dari دری	Pashto پښتو	Grd1	Grd2	Grd3
7.3.3 Evaporation	۷.۳.۳ تبخیر	۷.۳.۳ براس (تبخیر)			x
7.3.4 Condensation	۷.۳.٤ شبنم	۷.۳.٤ پرخه			x
7.3.5 Rain	۷.۳.٥ باران	۷.۳.٥ باران			x
7.3.6 Snow	۷.۳.٦ برف	۷.۳.٦ واوره			x
7.3.7 Hail	۷.۳.۷ ژاله	۷.۳.۷ ژلی			x
7.3.8 Importance of water	۷.۳.۸ اهمیت آب	۷.۳.۸ داوبو اهمیت			x
7.3.9 Water cycle	۷.۳.۹ دوران آب	۷.۳.۹ داوبو دوران			x
7.3.10 Run off	۷.۳.۱۰ جریان آب	۷.۳.۱۰ د اوبو بهیدل			x
7.3.11 Ground water	۷.۳.۱۱ آب روی زمین	۷.۳.۱۱ دځمکی د مخ اوبه			x
7.3.12 Water storage	۷.۳.۱۲ مخزن آب	۷.۳.۱۲ داوبو زیرمی			x
7.3.13 Pollution	۷.۳.۱۳ آلوده گی	۷.۳.۱۳ آلوده گی			x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: EARTH SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
8. Earth and Space:	۸. زمین و فضا :	۸. ځمکه او فضا :		x	x
8.1 Earth and Sun	۱.۸ زمین و آفتاب	۱.۸ ځمکه او لمر		x	
8.1.1 Comparative siz	۱.۱.۸ جسامت مقایسوی	۱.۱.۸ د لرېوالی پرتله کول		x	
8.1.2 Seasons	۲.۱.۸ موسمها	۲.۱.۸ موسمونه		x	
8.1.3 Day and Night	۳.۱.۸ روز و شب	۳.۱.۸ شپه او ورځ		x	
9. Climate:	۹. اقلیم :	۹. اقلیم :			x
9.1 Polar zone	۱.۹ زون قطبی	۱.۹ قطبی زون			x
9.2 Tropic zone	۲.۹ زون حاره	۲.۹ دتودوخی زون (حاره زون)			x
9.3 Temperate zone	۳.۹ زون معتدل	۳.۹ معتدله زون			x
10. Planets:	۱۰. سیارات :	۱۰. ستوري :			x
11. Space travel	۱۱. سفر فضایی	۱۱. فضايۍ سفر			x
11.1 Need of austronats	۱.۱۱ ضرورت فضانوردان	۱.۱۱ د فضانوردانو اړتیاوی			x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: EARTH SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
11.1.1 Foods	۱.۱.۱۱ غذا ها	۱.۱.۱۱ خواړه			x
11.1.2 Space suit	۲.۱.۱۱ لباس فضایی	۲.۱.۱۱ د فضا جامی			x
11.1.3 Breathe oxygen	۳.۱.۱۱ تنفس اکسجن	۳.۱.۱۱ د اکسجن تنفس			x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: PHYSICAL SCIENCE-MATTER بخش : ساینس فزیکی-ماده برخه : فزیکی ساینس-ماده

Englis	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
21. Characteristics of matter:	۱۲. مشخصات ماده:	۱۲. دمادې مشخصات :	x		x
12.1 We use our senses to identify different objects as matter in our surrounding	۱.۱۲ اشیایی مختلف ماحول خود را توسط حواس پنجگانه تشخیص میدهیم	۱.۱۲ دچاپیریال بیلابیل اجسام دپنځګونوحواسو پواسطه تشخیص کوو.	x		x
12.2 All matters in our environment are made of solids, liquids and gases.	۲.۱۲ تمام مواد محیط از جامدات، مایعات و گازها تشکیل شده اند.	۲.۱۲ زمونږدچاپیریال ټول مواد دجامداتو، مایعاتواوگازونو څخه جوړشویدی.	x		x
12.3 Discriminate and compare solids, liquids and gases	۳.۱۲ تشخیص شباهتها وتفاوتها بین جامدات، مایعات و گازها.	۳.۱۲ دجامداتو، مایعاتواوگازونو په منځ کی دتوپیرونواو ورته والی تشخیص.	x		x
12.4 Describe some properties of solids,liguids and gases	٤.۱۲ تشریح بعضی خواص جامدات، مایعات و گازها	٤.۱۲ دجامداتو، مایعاتواوگازونو دځینوخواصوروښانه کول	x		x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: PHYSICAL SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
12.2 Properties of matter:	۲.۱۲ خواص ماده :	۲.۱۲ دمادی خواص:		x	x
12.2.1 Matter has different shapes and sizes	۱.۲.۱۲ ماده اشکال وجسامتهای مختلف دارد	۱.۲.۱۲ ماده ډول ډول، بنی او جسامتونه لری.		x	x
12.2.2 Matter has units	۲.۲.۱۲ واحدهای ماده	۲.۲.۱۲ دمادی واحدونه		x	x
12.2.2.1 Unit of weight	۱.۲.۲.۱۲ واحد وزن	۱.۲.۲.۱۲ دتللو (وزن) واحد			
12.2.2.2 Unit of volume	۲.۲.۲.۱۲ واحدحجم	۲.۲.۲.۱۲ دحجم واحد			
12.2.2.3 Unit of length	۳.۲.۲.۱۲ واحدطول	۳.۲.۲.۱۲ داوږدوالی (طول) واحد			
12.2.2.4 Unit of Area	٤.۲.۲.۱۲ واحدمساحت	٤.۲.۲.۱۲ دمساحت واحد			
12.2.2.5 Unit of mass	٥.۲.۲.۱۲ واحدکتله	٥.۲.۲.۱۲ دکتلې واحد			
12.2.3 Matter takes up space	۳.۲.۱۲ ماده در فضا جای را اشغال میکند.	۳.۲.۱۲ ماده په فضا کې ځای اشغالوی.		x	x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: PHYSICAL SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
12.3 Matter is made of elements.	۱۲.۳ ماده ازعناصرساخته شده است.	۱۲.۳ ماده د عناصروڅخه جوړه شویده			x
12.3.1 Elements are composed of atoms.	۱۲.۳.۱ عناصر از اتومهاترکیب شده است.	۱۲.۳.۱ عناصر د اتومونو څخه ترکیب شویدی.			x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: PHYSICAL SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
13. Changes in matter:	۱۳. تغییرات در ماده:	۱۳. په مادهٔ کی بدلونونه:			x
13.1 Changing matter:	۱.۱۳ تغییر دادن ماده:	۱.۱۳ مادی ته بدلون ورکول:			x
13.1.1 Physical change	۱.۱.۱۳ تغییر دادن فزیکی	۱.۱.۱۳ فزیکی بدلون ورکول			x
13.2 Changing states of matter:	۲.۱۳ تغییردادن حالات ماده:	۲.۱۳ دمادی حالاتونه بدلون ورکول:			x
13.2.1 Role of heat	۱.۲.۱۳ نقش حرارت	۱.۲.۱۳ دتودوخی رول			x
13.2.2 Evaporation	۲.۲.۱۳ تبخیر	۲.۲.۱۳ بخارکیدل			x
13.2.3 Condenensation	۳.۲.۱۳ تراکم	۳.۲.۱۳ تراکم			x
13.3 Combining matter:	۳.۱۳ ترکیب دادن ماده:	۳.۱۳ دمادی ترکیب کول			x
13.3.1 Mixture	۱.۳.۱۳ مخلوط	۱.۳.۱۳ گډوډ (مخلوط)			x
13.3.2 Compound	۲.۳.۱۳ مرکب	۲.۳.۱۳ مرکب			x
13.3.3 Chemical changes	۳.۳.۱۳ تغییرات کیمیاوی	۳.۳.۱۳ کیمیاوی بدلونونه			x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: PHYSICAL SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
14. Force, work and moving things:	۱٤. قوه، کار و اجسام متحرک :	۱٤. قوه، کار او متحرک اجسام :	x		x
14.1 What is force?	۱.۱٤ قوه چیست؟	۱.۱٤ قوه څه شی ده؟	x		x
14.1.1 Push, pull, lift	۱.۱.۱٤ تیله کردن، کش کردن وبالاکردن.	۱.۱.۱٤ ټیله کول، راکښل او پورته کول.	x		x
14.1.2 The effect of force	۲.۱.۱٤ تاثیر قوه	۲.۱.۱٤ د قوی اغیزه			x
14.1.3 How to measure force?	۳.۱.۱٤ قوه چطوراندازه میشود	۳.۱.۱٤ قوه څرنګه اندازه کیږی؟			x
14.2 What is work?	۲.۱٤ کار چیست؟	۲.۱٤ کار څه شی دی؟	x		x
14.2.1 Define work	۱.۲.۱٤ کارراتعریف نمایید	۱.۲.۱٤ کارتعریف کړی			x
14.2.2 When is work done?	۲.۲.۱٤ کارچه وقت صورت گرفته میتواند؟	۲.۲.۱٤ کارڅه وخت سرته رسیږی			x
14.2.2.1 Uint of work	۱.۲.۲.۱٤ واحد کار	۱.۲.۲.۱٤ دکار واحد			x
14.3 What is motoin?	۳.۱٤ حرکت چیست؟	۳.۱٤ حرکت څه شی دی؟	x		x
14.3.1 Moving things	۱.۳.۱٤ اشیایی متحرک	۱.۳.۱٤ متحرک اجسام	x		x
14.3.2 Static things	۲.۳.۱٤ اشیایی ساکن	۲.۳.۱٤ ساکن اجسام	x		x
14.4 Gravity:	٤.۱٤ قوه جاذبه (کشش) :	٤.۱٤ دجاذبی قوه (دقوی کشش):			x
14.4.1 Define gravity	۱.٤.۱٤ قوه جاذبه راتعریف کنید.	۱.٤.۱٤ دجاذبی قوه تعریف کړی			x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: PHYSICAL SCIENCE

English	Dari دری	Pashto پښتو	Grd1	Grd2	Grd3
14.4.2 The effect of gravity	۲.٤.١٤ تاثیر قوۀ جاذبه	۲.٤.١٤ دجاذبې د قوی اغیزه			x
14.5 Friction:	٥.١٤ اصطکاك :	٥.١٤ مښود(اصطکاك) :			x
14.5.1 The effect of friction	١.٥.١٤ تاثیر اصطکاك	١.٥.١٤ د اصطکاك اغیزه			x
14.5.2 How you can change friction?	٢.٥.١٤ چطوراصطکاك راتغیرداده میتوانید؟	٢.٥.١٤ اصطکاك ته څرنګه بدلون ورکولای شی؟			x
14.6 Energy:	٦.١٤ انرژی:	٦.١٤ انرژی:			x
14.6.1 Sources of energy	١.٦.١٤ منابع انرژی	١.٦.١٤ د انرژی منابع			x
15. Machines:	١٥. ماشینها :	١٥. ماشینونه :	x	x	x
15.1 Simple machines:	١.١٥ ماشینهای ساده :	١.١٥ ساده ماشینونه	x	x	x
15.1.1 The importance of simple machines	٢.١.١٥ اهمیت ماشینهای ساده	١.١.١٥ دساده ماشینونواهمیت	x	x	x
15.1.2 Lever	٢.١.١٥ رافعه	٢.١.١٥ لیم (رافعه)			x
15.1.2.1 How do levers work?؟	١.٢.١.١٥ رافعه هاچطورکارمیکند	١.٢.١.١٥ لرمونه څرنګه کارکوی؟			x
15.1.3 Inclined plane	٣.١.١٥ سطح مایل	٣.١.١٥ مایله سطحه			x
15.1.4 Wedge	٤.١.١٥ فانه	٤.١.١٥ پانه			x

CONCEPT CONTENT-SPECIFIC

SUBJECT: SCIENCE

DIVISION: PHYSICAL SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
15.1.5 Screw	۵.۱.۱۵ پیچ	۵.۱.۱۵ پیچ			x
15.1.6 Wheel and axle	۶.۱.۱۵ چرخ و اکسل	۶.۱.۱۵ څرخ او اکسل			x
15.1.7 Pulley	۷.۱.۱۵ چرخه	۷.۱.۱۵ څرخه			x
15.2 Compound machines:	۲.۱۵ ماشینهای مرکب :	۲.۱۵ مرکب ماشینونه :			x
15.2.1 The difference between simple and compound machines	۱.۲.۱۵ فرق بین ماشینهای ساده و مرکب	۱.۲.۱۵ دساده او مرکبو ماشینونوتوپیر			x
15.2.2 Use of Compound machines	۲.۲.۱۵ استعمال ماشینهای مرکب	۲.۲.۱۵ د مرکبو ماشینونو استعمال			x
16. Heat:	۱۶. حرارت :	۱۶. تودوخه (حرارت) :			x
16.1 How heat is produced?	۱.۱۶ حرارت چطور تولید میشود؟	۱.۱۶ تودوخه څرنګه تولیدکیږی؟			x
16.1.1 Hot	۱.۱.۱۶ داغ	۱.۱.۱۶ سور (داغ)			x
16.1.2 Warm	۲.۱.۱۶ گرم	۲.۱.۱۶ تود			x
16.1.3 Cold	۳.۱.۱۶ سرد	۳.۱.۱۶ سور			x

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: PHYSICAL SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
16.2 Heat causes changes:	۲.۱۶ حرارت سبب تغییرات میشود:	۲.۱۶ تودوخه دبدلونونو سبب گرزی:		x	
16.2.1 Change in shape	۱.۲.۱۶ تغییر شکلی	۱.۲.۱۶ شکلی بدلون		x	
16.2.2 Gets too warm	۲.۲.۱۶ خیلی گرم میشود	۲.۲.۱۶ ډیر تودیږی		x	
16.2.3 Wet objectes get dry	۳.۲.۱۶ اجسام مرطوب خشك میگردد.	۳.۲.۱۶ لانده شیان وچیږی			
16.3 Heat transfers:	۳.۱۶ حرارت انتقال میکند :	۳.۱۶ تودوخه انتقال کوی :		x	
16.3.1 Conduction	۱.۳.۱۶ توسط هدایت	۱.۳.۱۶ دهدایت دلیاری		x	
16.3.2 Convection	۲.۳.۱۶ توسط کنوکشن	۲.۳.۱۶ کنوکشن د لیاری		x	
16.3.3 Radiation	۳.۳.۱۶ توسط تشعشع	۳.۳.۱۶ دوړانگو دلیاری		x	
16.4 Temperature:	٤.۱۶ درجه حرارت :	٤.۱۶ دتودوخی درجه :		x	
16.4.1 Defination	۱.٤.۱۶ تعریف	۱.٤.۱۶ تعریف		x	
16.4.2 Measurement	۲.٤.۱۶ اندازه گیری	۲.٤.۱۶ اندازه کول		x	
16.4.3 Thermometer	۳.٤.۱۶ میزان الحراره (ترمامیتر)	۳.٤.۱۶ میزان الحراره (ترمامیتر)		x	

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: PHYSICAL SCIENCE

English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
17. Sound:	۱۷. صوت :	۱۷. غږ (صوت) :		x	
17.1 How sound is produced?	۱.۱۷ صوت چه گونه تولیدمیشود ؟	۱.۱۷ غږ څرنګه تولیدکیږی؟		x	
17.1.1 What is vibration ?	۱.۱.۱۷ اهتزاز چیست؟	۱.۱.۱۷ اهتزاز څه شی دی؟		x	
17.1.2 How objects vibrate?	۲.۱.۱۷ اجسام چه گونه اهتزازمیکند ؟	۲.۱.۱۷ اجسام څرنګه اهتزاز کوی		x	
17.1.3 Loudness of sound	۳.۱.۱۷ بلندی صوت	۳.۱.۱۷ دغږ لوړوالی		x	
17.2 Sound moves:	۲.۱۷ صوت حرکت میکند :	۲.۱۷ غږ حرکت کوی :		x	
17.2.1 Through solid objects	۱.۲.۱۷ دراجسام جامد	۱.۲.۱۷ په جامدو اجسامو کی		x	
17.2.2 Through liquids	۲.۲.۱۷ دراجسام مایع	۲.۲.۱۷ په مایع اجسامو کی		x	
17.2.3 Through gases	۳.۲.۱۷ درگازها	۳.۲.۱۷ په گازونوکی		x	
17.3 Sounds are different:	۳.۱۷ اصوات متفاوت اند :	۳.۱۷ غږونه توپیر لری :		x	
17.3.1 High sound	۱.۳.۱۷ صوت بلند	۱.۳.۱۷ لوړ غږ		x	
17.3.2 Low sound	۲.۳.۱۷ صوت پائین	۲.۳.۱۷ ټیټ غږ		x	

CONCEPT SCOPE AND SEQUENCE
SCIENCE GRADES 1-2-3

CONCEPT CONTENT-SPECIFIC
SUBJECT: SCIENCE
DIVISION: PHYSICAL SCIENCE

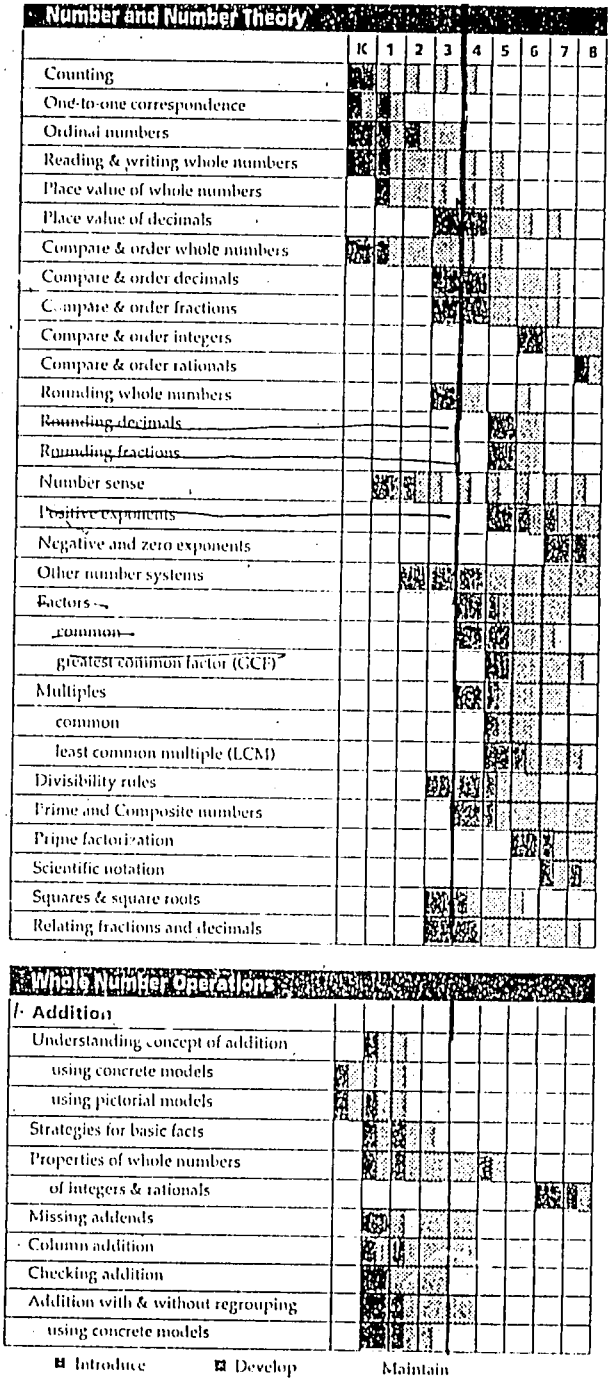
English	Dari دری	Pashto پشتو	Grd1	Grd2	Grd3
18. Magnets:	۱۸. مقناطیس (آهنربا) :	۱۸. مقناطیس :	x		
18.1 Magnetic poles:	۱.۱۸ قطبهای مقناطیسی :	۱.۱۸ دمقناطیسی قطبونه :	x		
18.1.2 Like poles	۲.۱.۱۸ قطبهای همنوع	۲.۱.۱۸ همنوع قطبونه	x		
18.1.3 Unlike poles.	۲.۱.۱۸ قطبهای مختلف النوع	۲.۱.۱۸ مختلف النوع قطبونه	x		
18.2 Attraction:	۲.۱۸ جذب :	۲.۱۸ جذب :	x		
18.3 Repultion:	۳.۱۸ دفع :	۳.۱۸ دفع :	x		
18.4 Using of magnets:	٤.۱۸ استعمال مقناطیس :	٤.۱۸ دمقناطیسونو استعمال :	x		

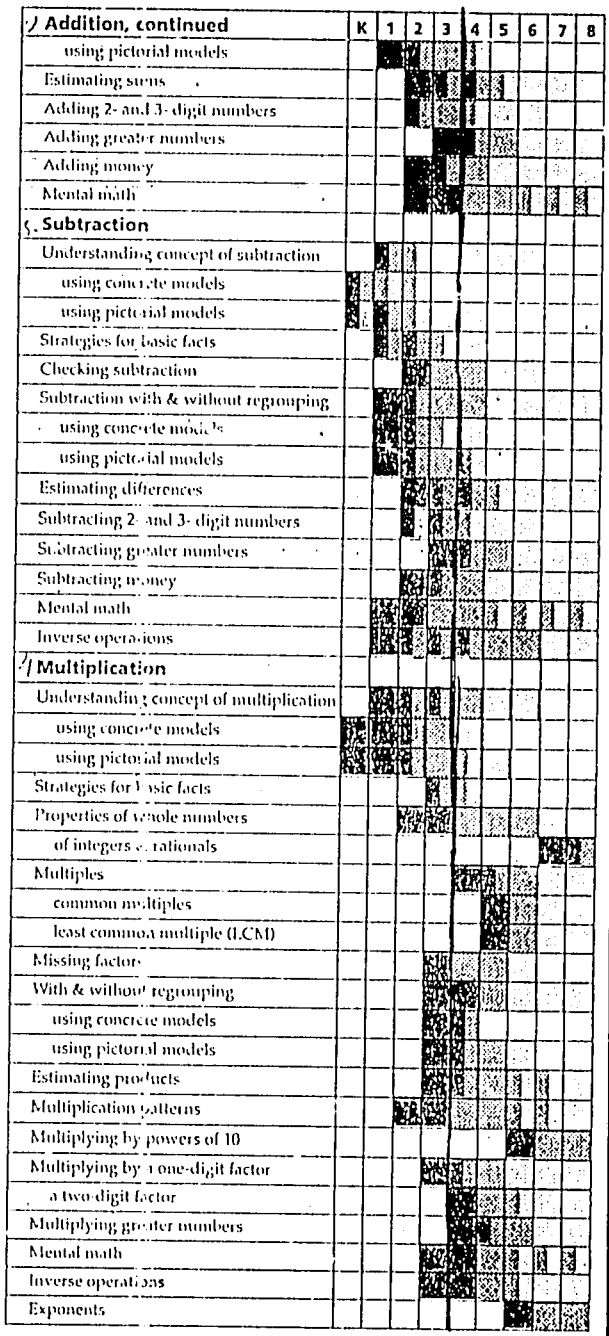
Composer: Abdul Fatah

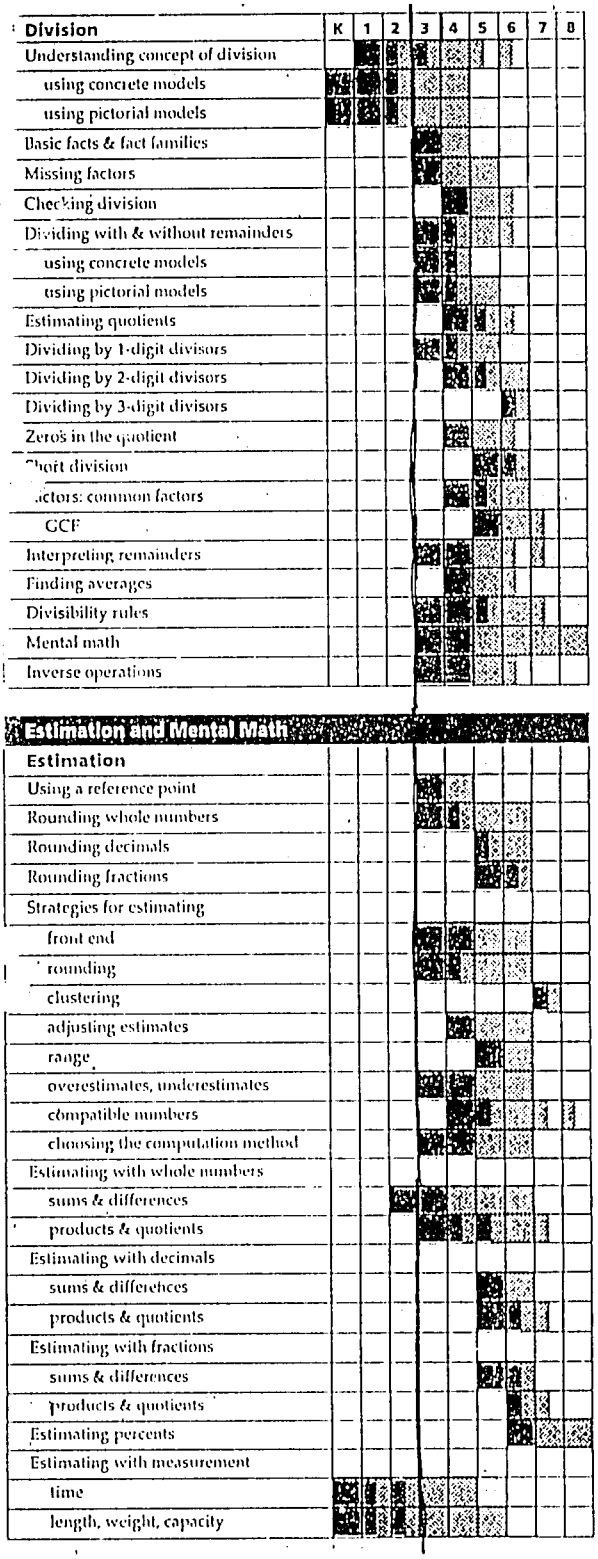
کمپوزر : عبدالفتاح

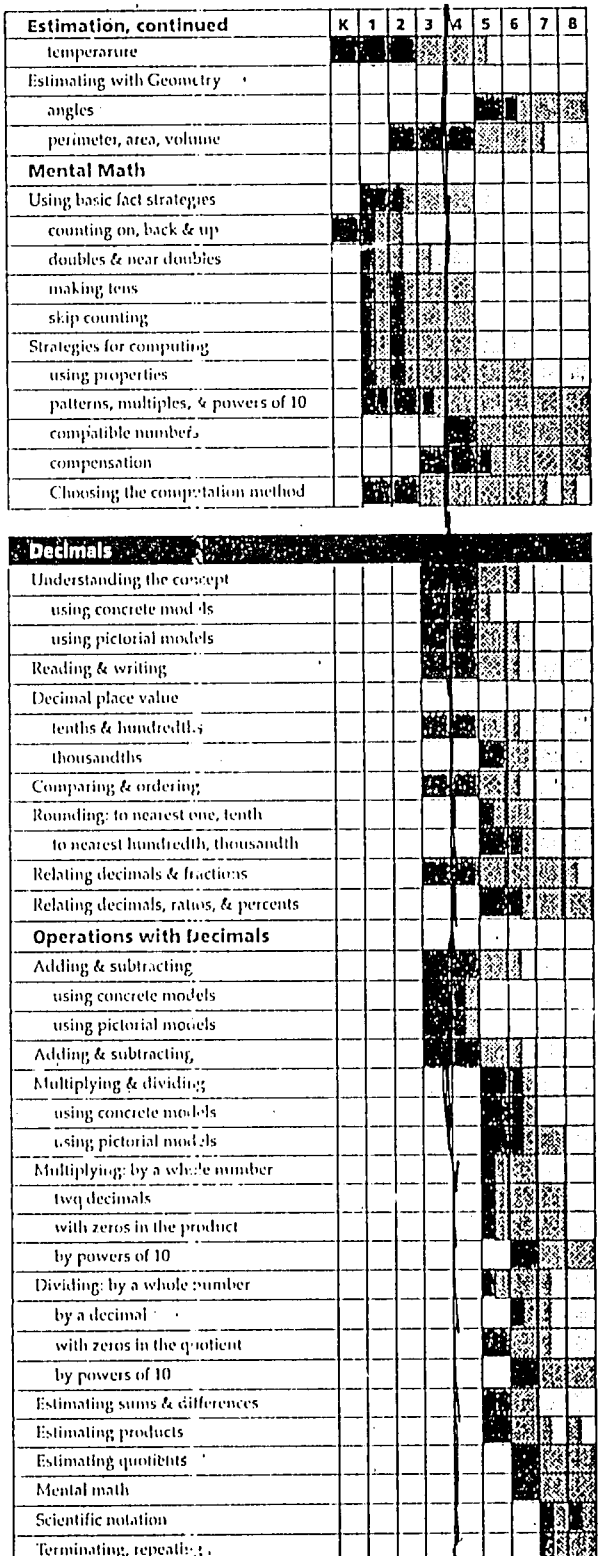
Handout 7.7 Maths

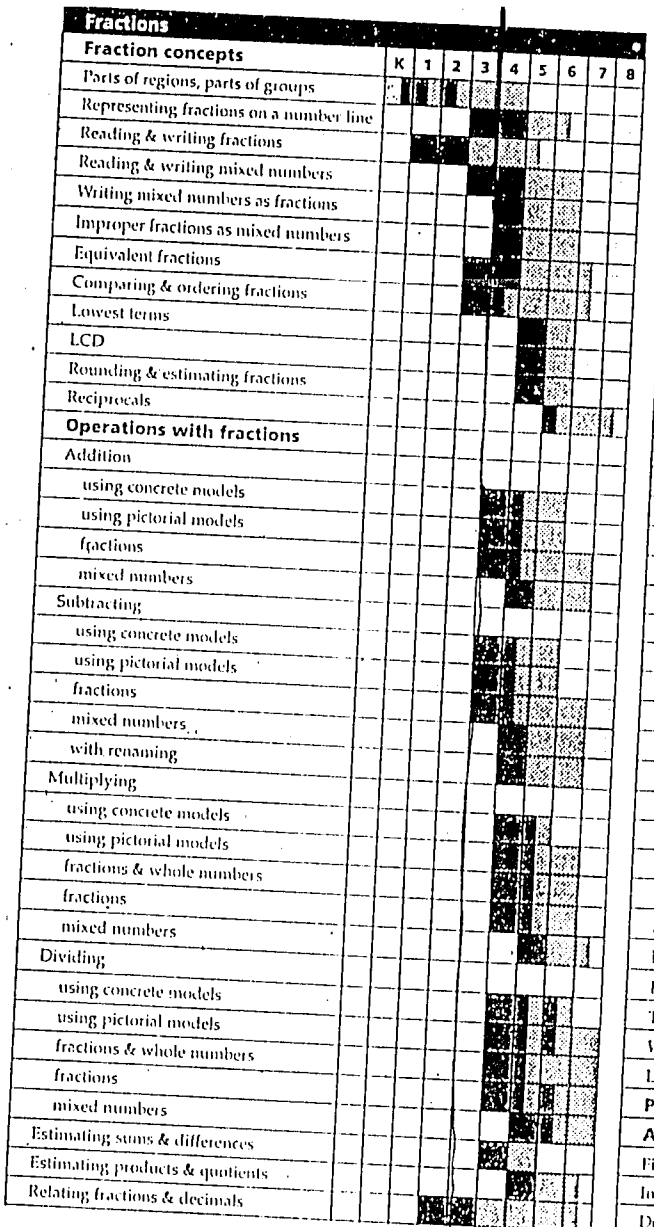
Scope and Sequence

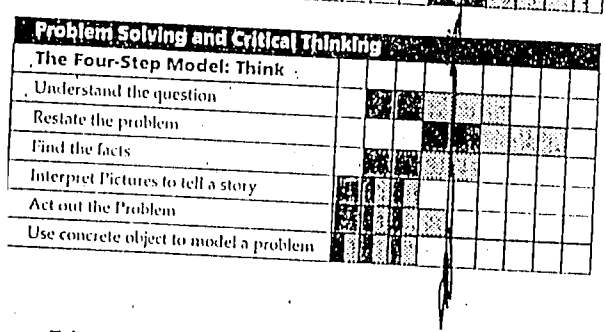


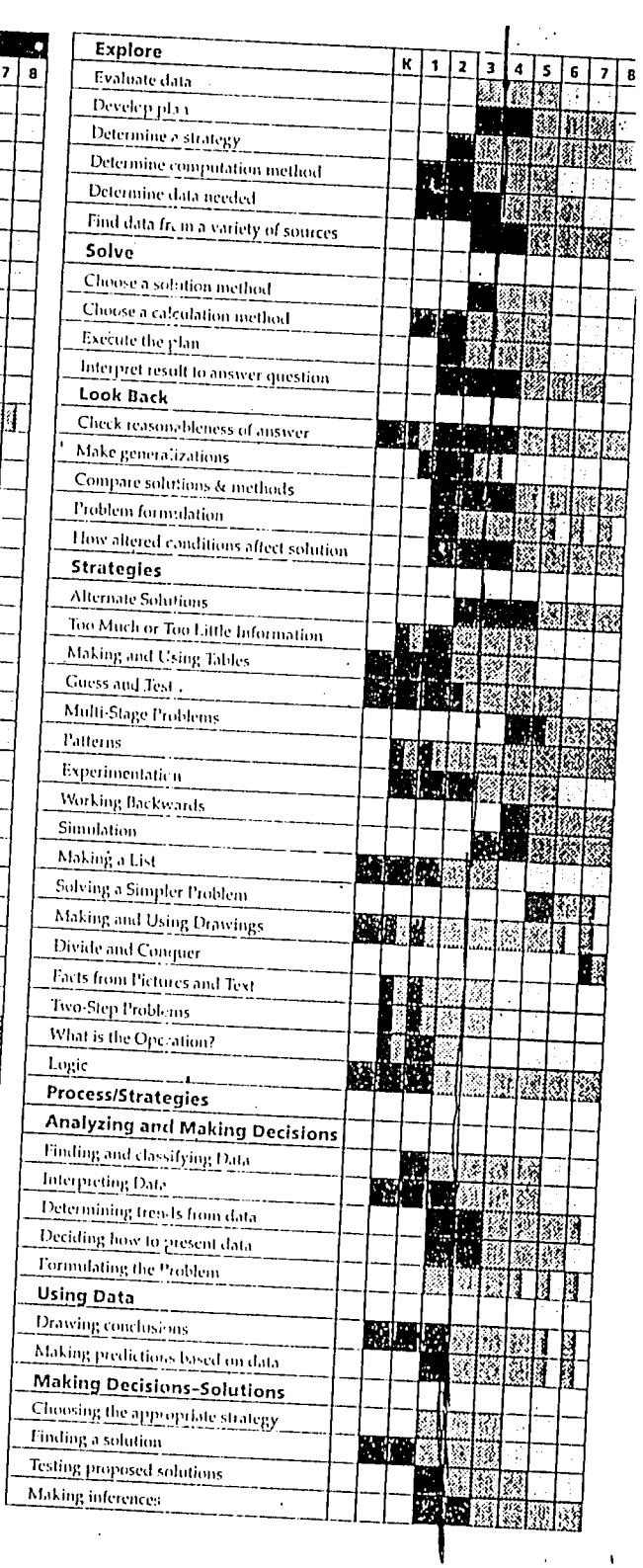



Division
K 1 2 3 4 5 6 7 8
Understanding concept of division
using concrete models
using pictorial models
Basic facts & fact families
Missing factors
Checking division
Dividing with & without remainders
using concrete models
using pictorial models
Estimating quotients
Dividing by 1-digit divisors
Dividing by 2-digit divisors
Dividing by 3-digit divisors
Zeros in the quotient
Short division
Factors: common factors
GCF
Interpreting remainders
Finding averages
Divisibility rules
Mental math
Inverse operations
Estimation and Mental Math
Estimation
Using a reference point
Rounding whole numbers
Rounding decimals
Rounding fractions
Strategies for estimating
front end
rounding
clustering
adjusting estimates
range
overestimates, underestimates
compatible numbers
choosing the computation method
Estimating with whole numbers
sums & differences
products & quotients
Estimating with decimals
sums & differences
products & quotients
Estimating with fractions
sums & differences
products & quotients
Estimating percents
Estimating with measurement
time
length, weight, capacity


Estimation, continued
K 1 2 3 4 5 6 7 8
temperature
Estimating with Geometry
angles
perimeter, area, volume
Mental Math
Using basic fact strategies
counting on, back & up
doubles & near doubles
making tens
skip counting
Strategies for computing
using properties
patterns, multiples, & powers of 10
compatible numbers
compensation
Choosing the computation method
Decimals
Understanding the concept
using concrete models
using pictorial models
Reading & writing
Decimal place value
tenths & hundredths
thousandths
Comparing & ordering
Rounding: to nearest one, tenth
to nearest hundredth, thousandth
Relating decimals & fractions
Relating decimals, ratios, & percents
Operations with Decimals
Adding & subtracting
using concrete models
using pictorial models
Adding & subtracting,
Multiplying & dividing
using concrete models
using pictorial models
Multiplying: by a whole number
two decimals
with zeros in the product
by powers of 10
Dividing: by a whole number
by a decimal
with zeros in the quotient
by powers of 10
Estimating sums & differences
Estimating products
Estimating quotients
Mental math
Scientific notation
Terminating, repeating,

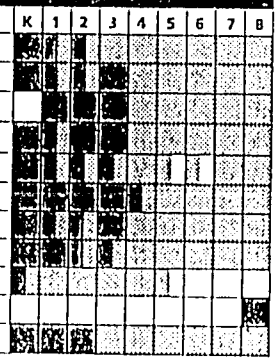




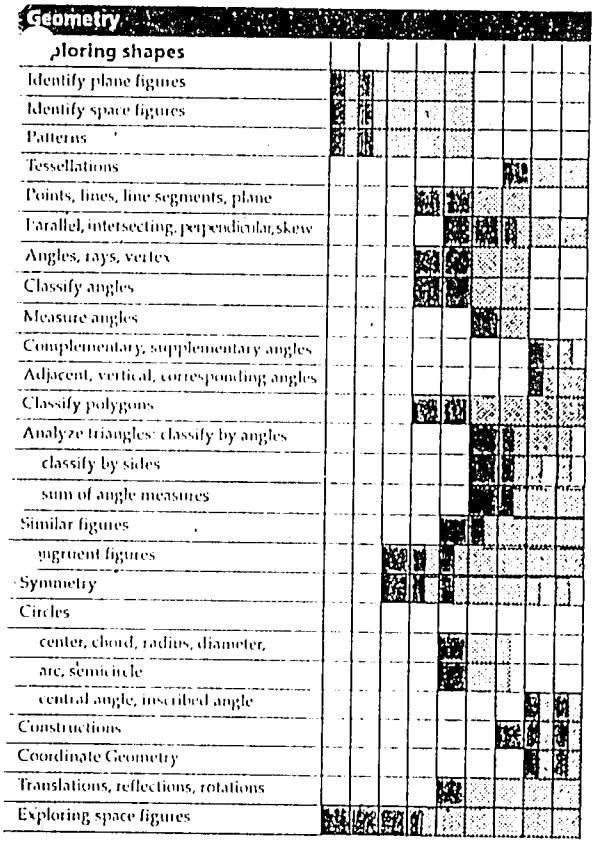


■ Introduce ◘ Develop Maintain

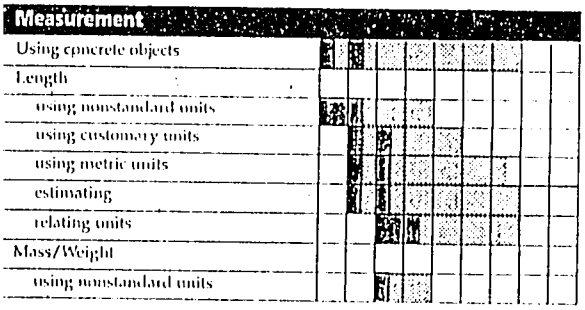
Reasoning

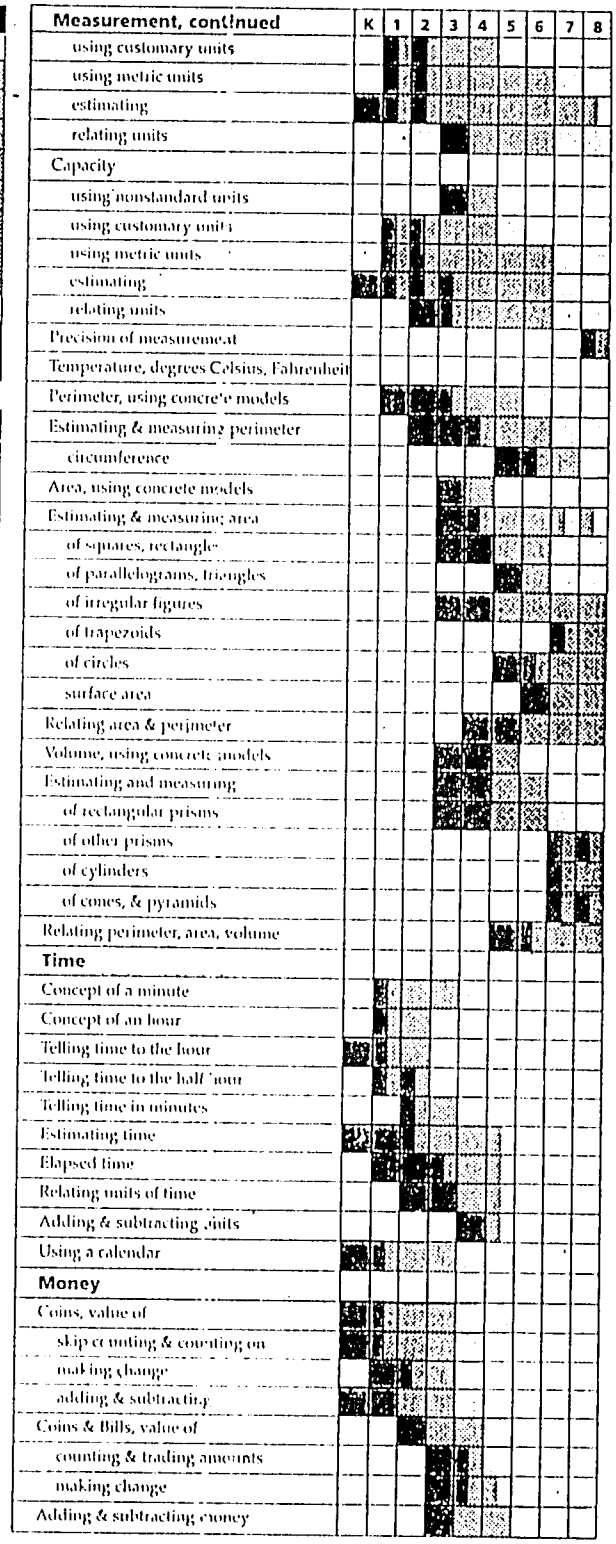


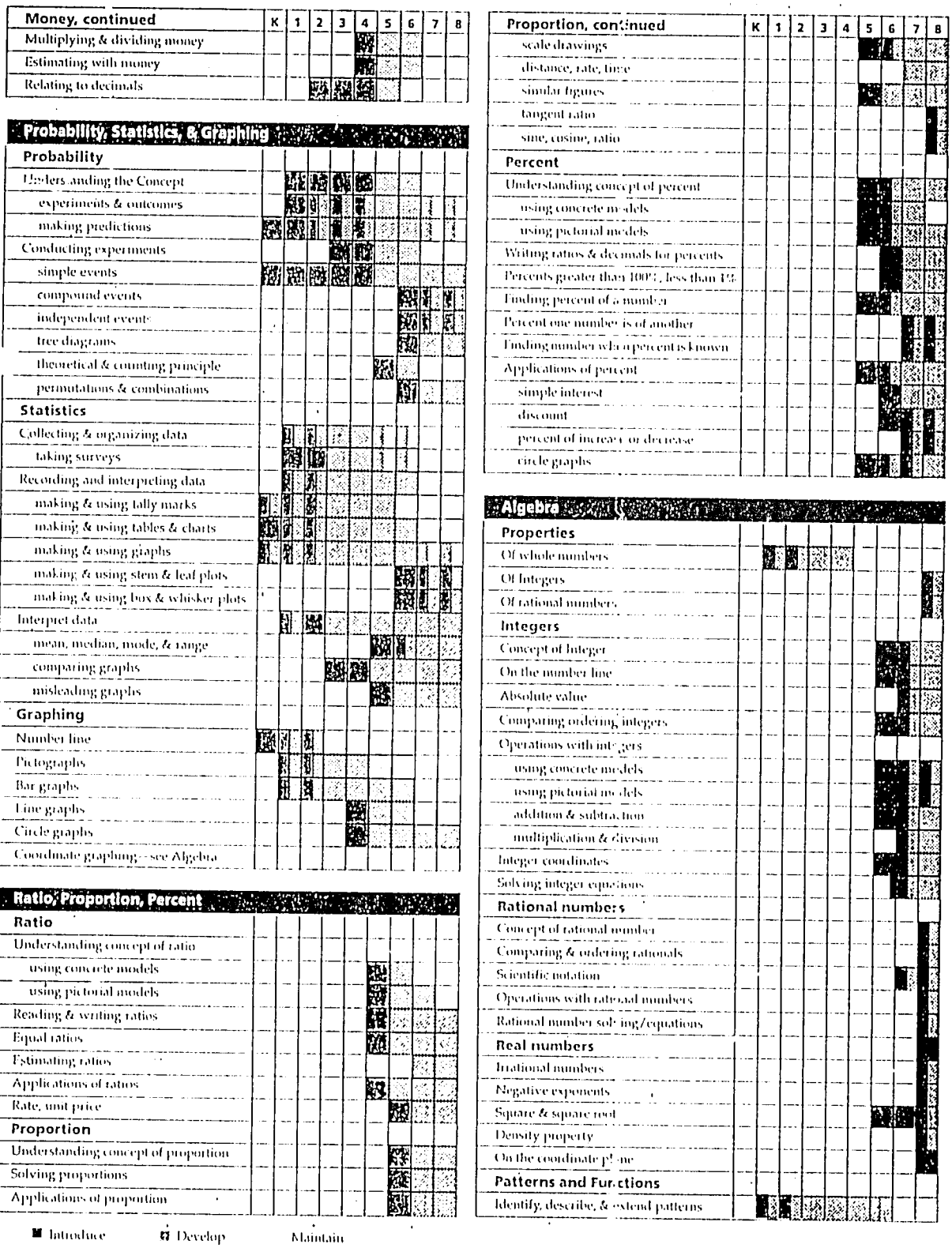
Geometry

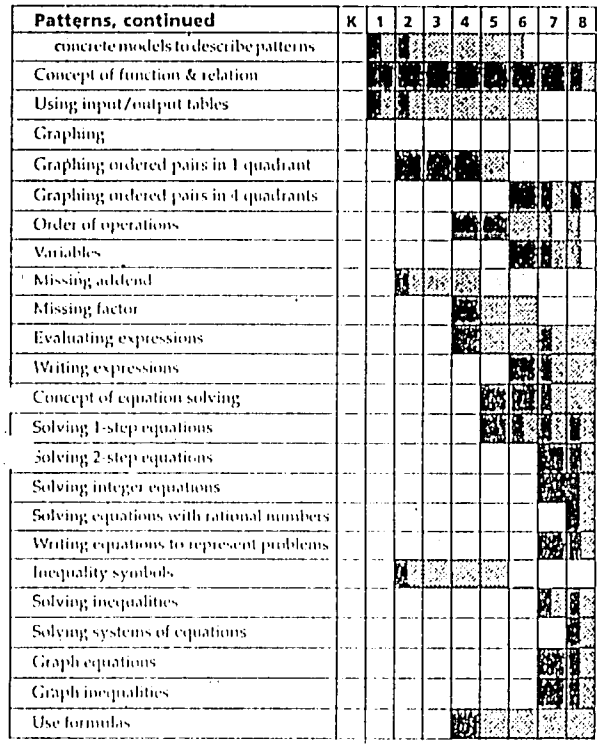


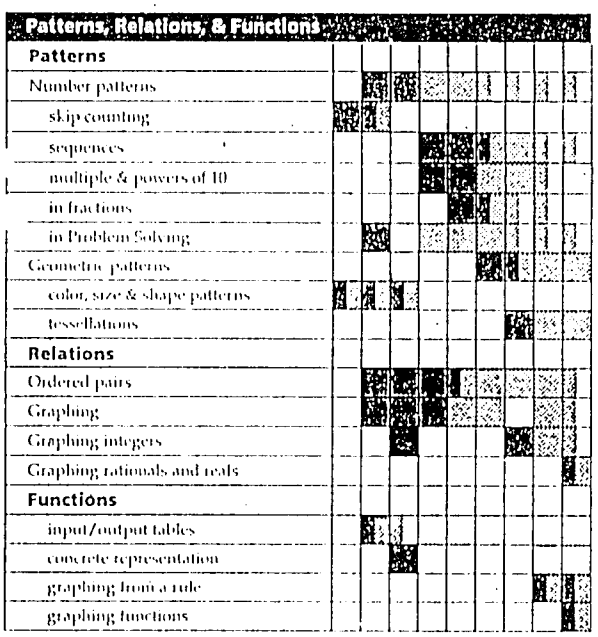
Measurement



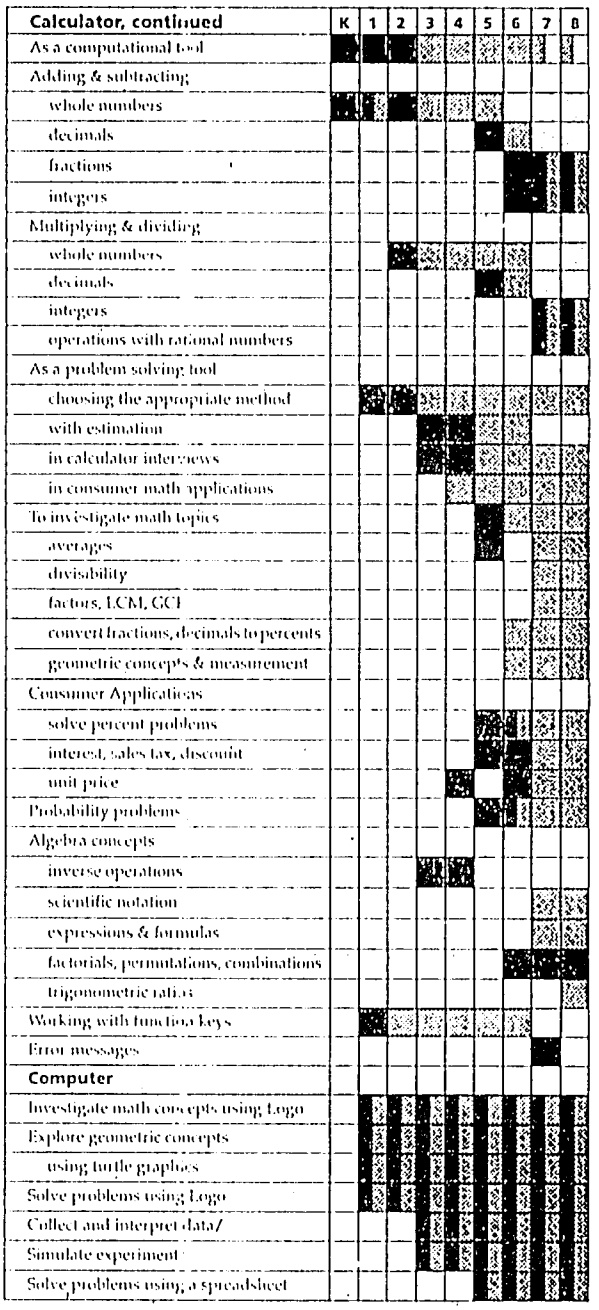


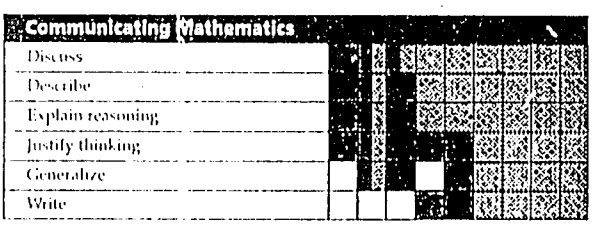

Money, continued
K 1 2 3 4 5 6 7 8
Multiplying & dividing money
Estimating with money
Relating to decimals
Probability, Statistics, & Graphing
Probability
Understanding the Concept
experiments & outcomes
making predictions
Conducting experiments
simple events
compound events
independent events
tree diagrams
theoretical & counting principle
permutations & combinations
Statistics
Collecting & organizing data
taking surveys
Recording and interpreting data
making & using tally marks
making & using tables & charts
making & using graphs
making & using stem & leaf plots
making & using box & whisker plots
Interpret data
mean, median, mode, & range
comparing graphs
misleading graphs
Graphing
Number line
Pictographs
Bar graphs
Line graphs
Circle graphs
Coordinate graphing—see Algebra
Ratio, Proportion, Percent
Ratio
Understanding concept of ratio
using concrete models
using pictorial models
Reading & writing ratios
Equal ratios
Estimating ratios
Applications of ratios
Rate, unit price
Proportion
Understanding concept of proportion
Solving proportions
Applications of proportion
Introduce
Develop
Maintain
Proportion, continued
K 1 2 3 4 5 6 7 8
scale drawings
distance, rate, time
similar figures
tangent ratio
sine, cosine, ratio
Percent
Understanding concept of percent
using concrete models
using pictorial models
Writing ratios & decimals for percents
Percents greater than 100%, less than 1%
Finding percent of a number
Percent one number is of another
Finding number when percent is known
Applications of percent
simple interest
discount
percent of increase or decrease
circle graphs
Algebra
Properties
Of whole numbers
Of Integers
Of rational numbers
Integers
Concept of integer
On the number line
Absolute value
Comparing ordering integers
Operations with integers
using concrete models
using pictorial models
addition & subtraction
multiplication & division
Integer coordinates
Solving integer equations
Rational numbers
Concept of rational number
Comparing & ordering rationals
Scientific notation
Operations with rational numbers
Rational number solving/equations
Real numbers
Irrational numbers
Negative exponents
Square & square root
Density property
On the coordinate plane
Patterns and Functions
Identify, describe, & extend patterns


Patterns, continued
K 1 2 3 4 5 6 7 8
concrete models to describe patterns
Concept of function & relation
Using input/output tables
Graphing
Graphing ordered pairs in 1 quadrant
Graphing ordered pairs in 4 quadrants
Order of operations
Variables
Missing addend
Missing factor
Evaluating expressions
Writing expressions
Concept of equation solving
Solving 1-step equations
Solving 2-step equations
Solving integer equations
Solving equations with rational numbers
Writing equations to represent problems
Inequality symbols
Solving inequalities
Solving systems of equations
Graph equations
Graph inequalities
Use formulas


Patterns, Relations, & Functions
Patterns
Number patterns
skip counting
sequences
multiple & powers of 10
in fractions
in Problem Solving
Geometric patterns
color, size & shape patterns
tessellations
Relations
Ordered pairs
Graphing
Graphing integers
Graphing rationals and reals
Functions
input/output tables
concrete representation
graphing from a rule
graphing functions


Technology
Calculator
counting on & back
skip counting

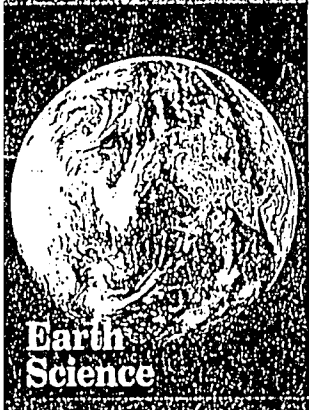

Calculator, continued
K 1 2 3 4 5 6 7 8
As a computational tool
Adding & subtracting
whole numbers
decimals
fractions
integers
Multiplying & dividing
whole numbers
decimals
integers
operations with rational numbers
As a problem solving tool
choosing the appropriate method
with estimation
in calculator interviews
in consumer math applications
To investigate math topics
averages
divisibility
factors, LCM, GCF
convert fractions, decimals to percents
geometric concepts & measurement
Consumer Applications
solve percent problems
interest, sales tax, discount
unit price
Probability problems
Algebra concepts
inverse operations
scientific notation
expressions & formulas
factorials, permutations, combinations
trigonometric ratios
Working with function keys
Error messages
Computer
Investigate math concepts using Logo
Explore geometric concepts
using turtle graphics
Solve problems using Logo
Collect and interpret data/
Simulate experiment
Solve problems using a spreadsheet


Communicating Mathematics
Discuss
Describe
Explain reasoning
Justify thinking
Generalize
Write

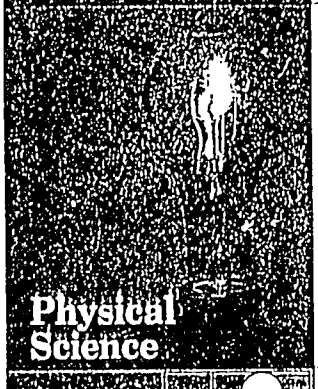
Handout 7. 7. Sci
3 pages
2 pages in Pari
as attached -

SCOPE & SEQUENCE

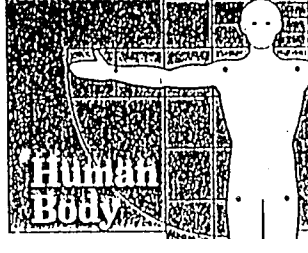
Kindergarten	LEVEL 1	LEVEL 2
Chapter 7 Animals p.76 Chapter 8 Plants p.84 Chapter 9 Caring for Our World p.94	Chapter 1 What Is a Living Thing? p.4 Chapter 2 Animals p.18 Chapter 3 Plants p.34 Chapter 4 The Space Around You p.50	Chapter 9 Animal Groups p.156 Chapter 10 Plants p.176



Chapter 3 Seasons p.30 Chapter 4 Land, Water, and Air p.42 Chapter 5 Weather p.56 Chapter 6 Space p.66 Chapter 9 Caring for Our World p.94	Chapter 5 Life Long Ago p.70 Chapter 6 Land Around Us p.86 Chapter 7 Earth and Space p.102	Chapter 1 Air and Weather p.4 Chapter 2 Changes on Earth p.24 Chapter 3 Earth Long Ago p.40 Chapter 4 Your Environment p.58 Chapter 5 Earth in Space p.74



Chapter 1 My Senses p.4 Chapter 4 Land, Water, and Air p.42	Chapter 8 Learning to Observe p.122 Chapter 9 What Are Forces? p.138 Chapter 10 Magnets p.154	Chapter 6 Learning to Measure p.98 Chapter 7 Sound Around Us p.118 Chapter 8 Heat p.134



Chapter 1 My Senses p.4 Chapter 2 My Body p.16	Chapter 11 You and Your Body p.172 Chapter 12 You Are Important p.188	Chapter 11 Growing Up p.200 Chapter 12 Keeping Healthy and Safe p.216

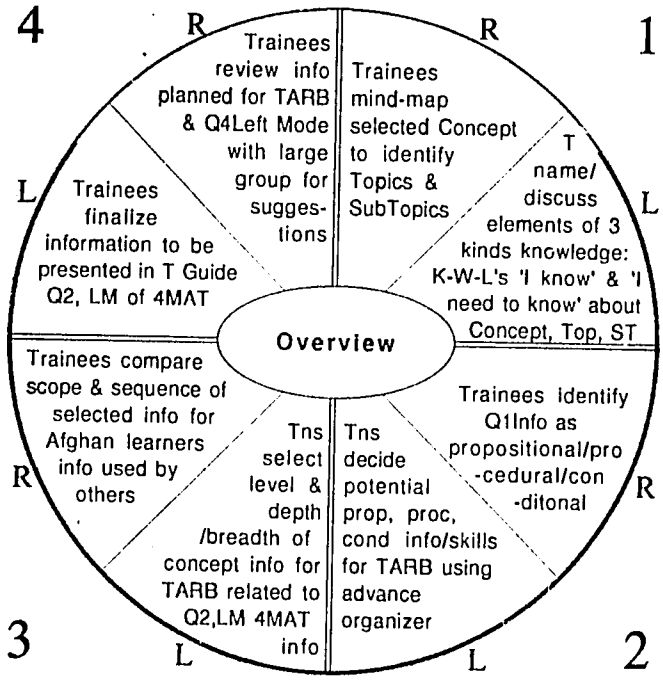
LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
Chapter 10 Food for Living Things p.192 Chapter 11 Habitats p.216 Chapter 12 Animal Adaptations p. 244	Chapter 1 Scientific Method p.4 Chapter 2 Invertebrates p.28 Chapter 3 Vertebrates p.46 Chapter 4 Seed Plants p.68 Chapter 5 Plants Grow and Change p. 84	Chapter 12 Plant Characteristics p.242 Chapter 13 Growth Cycles p.260 Chapter 14 Ecosystems p.276 Chapter 15 Biomes p.302	Chapter 12 Classifying Living Things p.290 Chapter 13 Simple Organisms p.320 Chapter 14 Growth and Reproduction p.342 Chapter 15 Inheriting Traits p.366
Chapter 6 Rocks p.112 Chapter 7 Nature Changes Rocks p.132 Chapter 8 Weather and Climate p.146 Chapter 9 Water p.166	Chapter 6 Members of Our Solar System p.108 Chapter 7 Our Star p.142 Chapter 8 The Ocean Around Us p.162 Chapter 9 Exploring the Ocean p.186	Chapter 1 The Atmosphere p.4 Chapter 2 Weather p.28 Chapter 3 Earth's Composition p.52 Chapter 4 Earth's Structure p.76 Chapter 5 Earth's Changing Crust p.96 Chapter 6 Earth's Surface Features p.116 Chapter 7 Earth's History p.136	Chapter 8 Stars and Galaxies p.176 Chapter 9 Exploring Space p.202 Chapter 10 Soil and La Conservation p.232 Chapter 11 Water and A Conservation p.258
Chapter 1 Think Like a Scientist p.4 Chapter 2 Matter p.26 Chapter 3 Changes in Matter p.46 Chapter 4 Forces and Work p.68 Chapter 5 Machines p.86	Chapter 10 Light and Sound p.210 Chapter 11 Electricity p.234 Chapter 12 Magnetism and Electricity p.252	Chapter 8 Forms of Energy p.162 Chapter 9 Energy Transfer and Conservation p.184 Chapter 10 Fossil Fuels p.200 Chapter 11 Energy Alternatives p.220	Chapter 1 Investigating Matter p.4 Chapter 2 Matter and I Changes p.30 Chapter 3 Investigating Compounds p.56 Chapter 4 Electricity p. Chapter 5 Waves p.100 Chapter 6 Motion and Forces p.122 Chapter 7 Work and Machines p.150
Chapter 13 Your Body p.278 Chapter 14 Staying Healthy p.304	Chapter 13 Taking Care of Yourself p.274 Chapter 14 Healthful Eating p.300 Chapter 15 Drugs p.318	Chapter 16 The Skeletal and Muscular Systems p.338 Chapter 17 The Nervous and Endocrine Systems p.364	Chapter 16 Circulation Respiration p.398 Chapter 17 Digestion a Excretion p.424 Chapter 18 Caring for Y Body p.448

Science Program Scope and Sequence

	K	1	2	3	4	5	6
Life Science *(Units)*	†1 Growing 2 Small Animals †3 Nutrition 8 Seeds and Plants	†1 The Senses 2 Animals 7 Plants	†1 Your Body 2 Animals 7 Plants	†1 Your Body's Needs 7 Protection and Defense in Living Things †8 Green and Growing	†1 Animal Life *5 Adaptions to Surroundings 7 Flowering Plants †*8 Populations and the Environment	1 Classification †2 The Cell *3 Changes Through Time	*1 Balance and Interdependence 2 Plant Processes †3 Your Body: Support and Transport †4 Your Body: Regulation and Response
Earth Science *(Units)*	6 Weather and Seasons	*8 Outside	6 A Trip into Space *8 Habitats and Homes	4 The Earth Beneath Our Feet *5 Fossils 6 Water	2 Weather 3 Forces Within the Earth 4 Changes in the Earth's Surface	7 Solar System *8 The Environment	7 Water on the Earth 8 The Universe
Physical Science *(Units)*	4 Wheels 5 Air and Water 7 Sorting and Grouping	3 Describing and Sorting 4 Solid Objects 5 Liquids and Gases 6 Light and Sound	3 Matter 4 Heat 5 Motion	2 Light and Sound 3 Magnetism and Electricity	6 Work and Energy	4 Matter 5 Sound 6 Light	5 Energy and Its Use 6 Energy Sources Today and Tomorrow

Process Skills							
Observing	TE 1 2 3 4 5 6 BLM 1 2 3 4 5 6 8	TE 1 2 4 5 6 7 8 TRB 1 3 4 8	TE 1 2 3 4 6 7 8 TRB 1 8	TE 2 3 4 5 6 7 8	TE 1 4 5	TE 1 2 3 4 6 8	TE 2 3 4 5 7 TRB 1 2 3 5 6
Communicating	TE 2 3 4 5 6 8 BLM 2 3 4 5 6 8	TE 2 3 4 5 6 7 8 TRB 1 5 7	TE 1 2 3 5 6 TRB 1 5	TE 1 2 3 4 7 8 TRB 2	TE 1 7 8	TE 2 4 6	TE 1 6 7 8 TRB 4
Measuring	TE 1 8 BLM 1 3	TE 2 5 8 TRB 2 4	TE 1 4 5 7 TRB 1 3	TE 1 4 5 6 7 TAB 1	TE 2 4 6 7 8	TE 3 5 7 TRB 3 4	TE 2 3 4 6 7 8 TRB 2 4 6 7 8
Classifying	TE 1 3 BLM 1 2 3 7	TE 3 4 7 8 TRB 3 4 5 7	TE 2 6 TRB 2 7	TE 1 3 6 TRB 1 2	TE 3 4 7 TRB 3 7	TE 1 2 4 8	TE 1 4 TRB 1 3
Making models			TE 5 3 TRB 6 8	TE 2	TE 2 3 4 5 6 7 TRB 3 5	TE 2 3 4 6 7 8 TRB 1 2	TE 3 6 7 8 TRB 3 5 7 8
Recognizing space/time relationships			TE 5 TRB 5	TE 6 TRB 6	TE 3 4 5 TRB 3 6	TE 7 TRB 3	TE 8
Collecting data			TE 5 7 TRB 6 7	TE 1 5 TRB 1	TE 2 5 7 8 TRB 2	TE 1 2 3 4 8 TRB 2 3	TE 1 2 3 4 5 6 8 TRB 2 5 7
Interring				TE 1 2 3 4 5 6 7 8 TRB 5 6	TE 2 3 6 TRB 2 6	TE 1 2 3 4 5 6 7 8 TRB 1 3	TE 1 2 3 5 7 8 TRB 1 3 5 7
Predicting		TE 3 TRB 3	TE 2	TE 4 6 TRB 4	TE 1 2 3 4 5 8 TRB 2 8	TE 4 5 8 TRB 4 5	TE 1 4 5 6 TRB 1 2 5
Identifying and controlling variables					TE 2 5 6 7 TRB 5 7	TE 8 TRB 1 3	TE 3 6 TRB 1 3
Interpreting data					TE 5 TRB 6 7	TRB 1	TE 2 3 4 5 6 8 TRB 2
Experimenting					TE 1 4 6 7 8	TE 1 2 4 5	TE 1 2 3 TRB 3 5 6 7 8

TE = Teacher's Edition units BLM = Blackline Masters units (kindergarten only) TRB = Teacher's Resource Book units *Units that relate to both life and earth sciences †Units that can be used to support and enhance health education



Title: Ch3 TnrMan Script
Grade level: Adult
Subject: SF/MTT (TF) Transfer Wksp 4-5
Author(s): D. Schutte
Concept: Steps 4 - 5 TESD Flow Chart
Keys/Cross-refs: See D. Schutte, TESD Flow Chart
Note: Concepts here includes subordinate topics and subtopics.
Ref also to 4MAT Materials of B. McCarthy & Excel Inc.

Ref. Code: Flow Chart
Duration: 2 Days

— Overview —

8. TESD Flow Chart Steps 4 - 5

Aims, Goals, Outcomes:

To recall, consult resources, and organize propositional, procedural and conditional information about a specific identified concept (and its topics and subtopics) and compare it to what other children at similar age and grade levels in other countries learn in order to decide what Afghan children should learn if they are to have an equal educational opportunity in the modern world. Therefore, this information comprises what teachers should know and teach about the concept at the specific grade level under consideration.

[Note: This information will be selected for and collected in the Teacher's Academic Resource Book and will serve to educate unqualified and under qualified teachers concerning what to teach. It also serves as the basic resource for organizing and developing the Teacher's Guide (4MAT: Quadrant 2, Left Mode) and affects the selection or creation of Instructional Materials and Students' texts concerning the concept under consideration.

About the Author:

These Materials were developed by Dr. Donald G.W. Schutte. They were written for and modified during a Master Teacher Training Workshop held in Peshawar, Pakistan. This workshop was supervised by Dr. Schutte but conducted by trained Afghan Specialist Facilitators. They responded to the materials and suggested changes to them during the process of implementation. The facilitators full names are listed in the credits section of the introduction. Alphabetically, they are -- Amouzgar, Azizi*, Bakhtari*, Bandawal, Besmellah, Hekmaty, Najibullah, Najmi*, Nedai*, Sayeed, Sherzad, Sultani, Yadgari*, Yusofzai. Those marked with an asterisk are Science and Mathematics specialists who actually conducted the workshop for Master Teacher Trainers. The other specialists are either Social Studies or Language Arts Specialists. Together, along with those conducting the workshop, they were busy during the workshop period translating this Trainers Manual into Dari and Pushtu.

At the time of the writing, Dr. Schutte, was a permanent Team Member of the University of Nebraska at Omaha, Education Sector Support Project. He was the Project's Teacher Training and Curriculum Design Coordinator.

Dr. Gerald Boardman, Chief of Party, and Professor Abdul Salaam Azimi, his Deputy lead the Project. It is sponsored by USAID. UNO/ESSP is a cross-border project supporting the reconstruction of the Afghan education. It is located in Peshawar, Pakistan.

— Quadrant 1, Right mode —

Outcome: Each group of trainees within a subject specialty will identify the topics and subtopics associated with a concept they have agreed to develop using the TESD process. Specialist Facilitators will act as mentors to help groups divide a selected concept into topics and subtopics appropriate to the class level under consideration.

Trainer Directed Activities:

1. Trainer will distribute Handout 8.1 and 8.1.1, *Mind-Mapping Concept, Topic, Subtopic.*

2. Trainer will briefly explain the strategy of 'mind-mapping' using an example from Mathematics or Science, as appropriate, to mind-map a concept, topic, and subtopic with them.

3. Trainer will work with his appointed group to mind-map the concept with its subordinate topics and subtopics which the group has agreed to develop using the TESD process.

Evaluation:

Each subject specialty group will produce an agreed list of topics and subtopics for the concept it has selected.

— Quadrant 1, Left mode —

Outcomes: Trainees will be able to name the three types of knowledge and identify the elements which make up 1. propositional (or declarative) knowledge, 2. procedural knowledge, and 3. conditional knowledge. Trainees will be able to use the K-W-L Strategy to identify "What they know", i.e.their personal knowledge, about the selected concept and each topic and subtopic and "What they would like to know or need to find out from other resources."

(The purpose of this is to begin to construct the specific academic and background knowledge and skills a teacher must have to be qualified to teach a particular concept. This information will become a unit related to a particular concept that will be included in a Teacher's Academic Resource Book (TARB) This information, in turn, is related to specific information that will be included in Q2, LM of the 4MAT Lesson Plan. This information also determines the substantive information that will be selected to be included in the student text.)

Trainer Directed Activities:

1. Trainer distributes Handout 8.2.

2. Trainees name the agreed concept, topics, and subtopics and follow the instructions on the Handouts. Trainees will use a K-W-L strategy to brainstorm about the selected concept and each topic and subtopic related to it. From this activity, trainees will determine *what they already know* about the agreed concept, topics and subtopics and *what they would like to know*. They need, with the help of the Specialist Facilitators to go to other resources to find out about them.

3. Trainees will work with Specialist Facilitator Mentors to produce their answers in written form. This will provide the basis for further production activities.

Evaluation:

Satisfactory discussion and written questions they want to find answers to about the concept in question.

— Quadrant 2, Right mode —

Outcomes: Trainees will produce a written analysis of the information resulting from Quadrant 1, dividing it into propositional, procedural, and conditional knowledge and skills.

Trainer Directed Activities:

1. Trainees will review the information from Quadrant 1 and distribute Handouts 8.2.1, 8.2.2, and 8.2.3.

2. Trainees will categorize in written form the information from Quadrant 1, dividing it into Propositional, Procedural, and Conditional Information. To aid them in making their decisions, Trainer will refer trainees to the elements of each type of information found in tabular form in Handouts 8.2.1, 8.2.2 and 8.2.3.

Evaluation:

Satisfactory classification and summary of *propositional, procedural and conditional* information concerning the concept, topics, and subtopics under consideration as determined by the Specialist Facilitator in agreement with each group's shared and declared expertise.

— Quadrant 2, Left mode —

Outcomes: Trainees decide a) what conceptual content students should learn in a specific subject at a specific grade level and, therefore, b) what specific conceptual and background knowledge a teacher should know in order to be qualified to teach Afghan learners a specific concept.

Trainees will use *advance organizers* to identify specific propositional, procedural and conditional information concerning the selected concept (with its subordinate topics and subTopics). Later it is to be used to prepare one specific concept unit in the Teacher's Academic Resource Book (TARB). From this information, trainees will select, at the appropriate time, the content for Q 2, L M of the 4MAT Lesson Plan. The Lesson Plan, in turn, will determine the cognitive and skills content of students' texts and instructional materials as well as statements of how, when and where the information (conditional information) is useful in real life.

Trainer Directed Activities:

1. Trainer will distribute Handouts 8.3 and 8.4 (on the reverse of 8.3) and monitor the following activity.

2. Trainer will review Handouts 8.3 and 8.4 with Trainees. These Handouts illustrate the use of an *Advance Organizer* as a thinking tool to analyze and organize the information which will be included in the TARB as Trainee begins to relate to and mentally connect the information to be presented in the student text and Q2 L M of the Lesson plan.

3. Trainer will distribute Handouts 8.5 and 8.6 (on the reverse of 8.5) and monitor the following activity.

4. From all the information collected about the agreed concept and its subordinate topics and subtopics (see Q 1, LM and Q 2, RM), Trainee will use the *advance organizer* model format to classify information and answer the questions which make up the headings of the columns on the model form.

Evaluation:

All columns on Handout 8.5 and 8.6 will be completed satisfactorily. *Satisfactory* here means that the subject specialty group and Specialist Facilitators have developed and use criteria to judge the worthiness of the response.

— Quadrant 3, Left mode —

Outcomes: Trainees will be able to select from the potential information they have summarized on Handouts 8.5 and 8.6 those items that are deemed to be relevant to be learned by Afghan children in the class level under consideration. The criteria of relevance here is that the substantive content concerning a concept and its subordinate topics and subtopics be sufficient but not at too great of depth and breadth of knowledge or skills for learners at the class level under consideration.

Trainer Directed Activity:

1. From the propositional and procedural information identified and categorized in the Model format (Q2, LM) select information relevant to the scope (depth and breadth knowledge and skill) that matches the mental and physical ages and stages of growth and development of the children at the class under consideration.

2. Trainees will summarize and reorganize the information (see 1, above) to include only that which they have selected as relevant to the class level under consideration.

3. Trainees will put the information (see 2, above) in a logical sequence. Sequencing should be related to both the logical sequence of content and the principles of learning involved.

4. Trainees will consider the need to do more in depth research on items selected to insure they have included both what they want children to learn and any background information and skills which needs to be included in the section of the Teacher's Academic Resource Book concerning this particular concept and its subordinate topics and subtopics.

[Reminder Note: Trainees should be reminded that the above mentioned information is to be included in the Teachers Academic Resource Book (TA RB) and the Student Text (ST). This allows *under- qualified* and *unqualified* teachers to be quickly trained and upgraded specifically in relation to concept content they are expected to teach. Trainees are also reminded that they are responsible for creating both the TARB and Student Text (ST) using the TotalEducation Systems Development Process. The ST is to be included as a supplement to the 4MAT Lesson Plan to provide a means for implementing the planned learning process with students. Pedagogical and assessment methods, strategies, and techniques that are to be used when the plan is implemented in the classroom are integral parts of the 4MAT Lesson Plan. As Trainees develop the lesson plan, therefore, they simultaneously construct the foundation for the further development of both a Teacher's Pedagogical Resource Book (TPRB) and a Teacher's Assessment and Evaluation Manual (TAEM). Both are specifically correlated with, and serve to illustrate, through application, the content to be taught as well as the learning outcomes to be achieved and assessed.]

Evaluation:

Information, summarised in written form, is deemed satisfactory when Specialist Facilitators and all subject specialist groups agree that it is.

— Quadrant 3, Right mode —

Outcomes: Trainees will compare the choices they have made concerning the concept drawn from the *Concept Scope and Sequence* on behalf of Afghan children with those made by curriculum developers in other countries. Where there are differences, trainees will reconsiders and revise or modify their choices as they deem necessary to ensure applicability to Afghan Children.

Trainer Directed Activity:

1. Trainer will provide sample resource books and other materials, e.g., audio and video tapes, from other countries. These will contain scope and sequence and content relevant to the specific concept, topics and subtopics under consideration by the trainees.

2. Specialist Facilitators will translate from English as necessary for understanding.

3. Trainees will compare the content they have selected for Afghan learners to learn about a specific concept and its related subordinate topics and subtopics at a particular class level. The comparison is to be made with similar content taught in other countries.

[Note: The substance will be culturally affected, however, the cognitive outline may be the same. For example, in social studies, a unit may concern the concept of "family' with a subordinate topic of 'family values'. The substance of the lesson for Afghan learners would be 'AFGHAN FAMILY VALUES. The substance of curriculum and instructional materials of other countries, on the other hand, would be specific to the country in question. However, in both cases learners will have learned about 'family' and 'family values at similiar levels of scope (depth and breadth) and sequence.

Evaluation:

Trainees and Specialist Facilitators are satisfied that they are ready to present the content of the concept unit they have selected to the whole group for discussion, validation - based on agreed criteria, and approval.

— Quadrant 4, Left mode —

Outcomes: On the basis of the discussions (Q3, RM), Trainees will revise and prepare information in final form for the consideration and approval of the whole group. The materials will be comprised of information that later will be organized for presentation to students in student texts ST) and in 4MAT Q2, L M of the Lesson Guide as well as the relevant section of the Teacher's Academic Resource Book (TARB).

Trainer Directed Activity:

1. Trainees will discuss with their Specialist Facilitator mentors and their own small subject specialty group the comparisons of content deemed appropriate for Afghan children with that which is taught to children in other countries. They will bring their final choices to the whole group to establish a consensus of 'experts'.

2. Trainees will revise and prepare final version of information that will provide the substance of information from which they will create Q2, L M of the Teacher's Guide, the Student Text, and the relevant

section of the TARB concerning the particular concept with its subordinate topics and subtopics under consideration.

Evaluation:

Agreement between Trainees and Specialist Facilitator that the version of the material is ready to be presented to the whole group for consideration, validation and approval as being satsifactory for Afghan children to learn.

— Quadrant 4, Right mode —

Outcomes: Whole group will agree that the information which has been developed for this concept and its subordinate topics and subtopics meet the following qualitative criteria:

1. It is of sufficient, but not excessive, quantity.
2. It is written at a level of depth and breadth appropriate for the grade level of the child under consideration.
3. It maintains a high standard of language usage.
4. It is organized in a form that is suitable for publication.

Trainer Directed Activity:

1. Trainer will act as discussion Chairman. Trainer will develop criteria that the group will use to judge the appropriateness of the material presented by the Trainees. The criteria at least should include the four points given in this Quadrant under Outcomes (see above).

2. Trainees will present the final draft form of information (see Q4, L M, above) for the consideration of the whole group. Using the criteria they have developed, trainee will answer the questions raised by the large group and record their suggestions for further reference.

3. Based on the suggestions received in the discussion, if necessary, Trainees will revise and prepare the final version of the substantive concept content that is to be used in the next phase of development.

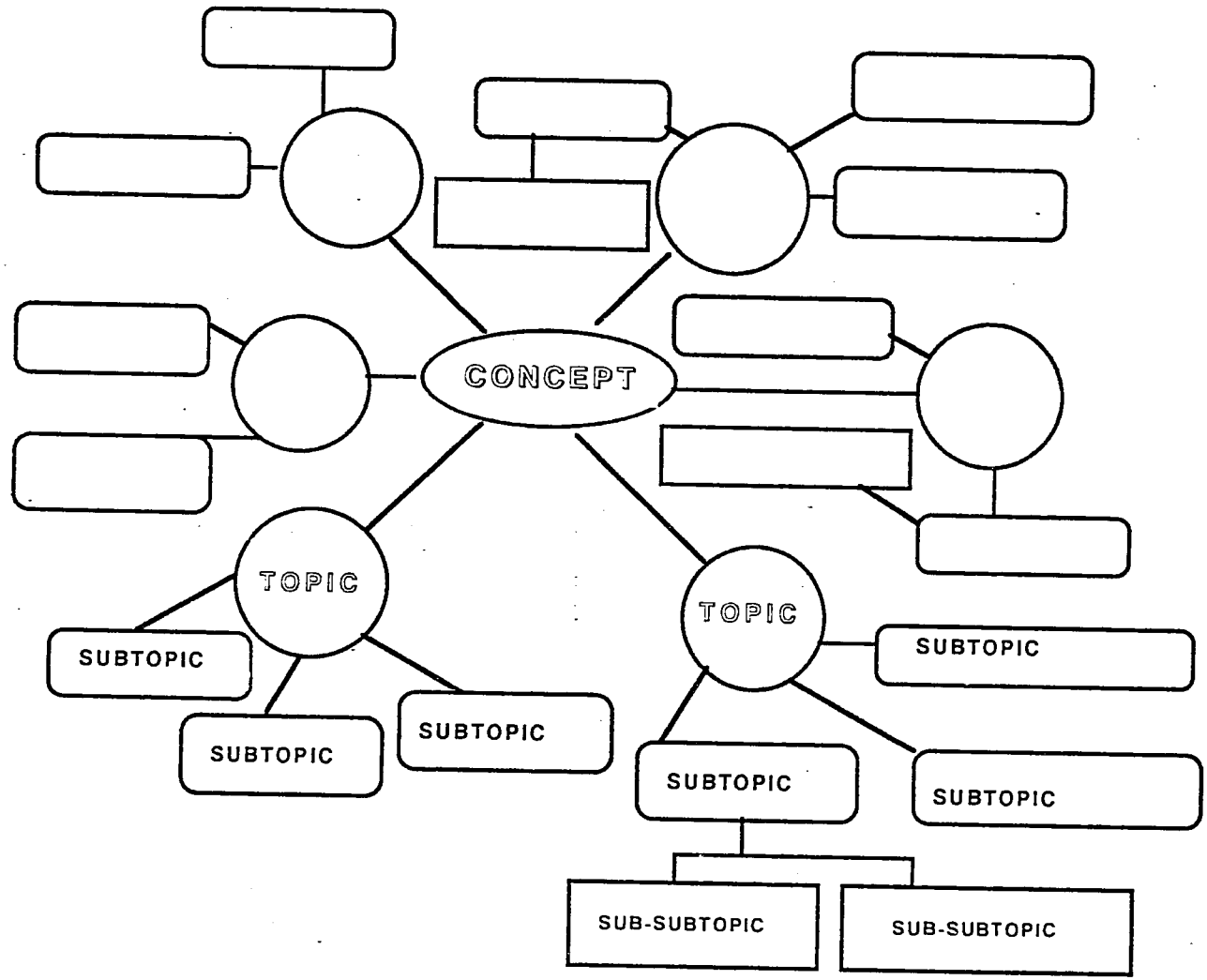
4. Trainees should retain one copy of the final version and give the original to the Specialist Facilitator.

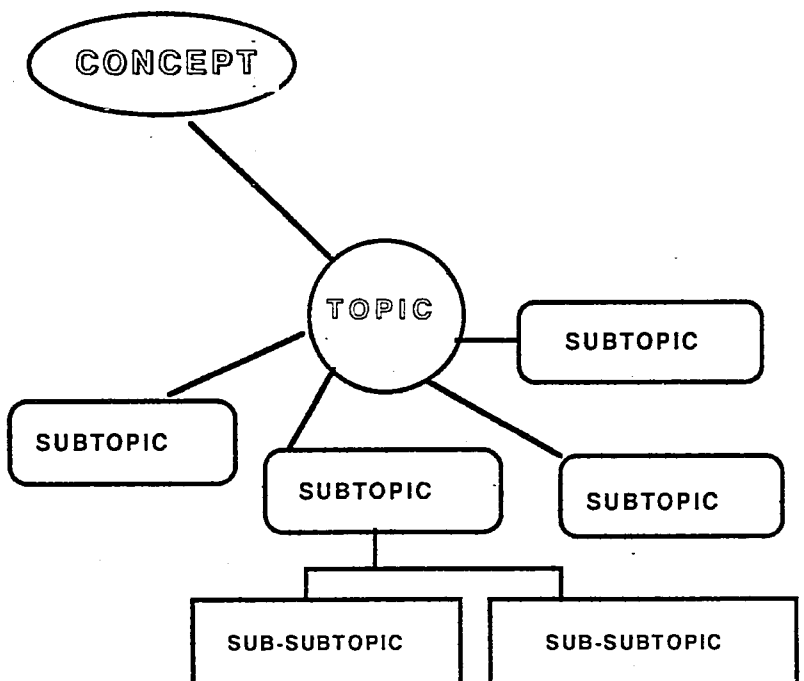
5. Trainer will keep materials on file organized according to and correlated with the Concept Scope and Sequence.

Evaluation:

Approval of the Specialist Facilitator and agreement by whole group of trainees, acting as *subject specialist experts,* that the final version concerning the concept under consideration and the scope and sequence is a) appropriate for Aghan children, b) ready to be used to develop the Teacher's Lesson Guide and c) ready to used to create the Teachers Academic Resource Book.

Mind Mapping Selected Concept Scope and Sequence




CONCEPT
TOPIC
SUBTOPIC
SUBTOPIC
SUBTOPIC
SUBTOPIC
SUB-SUBTOPIC
SUB-SUBTOPIC

Deciding What To Teach: Three Types Of Information

PROPOSITIONAL OR DECLARATIVE INFORMATION

Identify facts
Relate facts to make generalizations & abstractions and Identify types: --
- Classifications [families]
- Criteria [judgment standards]
- Guess or Conjecture [assumed relationship without evidence]
- Principles [facts related by evidence]
- Rules [principles which guide action]
- Theories [principles related by evidence or a priori beliefs]
- Axioms [theories put into action]
- Laws: Social & Natural [tested & proven theories]
- Universals [laws true at all times & places]

Identify Trends & Sequences [Step-by-step changeover time]
Identify Terminology [Special vocabulary used to name, describe, or explain above]

Identify Subject Methodology
Identify Conventions [usual ways of dealing]
Identify Criteria [stated judgment standards]
Identify Necessary Skills [procedures recommended by experts]
Identify Trends & Sequences [Step-by-step change over time]
Identify Terminology [vocabulary used to name, describe, or explain above]

PROCEDURAL INFORMATION

CONDITIONAL INFORMATION

How, Where, and When Propositional and Procedural Information Apply in Real Life Situations

Chapter 3: Handout 8.2.1 (Q2, RM--paragraph 2)

Mind-Mapping K-W-L

USING K-W-L TO MIND-MAP PROPOSITIONAL INFORMATION REGARDING AN IDENTIFIED CONCEPT (with its Topics and SubTopics) FOR AFGHAN LEARNERS AT SPECIFIC GRADE LEVELS.

a) Name Concept: b) Name Subordinate Topics: c) Name Subordinate SubTopics: d) Name Subordinate Sub-SubTopics For each of the items named (a, b, c, d), ask the following questions to decide what PROPOSITIONAL INFORMATION to include in the TARB and Student Texts. Mind-Map your answers.

FIRST USE YOURSELF AS RESOURCE

What propositional information* do I know which I want Afghan children in class ____ to learn about a, b, c, d? For example: What __[see box below]_ do I know about 'a', 'b', 'c', 'd' that I want Afghan children in class ____ to learn?

THEN USE OTHER RESOURCES

What propositional information* do I need to learn about a,b,c,d from other resources ? For example: What _[see box below]_ that I want Afghan Children to learn about 'a', 'b', 'c', 'd' in class _____ do I need to find out about from other resources?

**PROPOSITIONAL (or DECLARATIVE) INFORMATION

- Identify facts
- Relate facts to make generalizations & abstractions and Identify types: --
  - Classifications [families]
  - Criteria [judgment standards]
  - Guess or Conjecture [assumed relationship without evidence]
  - Principles [facts related by evidence]
  - Rules [principles which guide action]
  - Theories [principles related by evidence or a priori beliefs]
  - Axioms [theories put into action]
  - Laws: Social & Natural [tested & proven theories]
  - Universals [laws true at all times & places]
- Identify Trends & Sequences [Step-by-step changeover time]
- Identify Terminology [Special vocabulary used to name, describe, or explain above]

Chapter 3: Handout 8.2.2 (Q 2, RM--paragraph 2)

Mind Mapping K-W-L

USING K-W-L TO MIND-MAP PROCEDURAL INFORMATION REGARDING AN IDENTIFIED CONCEPT (with its Topics and SubTopics) FOR AFGHAN LEARNERS AT SPECIFIC GRADE LEVELS.

a) Name Concept: b) Name Subordinate Topics: c) Name Subordinate SubTopics: d) Name Subordinate Sub-SubTopics

For each of the items named (a, b, c, d), ask the following questions to decide what PROCEDURAL INFORMATION to be included in the TARB and Student Texts. Mind-Map your answers.

FIRST USE YOURSELF AS RESOURCE

What procedural information* do I know which I want Afghan children in class ____ to learn about a, b, c, d? For example: What [see box below] do I know about 'a', 'b', 'c', 'd' that I want Afghan children in class ____ to learn?

THEN USE OTHER RESOURCES

What procedural information* do I need to learn about a,b,c,d from other resources ? For example: What [see box below] that I want Afghan Children to learn about 'a', 'b', 'c', 'd' in class _____ do I need to find out about from other resources?

Procedural Informatio

Identify Subject Methodology
Identify Conventions
[usual ways of dealing]
Identify Criteria
[stated judgment standards]
Identify Necessary Skills
[procedures recommended by experts]
Identify Trends & Sequences
[Step-by-step change over time]
Identify Terminology
[vocabulary used to name, describe, or explain above]

Mind Mapping K-W-L

USING K-W-L TO MIND-MAP CONDITIONAL INFORMATION REGARDING AN IDENTIFIED CONCEPT (with its Topics and SubTopics) FOR AFGHAN LEARNERS AT SPECIFIC GRADE LEVELS.

a) Name Concept: b) Name Subordinate Topics: c) Name Subordinate SubTopics: d) Name Subordinate Sub-SubTopics

For each of the items named (a, b, c, d), ask the following questions to decide what CONDITIONAL INFORMATION to be included in the TARB and Student Texts. Mind-Map your answers.

FIRST USE YOURSELF AS RESOURCE

What conditional information* do I know which I want Afghan children in class ____ to learn about a, b, c, d? For example: What [see box below] do I know about 'a', 'b', 'c', 'd' that I want Afghan children in class ____ to learn?

THEN USE OTHER RESOURCES

What conditional information* do I need to learn about a,b,c,d from other resources ? For example: What [see box below] that I want Afghan Children to learn about 'a', 'b', 'c', 'd' in class _____ do I need to find out about from other resources?

CONDITIONAL INFORMATION

How, Where, and When Propositional and Procedural Information Apply in Real Life Situations

Unit Planning for Acquiring and Integrating Declarative or Propositional Information						
What To Learn = What To Teach			How to Teach Related to What To Teach			Conditional Information
List Concepts, Topics, and Subtopics that are to be learned?	What specific information is to be learned about each Topic or Subtopic?	How will the Concept be experienced --directly or indirectly?	How will learners be aided in constructing meaning for the Concept?	How will learners be aided in organizing information about the Concept or Topics & Subtopics	How will learners be aided so they store Concept Information in the Long-Term Memory?	How, Where & When does Propositional Information or skills apply in learners daily life?
Concept: Weather Topic: Forecasting Weather	barometer thermometer cause/effect of rise or drop in air pressure	Student text created by developer. Verify TV weather reports by observation and predictions using barometer and themometer.	Students will brainstorm before reading, using K-W-L strategy. Teacher uses synectics, metaphorical, analogical reasoning, to illustrate weather forcasting.	Teacher will plan:-- 1. the brainstorming session & 2. a set of questions to stimulate the search for answers and more student questions. Teacher will provide a graphic 'advance organizer' to help students organize K-W-L.	Teacher will use mental images to help students visualize the process of fore-casting weather. Changes in weather will be connected to personal sensation experienced when weather changes.	1. Affect of weather on economy, history recreation, psychological mood. 2. Knowing when to wear protec-tive clothing. 3. Knowing what to wear to keep warm or cool. 4. Knowing when to take domestic animals to pro-tective shelter.
Topic: Cyclones Tomadoes Floods	Sequence of events from formation to disappearance	Create student text. Field trip to Univer-sity forecasting center or TV weather center. Guest speaker from University or TV weather center, or pilot or military man.	Students develop a set of questions to ask of text as they read, or during field trip, or of the guest speaker. They also can develop a set of questions for students & peers using K-W-L strategy.	Students create their own graphic organizers to support rehearsal in the short-term memory and storage in the long-term memory.	Students share & visualize each others' experiences with weather, e.g. cyclones, tornadoes, dust devils, high winds, floods, etc.	Students listen to radio or TV for weather warnings and take safety measures at home for protec-tion from wind & water.

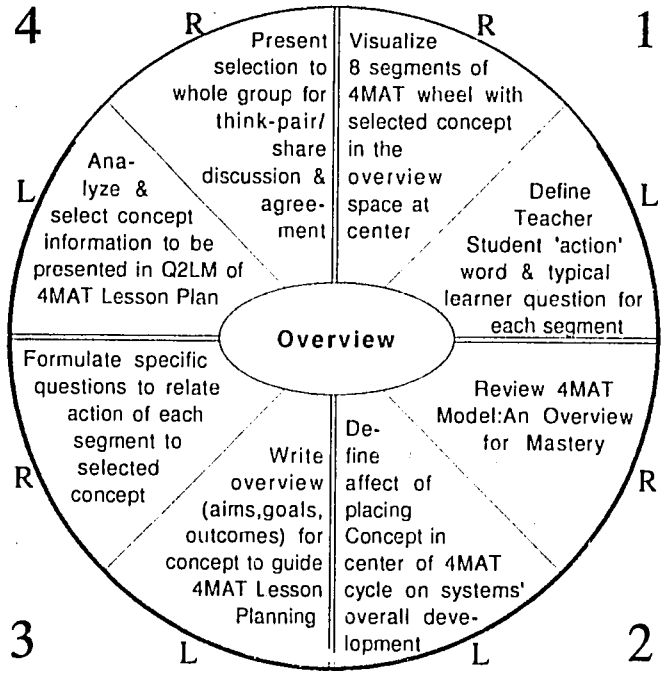
Unit Planning for Acquiring and Integrating Procedural (step-by-step processes) Information or Skills				Conditional Information
What To Learn =	What To Teach	How to Teach Related to What To Teach		
What subject methodology or which procedures (step-by-step processes) or skills must learners learn concerning the selected concept with its related topics and subtopics?	How will learners be aided to construct physical and mental models and images, including metaphors, to help them visualize and manipulate to understand concepts, topics & subtopics in breadth & depth?	How will learners be aided in shaping procedural information (step-by-step processes) or skills?	How will learners be aided to internalize procedural information (step-by-step processes or skills?	How, When, Where do procedural (step-by-step processes) or skills apply in daily life of learners?
Students learn to read scales on thermometer and learn to read a barometer and to make a realtionship between thermometer readings as a means of forecasting changes in weather.	Student will be given a chance to accurately read a thermometer and a barometer. They will 'thimk aloud' as they are doing this in order to identify the step-by-step process involved. As a group they will record the steps on the board and in their notebooks. Students will develop a flow chart visually indicating the step-by-step procedures for accurately reading a thermometer and a barometer.	} Students will demonstrate possible variations and errors } in reading instruments } or signs of nature. Students work on developing hypothetical "What if ....."? types of questions.	} Teacher monitors Think-Pair-Share strategy as students 'read' } thermometer & barometer } in groups of two and } compare the results with other peer groups. Individual students should achieve a minimum of five varified correct readings for each instrument or sign of nature.	Use the thermometer at home and in the school to decide where the warmest or coolest places are at different hours during the day or night. Interview parents and other adults who live close to find out what signs of nature they use to predict changes in weather. Find out if this affects their behavior in any way.
Students learn to observe signs in nature which indicate there is going to be a change in the weather.	Students will develop a set of criteria to use to observe and forecast changes in weather from signs of nature.			

Unit Planning for Acquiring and Integrating Declarative or Propositional Information						Conditional Information
What To Learn = What To Teach			How to Teach Related to What To Teach			
List Concepts, Topics, and Subtopics that are to be learned?	What specific information is to be learned about each Topic or Subtopic?	How will the Concept be experienced –directly or indirectly?	How will learners be aided in constructing meaning for the Concept?	How will learners be aided in organizing information about the Concept or Topics & Subtopics	How will learners be aided so they store Concept Information in the Long-Term Memory?	How, Where & When does Propositional Information or skills apply in learners daily life?

This Thinking Tool, to be used for Teacher's Academic Resource Book development, is extracted from ASCD's Dimension 2 as modified by Schutte and Azizi

Unit Planning for Acquiring and Integrating Procedural (step-by-step processes) Information or Skills				Conditional Information
What To Learn = What To Teach		How to Teach Related to What To Teach		
What subject methodology or which procedures (step-by-step processes) or skills must learners learn concerning the selected concept with its related topics and subtopics?	How will learners be aided to construct physical and mental models and images, including metaphors, to help them visualize and manipulate to understand concepts, topics & subtopics in breadth & depth?	How will learners be aided in shaping procedural information (step-by-step processes) or skills?	How will learners be aided to internalize procedural information (step-by-step) processes or skills?	How, When, Where do procedural (step-by-step processes) or skills apply in daily life of learners?

This Thinking Tool, to be used for Teacher's Academic Resource Book development, is extracted from ASCD's Dimension 2 as modified by Schutte and Azizi.



Title: Ch 4 Tnrs Manual Script
Grade level: Adult
Subject: SF/MTT(TF) Tnsf Wksp 6, 6.1
Author(s): D Schutte
Concept: Steps 6, 6.1, TESD Flow Chart
4MAT* as Mat. Dev.'Flywheel"
Keys/Cross-refs: See D. Schutte, TESD Flow Chart

Ref. Code: Flow Chart
Duration: 3 days

See also 4MAT Materials list.

— Overview —

9. TESD Flow Chart Steps 6 & 6.1

Aims, Goals, Outcomes:

This is the step at which Trainees begin to create the Teachers Lesson Guide for a specific concept with its subordinate topics and subtopics. During the foregoing activities, Trainees have collected much propositional, procedural, and conditional information about a specific concept. In addition to the lesson plan (4MAT Cycle) contained in the Guide, as appropriate and

necessary, Trainees will create at each step in the flow chart 1) instructional materials and aids for teachers, 2) student texts and learning aids, 3) assessment techniques, tests and tools which will become the Teachers Continuous Assessment Resource Book, and 4) applied *proactive* pedagogical and classroom management methods, strategies, and techniques which will form the basis for writing a Teacher's Pedgogical Resource Book. Both 3 and 4 are cross-referenced to specific lessons plans to demonstrate situations for practical applications.

At this point, Trainees will be able to place the concept with which they are concerned at center of the 4MAT Cycle. From Trainees' professional knowledge and intuition, they will select the particular knowledge about that concept which they want students to learn at the specific grade level with which they are concerned. Trainees will write an overview containing the learning aims, goals, and outcomes related to the concept with which a specific lesson is concerned. The 'learner-centered' overview becomes the substantive guide to the teaching content which Trainees must relate to each element of the 4MAT Lesson Plan cycle.

About the Authors:

These Materials were developed by Dr. Donald G.W. Schutte. They were written for and modified during a Master Teacher Training Workshop held in Peshawar, Pakistan. This workshop was supervised by Dr. Schutte but conducted by trained Afghan Specialist Facilitators. They responded to the materials, suggested changes to them, and did initial translations during the process of implementation. The facilitators full names are listed in the credits section of the introduction. Alphebetically, they are Amouzgar, Azizi*, Bakhtar*, Bandawal, Besmellah, Hekmaty, Najibullah, Najm*, Nedai*, Sayeed, Sherzad, Sultani, Yadgari*, Yusofzai. Those marked with an asterisk are Science and Mathematics specialists who actually conducted the workshop for Master Teacher Trainers. The other specialists are either Social Studies or Language Arts Specialists. Together, along with those conducting the workshop, they were busy during the workshop period translating this Trainers Manual into Dari and Pushtu.

At the time of the writing, Dr. Schutte, was a permanent Team Member of the University of Nebraska at Omaha, Education Sector Support Project. He was the Project's Teacher Training and Curriculum Design Coordinator.

Dr. Gerald Boardman, Chief of Party, and Professor Abdul Salaam Azimi, his Deputy lead the Project. It is sponsored by USAID. UNO/ESSP is a cross-border project supporting the reconstruction of the Afghan education. It is located in Peshawar, Pakistan.

— Quadrant 1, Right mode —

Outcomes: Trainees will study the 4MAT Lesson Planning Cycle. They will be able to visualize the concept they have selected at the center of the 4MAT circle. They, therefore, will begin to associate the four learner styles and the idea of right and left mindedness with any concept they want to develop as well as the action plan necessary to teach it so that all students learn it.

Trainer Directed Activities:

1. Trainers will distribute Handouts 9.1 and 9.2. (9.2 is on reverse side of Handout 9.1).

2. Trainees will study Handout 9.1 until they are able to close their eyes and visualize the eight segments of the 4MAT Cycle, the action words, and the Overview Oval in which a concept is to be placed at the center of the 4MAT Circle.

3. Trainees will turn to Handout 9.2 and fill in the blank spaces from memory.

4. Trainers will ask Trainees in 'think-pair-share' group to make written statements to indicated the relationship between the *action word* associated with each 4MAT segment and any concept placed in the center of the 4 MAT circle. At this point in the workshop, these statementswill be general, i.e., not related to the specific concept Trainees have selected to develop. The purpose here is to get trainees to think about the existence of a relationship between the substance of whatever they want students to learn and want to teach and the type of activity planned according to learning styles and left/right mindedness.

For example: [Note: *Concept* as it is used here includes topics/subtopics.]

Trainees may say the following or something similar:

"In Q1,RM, the lesso must connect learners personally with a concept."

"In Q1,LM, the lesson must allow learners to reflect on, analyze or examine the personal connections which they have made with a concept."

"In Q2,RM, the lesson must allow learners to make an image of the broader implications of a concept beyond their own personal experience of it.

"In Q2,LM, the lesson, for and with learners, must define and organize the concept in relation to its integral structure." [Trainer Note: Traditonally, this is the point in the lesson that the Teacher transfers the information about a concept that they want to learners to know. To transfer information is the purpose of all traditional teaching. TESD and 4MAT go beyond simple transfer to focus on the learner as client and user of the information transfered.]

"In Q3,LM, the lesson must provide the opportunity for the learner to practice or tryout the concept in some way"

"In Q3,RM, the lesson must go beyond practicing or trying out what they have been taught. Learners' exploration and experimentationwith the concept should allow them to add something of themselves to its use. At this point learners begin to take ownership of the concept."
"In Q4,LM, the lesson promotes learners' exploration and experimentation of the concept in terms of evaluating the new knowledge and assimilating it with their prior knowledge and newly discovered applications."

"In Q4,RM, the lesson promotes learners' application in more complete real life situations. Learners are encouraged to teach it or about it to others. They claim ownership and expose their knowledge of the concept to others.

Evaluation:

Trainees make valid relational statements. Validity is agreed by peer group and Specialist Facilitators according to identified characteristics which can be used by individual Trainees as criteria to judge the validity of their development work in the future.

— Quadrant 1, Left mode —

Outcomes: Trainees will define or state the 'purpose' questions that underlie a lesson that is constructed to accommodate each learning style and relate these questions in a general statement to the Concept placed at the center of the 4MAT circle.

Trainer Directed Activity:

1. Trainer will distribute Handout 9.3. This handout contains the 'purpose' questions that motivate the activity in each quadrant. The basic questions for the learner which teachers' lesson must answer are:

Q1,R&LM -- "Why must I learn *this concept*?" " What does it mean to me personally?"

Q2,R&LM -- "What is *this concept* all about?" "What is its structure?"

Q3, R&LM -- "How does *this concept* work?" "How can I experiment with it to find out how it works?"

Q4, R&LM -- "What if...?" " What can I do with *this concept* in real life? How can I apply *this concept* in real life?"

2. Trainees will review the statements made in Q1,RM to to see that the concept at the center of the 4MAT circle is *"this concept"* spoken of in the questions above.

3. Trainer will make trainees aware of the following. Each lesson is created to implement the 'action' words, e.g., "connection", "examine", "image", "define", "tryout","evaluate" and "integrate". *Action words* underlie lesson activity in each quadrant. By using action words and answering basic purpose questions when planning and presenting their lessons to, for and with learners, Trainees and Teachers will have automatically honored the four learning styles and brain hemisphere preferences exhibited by learners in their classrooms.

Evaluation:

Statements and questions are accepted as valid by the group and the specialist

facilitator mentors. Criteria for validity: Do statements relate action words and purpose questions to a concept at the center of the 4MAT circle. Are all Trainees able to do it? Are peers able to teach those in the group who are still having difficulty understanding or doing what they are supposed to do?

— Quadrant 2, Right mode —

Outcomes: Trainees will be able to demonstrate their mastery of the information concerning 4MAT contained in Handout 9.4 and visualize any concept at the center of the 4MAT cycle.

Trainer Directed Activity:

1. Trainees will review 4MAT Cycle to ensure mastery of information contained in Handout 9.4.*The 4MAT Model, An Overview.*

2. Trainer will form 'cooperative groups'. Each Trainee group will write a set of question which if answered correctly will ensure the respondent has mastered all aspects of the 4 MAT Lesson Plan Model and is able to visualize a concept and its subordinate topics and subtopics placed at the Center of the 4MAT Cycle. Each group will write a set of prepared answers.

3. Trainer will review the questions and prepared answers to ensure the questions are appropriate and the prepared answers are correct.

4. Groups will exchange sets of questions with other peer groups whose members will answer the questions and check their answers by referring to the answers initially prepared by the Trainees. If signnificant differences emerge during the oral discussion between trainees' answers and the answers given by the group who originally prepared them, Trainers have the opportunity to clarify misunderstandings.

5 Trainer and Trainees will consolidate and summarize the questions and answers. After the whole group has agreed that these questions and answers are valid, Trainers will publish them as a model to be used in future training workshops.

Evaluation:

Group agreement that the questions raised and the answers given in relation to Handout 9.4, The *4MAT Model: An Overview* are valid. Product Outcome = A validated, published summary statement.

— Quadrant 2, Left mode —

Outcomes: Trainees will be able to define and explain how the placing of a selected concept with its subordinate topics and subtopics at the center of the 4MAT Lesson Planning Cycle affects overall education systems' development. They will indicate that placing the concept at the center of the 4MAT circle provides the basis for efficient and effective development of a) specific lesson plann and guide development, b) teaching and learning materials and pedagogical methods directed toward achieving specific learning outcomes in 'proactive', managed classroom settings, and c) assessment strategies and techniques. These, in turn, provide an educationally sound foundation for i) a supervision system that begins with the Head Teacher as the Resident Supervisor in each school and ii) a sound management system that measures the efficiency and effectiveness of all administrative inputs and activities by how well they achieve intended learning outcomes, in the short term, and the intended social consequences in the long term.

Trainer Directed Activity:

1. Trainer will distribute Handout 9.5, Schutte's Total Education Systems Development (TESD) Model (logo).

2. Trainer will lead a large group discussion in which all aspects of the model are discussed and Trainees identify their roles as producers of lesson plans, teachers guides, learning materials, and assessement tools and processes as well as their roles as Trainers and Supervisors.

3. Trainers will ensure that Trainees understand that the TESD model includes 4MAT,a registered trademark of Excel, Inc. and Bernice McCarthy of Barrington, Illinois. TESD, however, goes beyond lesson planning to total education systems development. Because 4MAT was developed in the United States, the assumptions that underlie its use as a model to develop lesson/unit plans are different from those when it is used as a vehicle or 'flywheel' of total education systems development.

4. Trainer will distribute Handout 9.6, *Mini-Lecture -- 4MAT As A Vehicle of Development Within TESD.*

5. Trainer will distribute Handout 9.7. It is a blank form to aid Trainees in taking 'compare-contrast' notes while studying the 'mini-lecture' (Handout 9.6). The form identifies categories which become criteria to used to compare and contrast 4MAT applications in USA with TESD as it is used in this workshop.

6. Using the *Think-Pair-Share* strategy, Trainees will read the 'mini-lecture' and think about what they have learned in this workshop. Trainers will use Handout 9.7 to encourage Trainees to analyze and to compare and contrast, according to identified criteria, the likenesses and differences between the use of 4MAT as a Lesson Planning Tool in the USA and as a part of the TESD package in the UNO/ESSP project.

7. Trainer will lead the large group discussion and will summarize group comparisons on chalkboard. Trainees will appoint one of their number to record chalkboard notes as a part of a permanent file which will become a part of the workshop record and used as a reference in future workshops.

Evaluation:

Group and Specialist Facilitator agree on summary statement. The summary should be organized around the criteria headings found in Handout 9.7. The summary must reflect the essential information contained in the 'mini-lecture' notes and the group discussion. The statement should confirm the need to place a specific concept with its subordinate topics and topics at the center of the 4MAT cycle in order to promote total development of the education system and so that trainees define their responsibility to use TESD to systematically fulfill their role in the reconstruction of the Afghan education system.

— Quadrant 3, Left mode —

Outcomes: Trainees will choose information concerning the selected concept with its subordinate topics and subtopics. They will write an overview statement to cover scope and sequence of all

knowledge and skills learners should learn about that concept they have selected to develop at the particular grade level concerned. The overview statement should include aims, goals, and outcomes to be achieved. Trainees will be able to differentiate among the following terms: 'Aims', 'Goals', 'Outcomes', 'Objectives', ' Purpose' as these terms are defined in the TESD process.

Trainer Directed Activities:

1. Trainer will distribute Handout 9.8, *Overview : 4MAT Form 'O'*

(Trainer Note: In order to keep a record of Production, This Form 'O' will eventually be completed in three languages, Dari, Pushtu, and English for every lesson unit. At this point in the workshop, only the "Overview" portion of the form will be completed. Here Trainees are still dealing with the problem of relating concepts to the 4MAT cycle, but at the same time they are making progress toward actual production of a lesson unit concerning a specific concept.)

2. Trainer will distribute Handout 9.9, *Differentiated TESD Terms*. Trainees will discuss the definitions of the terms given on the Handout and apply those definitions to TESD. (Trainer Note: All of our inputs and activities are to be directed towards achieving specific learning outcomes with Afghan learners.)

3. Trainer will provide specialty groups with time to prepare an overview, drawing on the information they have gathered in relation to the concept (with it subordinate topics and subtopics) which they have selected to develop. As a thinking tool to write an overview, Trainees will change the definitions given on 9.9 into specific questions concerning their selected concept. The answers to these questions will provide the foundation for the overview statement. Trainees may mind-map their questions and answers and, then, formulate a summary to become the overview statement. The overview statement will guide the remainder of 4MAT Lesson Plan and Lesson Guide Activities as these activities concern developing the concept they have selected to develop.

Evaluation:

Group and Specialist Facilitator agreement that the overview statement regarding the selected concepts reflects the aims, goals and learning outcomes which should be achieved by learners at the grade level concerned.

— Quadrant 3, Right mode —

Outcomes: Trainees will formulate questions similar to the questions they asked in Q1,LM ; however, this time the questions should be asked about the specific concept they have selected to develop and for which they have written an overview statement. They will, therefore, have begun to relate the action words and the underlying purpose questions for each segment of the 4MAT Cycle to the particular concept that they are going to develop.

Trainer Directed Activities:

1. Trainer will review with Trainees the general questions from Q1, R&LM. Trainer will divide trainees into Think-Pair-Share groups. Trainees will be asked to relate the general questions to the specific concept for which they have written an overview statement ; thus, making the general questions specific to development of the concept. See examples below:

From Q1,RM. In General Trainees may say the following but specifically, as a tool for thinking they substitute the particular concept they wish to develop.

Instruction: Trainees will substitute the specific concept they want to develop in the blank ineach of the following sentences.

"In Q1,RM, the lesson must connect learners to the _____(*Concept*")."

"In Q1,LM, the lesson must allow learners to reflect on, analyze or examine the personal connections which they have made with the_____(*Concept*)."

"In Q2,RM, the lesson must allow learners to make an image of the_____(*Concept*) beyond their own personal experience of it to its broader implications."

"In Q2,LM, the lesson, for and with learners, must define and organize the _____(*Concept*) in relation to its integral structure." [Trainer Note: At this point, Teacher teaches learners what they want them to know about the concept. This is the point of all traditional teaching.]

"In Q3,LM, the lesson must provide the opportunity for the learner to practice or tryout the _____(*concept*)in some way"

"In Q3,RM, the lesson must go beyond practicing or trying out what they have been taught. It should promote learners' exploration and experimentation of the_____(*Concept*) that will allow them to add something of themselves to its use. At this point learners begin to take ownership of the_____(*Concept*)."

"In Q4,LM, the lesson promotes learners' exploration and experimentation of the _____(*Concept*) in terms of evaluating their new knowledge and prior knowledge with newly discovered applications."

"InQ4,RM, the lesson promotes learners' integration of the_____(*Concept*) to more complete real life situations and encourages teaching it or about it to others, i.e., exposing one's knowledge of the _____(*Concept*) to others. At this point, learners claim complete ownership of the _____(*Concept*)."

Q1,R&LM -- "Why must I learn this _____(*Concept*)?" "What does this _____(*Concept*)mean to me personally?"

Q2,R&LM -- "What is this _____(*Concept*) all about?" "What is the integral organization and structure of propositional, procedural, and conditional information concerning this_____(*Concept*)?"

Q3,R&LM -- "How does this_____(*Concept*) work?" "How can I experiment with this_____(*Concept*) to find out how it works?"

Q4,R&LM -- "What if...?" "What can I do with this_____(*Concept*) in real life?" "How can I apply this_____(*concept*) in real life and share my ownership of it with others?"

3. A summary of questions about specific concepts will be made and shared with the whole group. They are to be used as thinking tools to help develop the 4MAT plan leading to the lesson guide and other instructional and resource materials during the next phase of development.

Evaluation:

Agreement among Trainees and Specialist Facilitators that the questions are valid. Agreement that this set of questions must be answered about each concept with it subordinate topics and subtopics if they are to develop and reconstruct the total education system.

— Quadrant 4, Left mode —

Outcomes: From all the propositional, procedural, and conditional information Trainees have gathered concerning the concept they have selected to develop and about which they have written an overview, they will decide what particular information is to be included in Quadrant 2, Left Mode. Trainees will compare their choices to similar information contained at the same class level in resource books used in other countries concerning the same concept, topics, and subtopics.

Trainer Directed Activities:

1. Trainer will review with trainees all the propostional, procedural, and conditional information they have collected concerning the selected concept with its subordinate topics and subtopics.

2. In small groups Trainees will choose the information in order to present the integral structure of the concept which they will organize, ***in the next phase***, as a part of the Lesson Plan and Teachers Guide for Q 2, LM.

3. Trainees will compare their choices with similar information prepared concerning the same concept, topics, and subtopics in other countries, as well as those previously used in Afghanistan, and make any changes deemed necessary to make the information used compatible with the ages, stages of growth and development, learning styles and brain hemisphere preferences planned for Afghan learners.

Evaluation:

Preparation of a summary of information that is to be used in the next phase in Q 2, LM after agreement by the group as a whole.

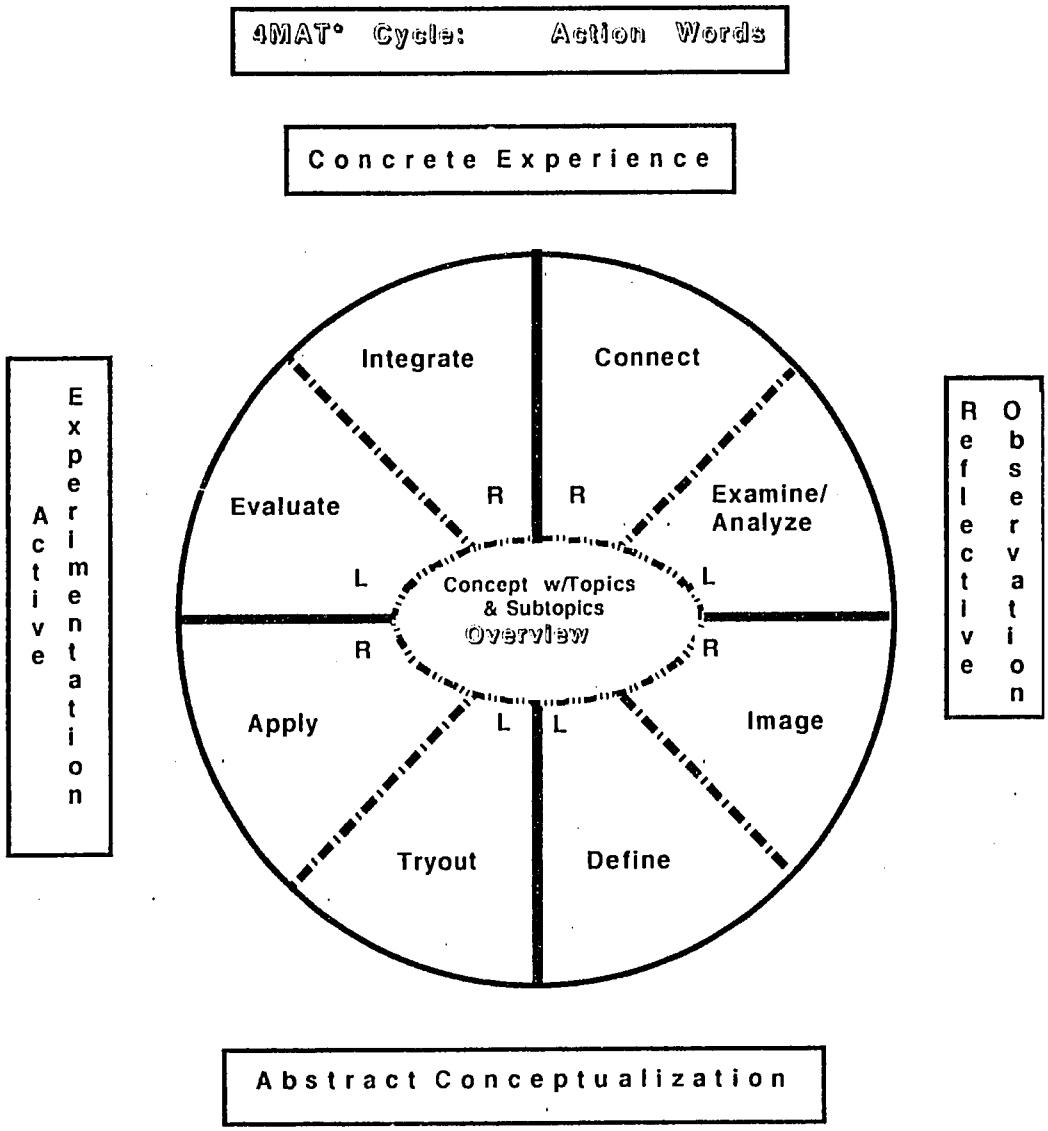
— Quadrant 4, Right mode —

Outcomes: Trainees will share the product of Q 4, LM with the group as a whole and will agree that it is appropriate to be organized, included in the lesson plan and teachers guide, student text and presented to learners at the class level concerned.

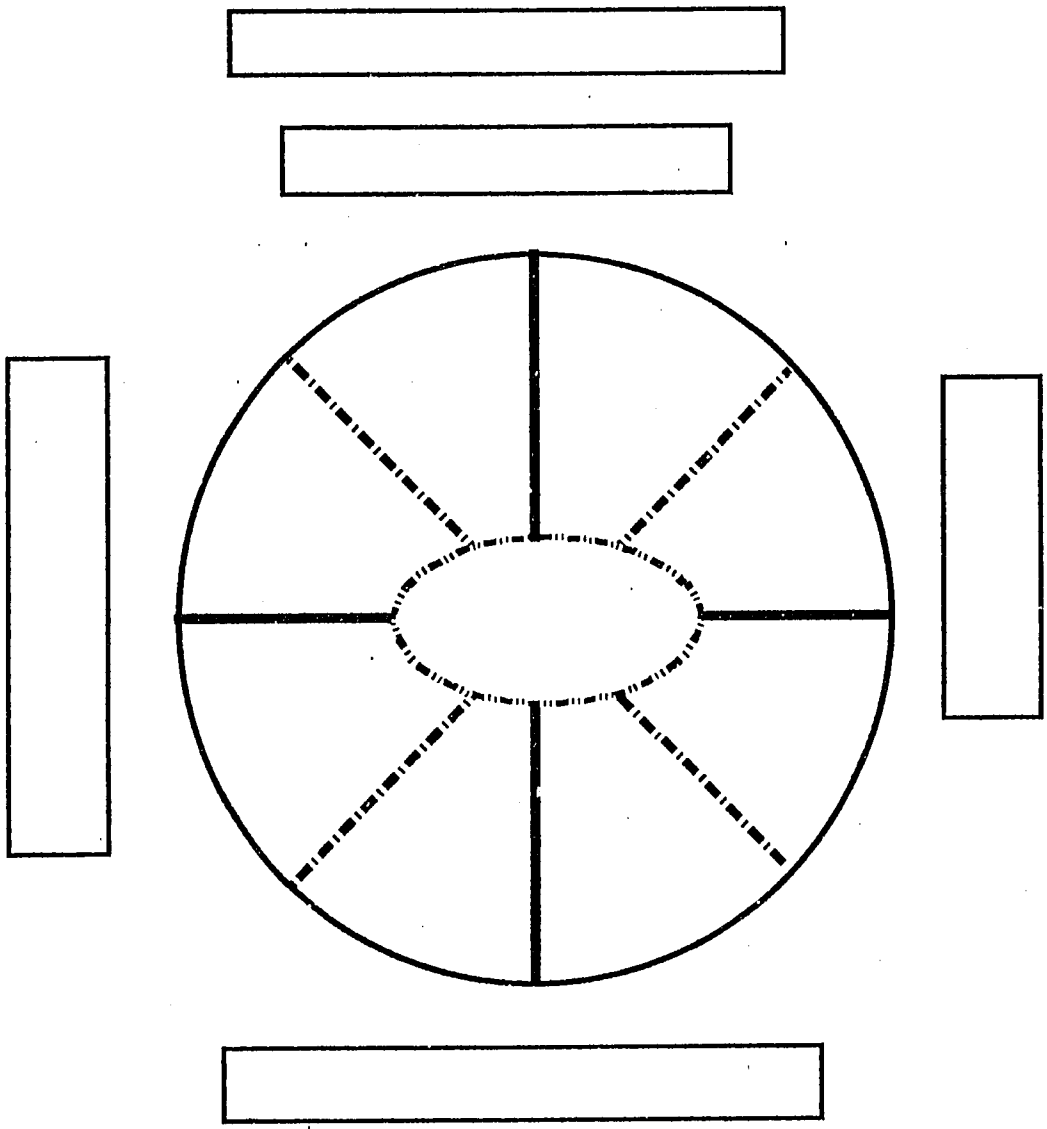
Trainer Directed Activities:

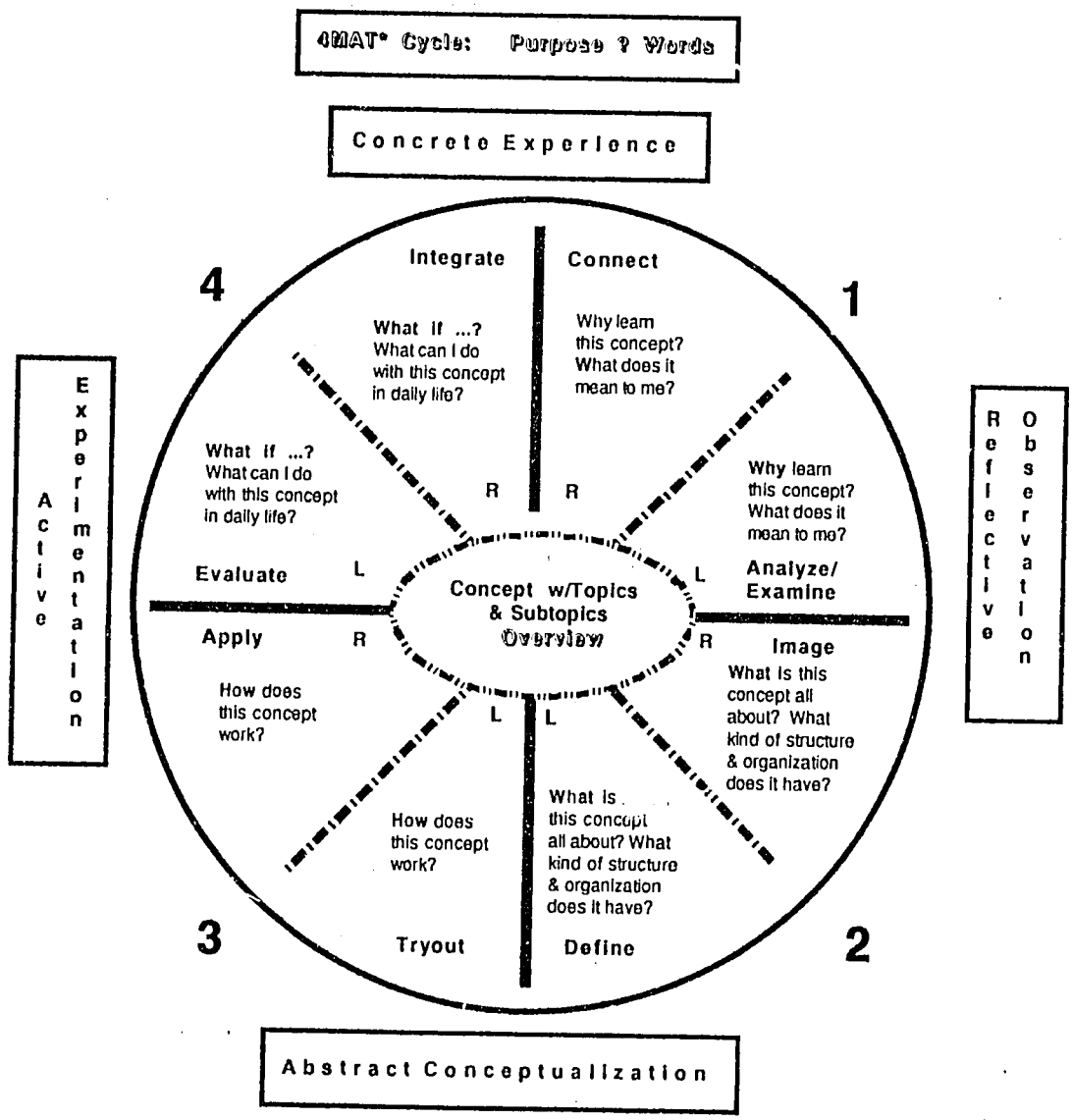
1. Trainees will select a group leader to present a summary of the information from Q4,LM to the group as a whole.

2. Trainer will monitor group discussion and record the information and will achieve a consensus as to the content that will be used in the next development step.



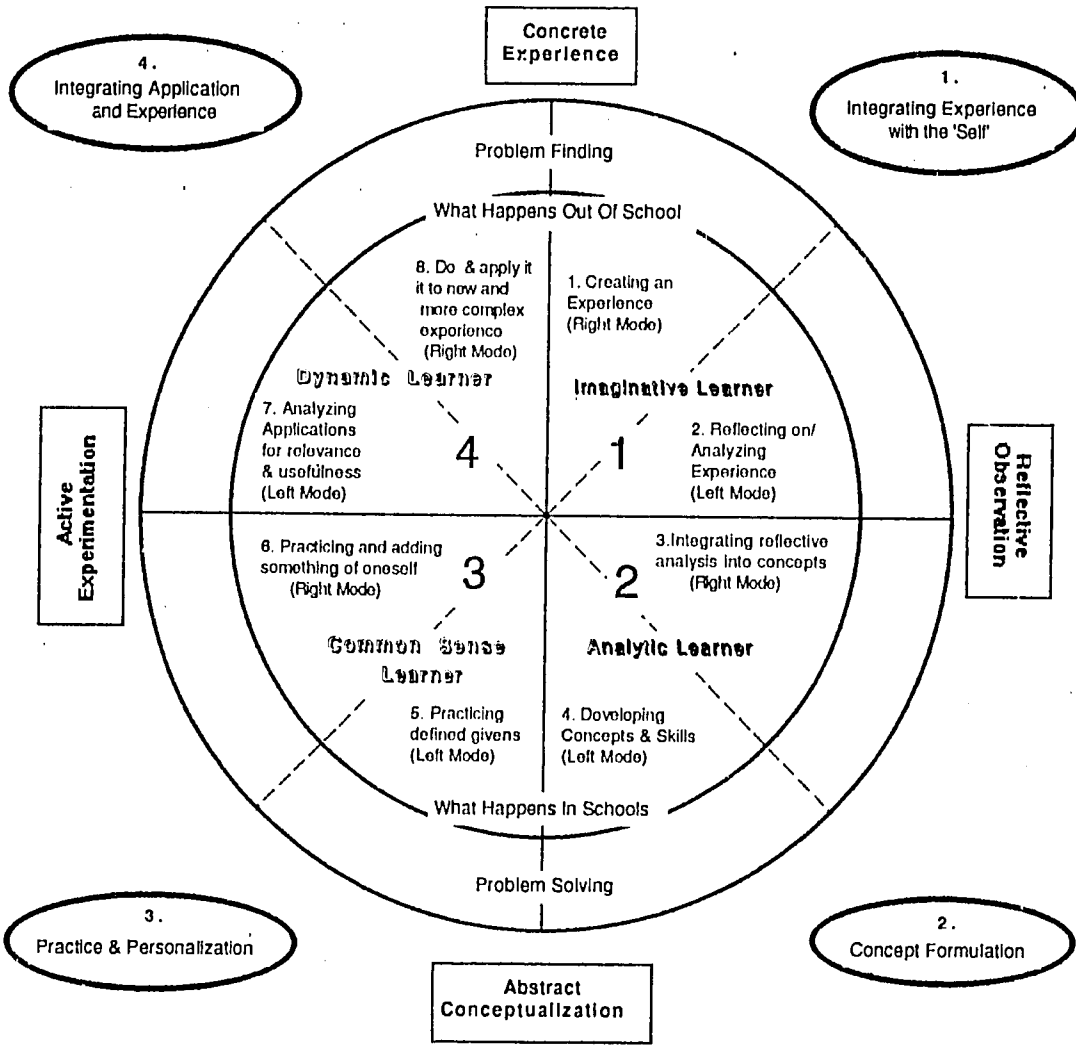
*4MAT is a registered Trademark of Excel, Inc., and B. McCarthy of Barrington, Il. It is shown here with TESD Concept with Topics & Subtopics in Overview Space.





*4MAT is a registered Trademark of Excel, Inc., and B. McCarthy of Barrington, Il. It is shown here with TESD Concept with Topics & Subtopics in Overview Space.

The 4MAT* Model : An Overview

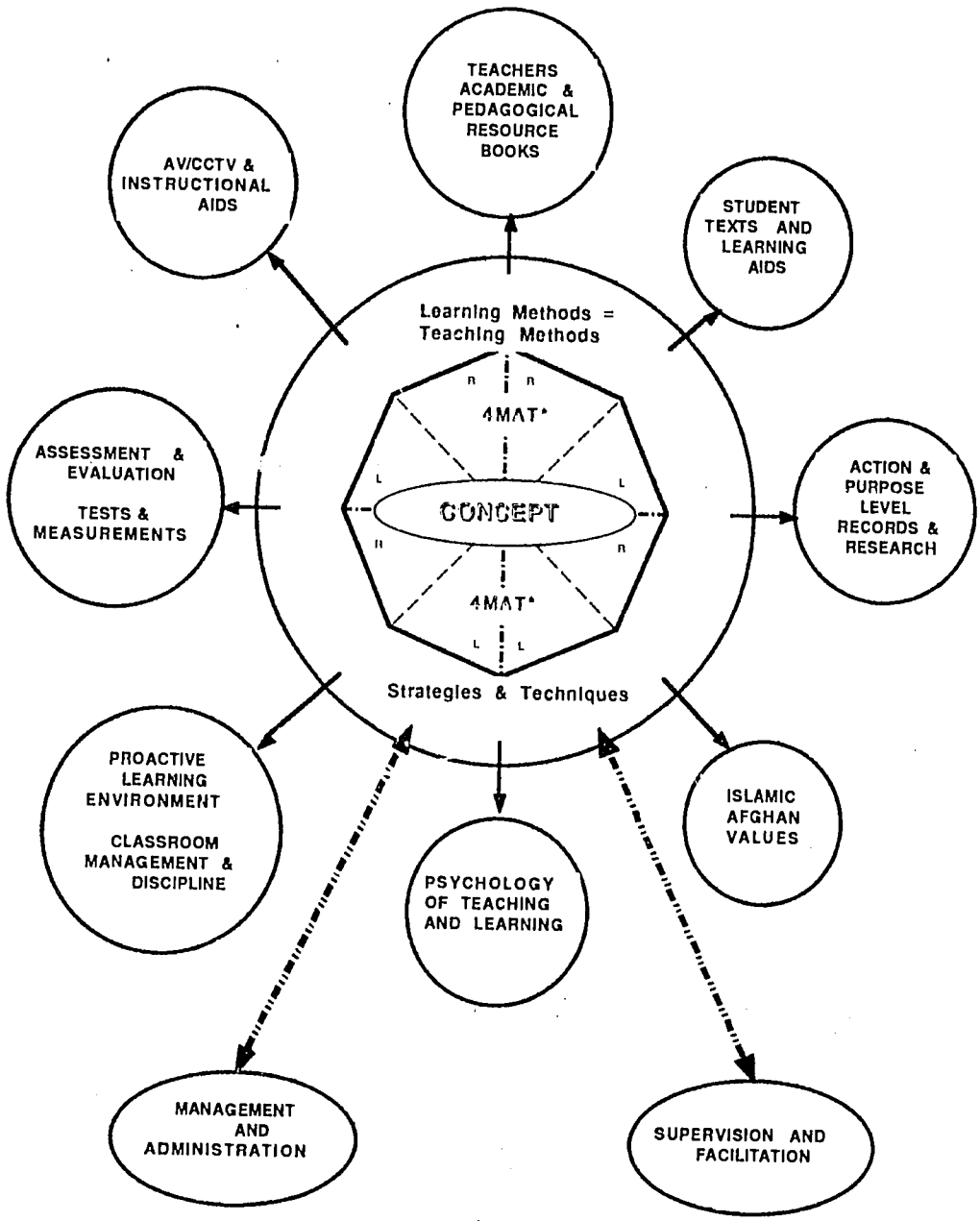


Perceiving Continuum		Processing Continuum		
1. Concrete Experience	+	Reflective Observation	=	Imaginative Learner
2. Abstract Conceptualization	+	Reflective Observation	=	Analytic Learner
3. Abstract Conceptualization	+	Active Experimentation	=	Common Sense Learner
4. Concrete Experience	+	Active Experimentation	=	Dynamic Learner

See McCarthy, et al *The 4MAT Workbook: Guided Practice in 4MAT Lesson & Unit Planning*, p.81. Excel, Inc., Barrington, Il 60010 (Tele:708-382-7272or Fax: 708-382-4510) Modified by Schutte. Essence retained.

TOTAL EDUCATION SYSTEMS DEVELOPMENT

By Dr. Donald G. W. Schutte



*4MAT IS REGISTERED TRADEMARK OF BERNICE McCARTHY & EXCEL, INC.

Chapter 4: Handout 9.6 (Q2, LM -- paragraph 4)

Mini-Lecture --
4MAT As A Vehicle of Development Within TESD

Note that the TESD model includes the 4MAT Lesson/Unit Planning Model that is a registered Trademark of Excel, Inc. and Bernice McCarthy of Barrington, Illinois. TESD goes beyond lesson planning, however, to total education systems development. Because 4MAT was developed in the United States, the assumptions that underlie its use as a model to develop a lesson plan or unit are different from those when it is used as a vehicle to focus educational systems development. In order to understand your role as curriculum and textbook developers in addition to your role as trainers and trainers of trainers, it is important that you know the difference between developing a lesson plan and developing an educational system. Use what you have learned to this point in the course; the information in this 'mini-lecture'; and Handout 9.7, the compare and contrast *advance organizer* to compare the differences between 4MAT as a Lesson/Unit planning device and as a focus for Total Education Systems Development.

A. TEACHERS' ACADEMIC QUALIFICATIONS

In the USA large numbers of Teachers are more highly qualified academically than in Afghanistan. The scarcity of qualified Afghan teachers is due largely to the war with the Soviets and its aftermath. Therefore, if the Afghan educational system is to be rapidly reconstructed, teachers' academic knowledge and skills must be upgraded. TESD makes this possible by providing for the development of a Teacher's Academic Resource Book (TARB). The TARB is to be used in pre-service and in-service education training as well as individual in-school, in-service study by Teachers and Head Teachers. The TARB contains propositional, procedural and conditional knowledge and skills information related to specific concepts, topics, and subtopics drawn from an agreed *Concept Scope and Sequence* document.

B. TEACHERS' PEDAGOGICAL QUALIFICATIONS

In USA large numbers of Teachers are more highly qualified pedagogically than in Afghanistan. Again, This is largely due to the disturbances caused by the war and its aftermath to a system which was in the process of modernization when the war began. 4MAT is one system used to introduce American Teachers to the need to plan and use modern pedagogical strategies to teach students with different learning styles and brain hemisphere preferences. The prior professional qualifications of American teachers supplement new pedagogical knowledge and skills when they are introduced in in-service or pre-service courses.

The level of professional qualifications of most Afghan teachers is low. Introducing 'proactive' pedagogical methods, strategies and techniques is, therefore, to provide Afghan Teachers with foundation rather than supplemental professional knowledge and skills. TESD provides the framework to introduce Afghan teacher to new pedagogical knowledge and skills by introducing them into the Lesson Plan at each stage of the 4MAT cycle. This will give Afghan Teachers the sound foundation of pedagogical knowledge and skills they need to rebuild the educational system.

C. UNION OF CONTENT WITH PEDAGOGY

For too long in education courses around the world, including the USA and Afghanistan, methods, strategies and techniques have been generalized. They are seldom related specifically, practically, and systematically to the content a Teacher is expected to teach. TESD makes a marriage of content and up-to-date pedagogy. This is not an inherent part of 4MAT. 4MAT emphasizes and establishes the need for using "right mode" methods. The system provides a list of typical 'right mode" strategies and techniques which leads to studying them; however, training concentrates on using 4MAT to plan a lesson, not on training Trainees to use specific pedagogical strategies and techniques to teach a specific lesson.

D. TEACHERS ACCESS TO ACADEMIC & PEDAGOGICAL RESOURCE MATERIALS

In the USA, 4MAT is used for planning and, in this case, planning a lesson or unit. That is its purpose. The use of 4MAT within TESD provides the framework in which the union between specific content and specific pedagogy can take place and academic and pedagogical training initiated. Specific concepts with their subordinate topics and subtopics are at the center of the 4MAT cycle. Attention, therefore, is paid to the most efficient and effective strategies or techniques to be used for teaching specific content to learners with different learning styles and brain hemisphere preferences. This provides the further opportunity to develop a Teachers Pedagogical Resource Book (TPRB). Such a TPRB, thus, will be available for use in pre-service and in-service training as well as private and in-school, in-service study by Teachers and Head Teachers. The TPRB becomes the means by which the pedagogical knowledge and skills of unqualified and under qualified Teachers and Head Teachers can be quickly upgraded as they develop and teach the academic content following a 4MAT Cycle Lesson Plan and Teachers Guide.

E. DEVELOPMENT OF PERSONNEL

4MAT is used to plan lessons in the USA. It is assumed that there are sufficient numbers of trained and qualified persons to do the job. Trained and fully qualified Teachers, Head Teachers, Supervisors, and Administrators are scarce resources in Afghanistan. TESD uses the 4MAT Cycle as a means -- the quickest means -- to focus academic and professional development of all personnel in the system, as well as all other administrative and management inputs and activities, on the teaching and learning tasks that must be accomplished if specific learning outcomes are to be achieved with Afghan learners.

F. *CONCEPT SCOPE AND SEQUENCE*

In the USA teachers are working within an established scope and sequence. It is backed up by adequate resources including audio/video and print materials concerning any content they want to teach. Often teachers do not even refer to the scope and sequence statement. Instead they used books and materials that are set out according to a scope and sequence statement. Textbook indexes thus become a substitute for the scope and sequence statement.

None of these is available in Afghanistan. TESD i) begins with the establishment of a *mission statement*. that guides all activities, ii) develops and suggests an established *Concept Scope and Sequence* , iii) names and explores internal and external relationships between and among the propositional, procedural and conditional information and skills related to each concept with its subordinate topics and subtopics, iv) places each concept at the center of the 4MAT circle, v) develops a lesson plan and teachers guide compatible with teaching specific concept content to learners with four learning styles and brain hemisphere differences, vi) uses pedagogically sound reseach-based pedagogical methods, strategies and techniques, and vii) develops continuous assessment and evaluation tools and techniques for each of the eight segments of the 4 MAT cycle. As personnel are trained to activate and follow this flow of development activity, they gain the capacity to further develop themselves and the education system academically and professionally.

G. PRE-SERVICE AND IN-SERVICE TRAINING COURSES

In the USA when 4MAT is used in pre-service or in-service training courses, it is basically for the purpose of training teachers to use a systematic method of lesson planning based on catering to children who have different learning styles and brain hemisphere preferences. In Afghanistan, 4MAT is used in in-service courses as a means to focus Total Education Systems Development. Later, it is hoped that TESD, including the 4MAT focus, will be used in Teacher Training Colleges and the University to develop pre-service courses for primary, secondary, and tertiary educators.

Chapter 4: Handout 9.7 (Q2,LM -- paragraph 4)

Advance Organizer:
Compare & Contrast USA 4MAT Applications With 4mat As Part Of TESD

Criteria	USA 4MAT Applications / Differences	USA/TESD Applications / Similarities	TESD Applications / Differences
Teachers Academic Resource Book			
Teachers Pedagogical Resource Book			
Instructional Aids/AVCCTV			
Student Texts & Learning Aids			
Assessment & Evaluation Processes: Tools and Procedures			
Proactive Learning Environment			
Classroom Management & Discipline			
Psychology of Teaching & Learning			
Action Research			
Purpose Level Record Keeping			
Provision for Islamic Afghan Values			
Supervision & Facilitation Base			
Management & Administration Base			

Chapter 4: Handout 9.8 (Q3, LM -- paragraph 1) **4MAT FORM 'O':** OVERVIEW

To Be Completed in English, Dari, Pushtu

Subject:_____GradeLevel:_____Concept:_____

Complete OVERVIEW CONTENTS as a guide BEFORE creating the 4MAT Lesson Plan

Overview Contents: Aims and Goals as Intended Outcomes:

_____

_____

_____

_____

USE this Form To Make an Index of items in each category AFTER creating 4MAT Lesson Plan

Brief Outcomes Index

Q1,RM_____
Q1,LM_____
Q2,RM_____
Q2,LM_____
Q3,LM_____
Q3,RM_____
Q4,LM_____
Q4,RM_____

Activity Index

Q1,RM_____
Q1,LM_____
Q2,RM_____
Q2,LM_____
Q3,LM_____
Q3,RM_____
Q4,LM_____
Q4,RM_____

Pedagogical Methods, Strategies, & Techniques Index

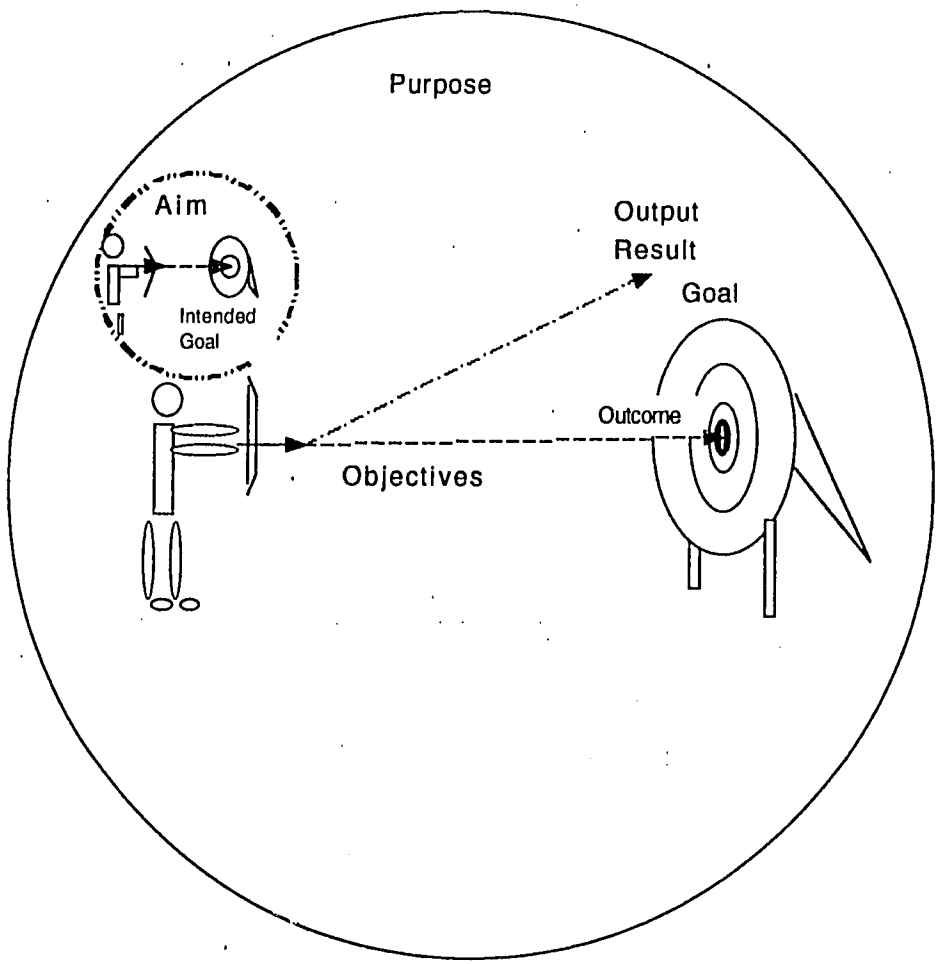
Q1,RM_____
Q1,LM_____
Q2,RM_____
Q2,LM_____
Q3,LM_____
Q3,RM_____
Q4,LM_____
Q4,RM_____

Index of Resources & Materials Created and/or Selected for Use

Q1,RM_____
Q1,LM_____
Q2,RM_____
Q2,LM_____
Q3,LM_____
Q3,RM_____
Q4,LM_____
Q4,RM_____

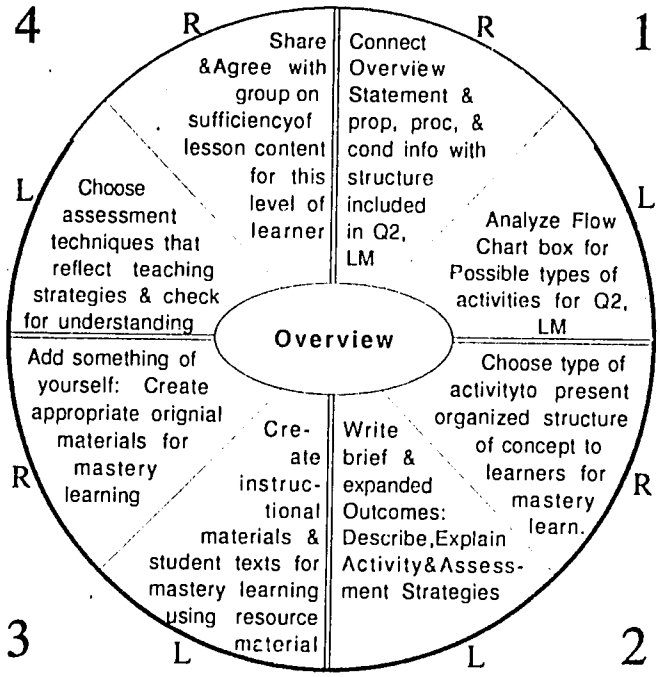
Index of Continuous Evaluation & Assessment Strategies and Techniques

Q1,RM_____
Q1,LM_____
Q2,RM_____
Q2,LM_____
Q3,LM_____
Q3,RM_____
Q4,LM_____
Q4,RM_____



Differentiated TESD Terms

1. Aim is conceiving an intended goal, usually outside oneself, as well as conceiving the procedures to attain it
2. Goal is that which one wants to achieve as an end result of effort.
3. Objectives are the step by step procedures conceived and implemented to achieve one's intended goal.
4. Outcome is the goal that is achieved as intended or as per conceived aim.
5. Result or Output is anything that happens as a result of trying to achieve an intended goal. This necessarily includes outcome, but it is outcomes that we want to achieve.
6. Why do all the above? That is the purpose.



Title: Ch 5 Tnrs Manual Script
Grade level: Adult
Subject: SF/MTT(TF) Tnsf Wksp 6.
Author(s): Schutte w/Specialist Facilitators
Concept: Quadrant 2 Left Mode first phase of lesson planning
Keys/Cross-refs: See D. Schutte, TESD Flow Chart
4MAT & 4Mation Developer are registered trademarks of Excel, Inc. and B. McCarthy, Brarrington, Il.
See 4MAT Print Materials

Ref. Code: Flow Chart
Duration: 1 day

— Overview —

10. TESD Flow Chart Step 6.2

Aims, Goals, Outcomes:

Trainee will use the 4MAT Cycle to make a lesson plan and develop a teachers guide about the concept they have selected to develop. Trainees will review the overview statement and the propositonal, procedural, and conditional information which the group, in previous activities, agreed was appropriate for learners at this class level concerning this concept. Trainees will organize the information that is to be included in Q2,LM in terms of the substance and structure

to be taught to learners. Trainees will state the reasons they must begin the 4MAT lesson plan with Q2,LM during the planning phase in contrast to when they teach the planned lesson to learners. At that time they will begin teaching the lesson at Q1,RM.

About the Authors:

These Materials were developed by Dr. Donald G.W. Schutte. They were written for and modified during a Master Teacher Training Workshop held in Peshawar, Pakistan. This workshop was supervised by Dr. Schutte but conducted by trained Afghan Specialist Facilitators. They responded to the materials, suggested changes to them, and did initial translations during the process of implementation. The facilitators full names are listed in the credits section of the introduction. Alphebetically, they are Amouzgar, Azizi*, Bakhtari*, Bandawal, Besmellah, Hekmaty, Najibullah, Najmi*, Nedai*, Sayeed, Sherzad, Sultani, Yadgari, and Yusofzai*. Those marked with an asterisk are Science and Mathematics specialists who actually conducted the workshop for Master Teacher Trainers. The other specialists are either Social Studies or Language Arts Specialists. Together, along with those conducting the workshop, they were busy during the workshop period translating this Trainers Manual into Dari and Pushtu.

At the time of the writing, Dr. Schutte, was a permanent Team Member of the University of Nebraska at Omaha, Education Sector Support Project. He was the Project's Teacher Training and Curriculum Design Coordinator.

Dr. Gerald Boardman, Chief of Party, and Professor Abdul Salaam Azimi, his Deputy lead the Project. It is sponsored by USAID. UNO/ESSP is a cross-border project supporting the reconstruction of the Afghan education. It is located in Peshawar, Pakistan.

— Quadrant 1, Right mode —

Outcome: Trainees will recall and keep in mind the contents of the more comprehensive statement about the concept they have selected to develop that were written in previous training sessions. Trainees will write an abbreviated form of the statement on the 4MAT cycle form.

Trainer Directed Activities:

1. Trainer will distribute Handout 10, *Lesson Plan Development Form: 4MAT Cycle: Brief Overview and Outcomes Statement.* This form is based on the 4MATion Developer. (4MATion Developer is a registered trademark of Excel, Inc., and Bernice McCarthy of Barrington, IL.)

2. Trainee will write a brief summary of the overview statement in the space provided at the center of the 4MAT circle.

Evaluation:

A valid brief Overview statement, including aims, goals and intended overall outcomes. Validity of the statement for the concept being developed must be agreed by whole group of Afghan Master Trainers and Specialist Facilitators.

— Quadrant 1, Left mode —

Outcome: Trainees will analyze the ***activity box*** on the Flow Chart, Step 6.2, to identify the types of activities that are appropriate for organizing, structuring and systematically presenting information to learners at the Q2,LM lesson point. This information in this box must guide the Trainees' eventual choice of activities that will insure that the concept is well formulated and organized for, with, and by learners.

Trainer Directed Activities:

1. Trainees will review the ***activity box*** , see Flow Chart, Step 6.2, to study the type of activities that are appropriate at the Q2,LM stage of the 4MAT Cycle.

2. Trainees will choose the strategies and techniques to be used to organize, structure, and present the structure of the concept with its topics and subtopics to, by, for and with learners. One of the common strategies often used at this point in the 4MAT Cycle is describe by ASCD in their *Teaching Strategies Library* Series of Videotapes and Print Materials. It is called the *Mastery Lecture Strategy*. Traditionally, this is the point in the learning cycle where Teachers directly teach the academic knowledge and skills they want learners to know about a specific concept under consideration.

3. Trainer will distribute Handouts 10.1.1 and 10.1.2a and 10.1.2b. Trainees will study the *Advance Organizer* pattern to develop a Mastery Lecture about the concept they have selected to develop for Q2,LM. Trainees will develop the type of information described in the Flow Chart activity box , Step 6.2. Trainees will set this information out in the pattern described in the *Advance Organizer*. As aids to developing Q2,LM, Trainees will use the two thinking tools provided. Handout 10.1.2a is a product of the State of Maryland's Department of Education. It is called *Questioning for Quality Thinking*. It relates directly to the section on the Advance Organizer which calls for developing questions. Handout 10.1.2b is called *Strategies to Extend Student Thinking* . It should be considered when developing the pedagogical aspects of Q2,LM. When Trainees are familiar with the patterns on all Handouts, they are ready to develop Q 2,LM.

Evaluation:

Trainees agree with each other and Specialist Facilitator on the types of activities that are appropriate to use when developing Q2,LM for learners and teaching it to them. This means primarily Trainees know from memory the types of activities from which they can choose. These are mentioned in the *activity box* on the Flow Chart, Step 6.2. Trainees will be able to name, describe the information found in Handouts10, 10.1, 10.1.1 and 10.1.2 a and 10.1.2 b and explain to each other how to use it to develop Q2,LM Lesson Plan and Teachers Guide.

— Quadrant 2, Right mode —

Outcome: Trainees will broaden their perspective with regard to *Mastery Lecture* development patterns related to the concept they have selected to develop.

Trainer Directed Activities:

1. The *Mastery Lecture* (ML) strategy uses an *Advance Organizer* both as a planning tool for the teacher and as a means of developing a similar *Advance Organizer* tool to be used by learners to promote long term memory learning. Use Handouts 10.1.1 and 10.1.2 as thinkiing tools to introduce Trainees to the ML strategy. Note in the "Providing Information" Section of 10.1.1, information from the *activity box*, Step 6.2, has been included in order to bring together aspects of 4MAT and ASCD's Mastery Learning strategy. Also because the ML strategy calls for different types of questions to be included as a part of

the plan, Handout 10.1.2a and 10.1.2b were included for Guidance. These handouts were developed for teachers and published by the State of Maryland, Department of Education. The question categories reflect the work of Bloom et al concerning the *cognitive domain.*

2. Trainees a) will review propostional, procedural and conditional information collected in previous exercises concerning the selected concept and b) will use the Master Lecture Strategy to organize that information. Trainees will ensure that the type of information included about the concept and its subordinate topics and subtopics is the type mentioned in the activities box on the Flow Chart, Step 6.2. Trainees' will also plan to use 'high level' questions to promote learners' thinking and to assess whether learners have formulated the concept.

Evaluation:

Group agreement that Trainees: a) are ready to write brief and expanded outcomes for their selected concept, b) are ready to name, describe and explain the step-by-step procedures to be used in the teaching and learning process, and c) can name, describe and explain an assessment strategy that is based on the teaching strategy which they use. Remember that the assessment must "look very much like the teaching strategy." (Quote from Dr. John Bowers, UNO/ESSP Consultant.)

— Quadrant 2, Left mode —

Outcomes: Trainee will complete all parts of the Lesson Plan only for Q2,LM, in accordance with insructions in step 6.2 on the flow chart. That is, Trainees will write the brief outcome statement in Q2, LM of the 4MAT Circle. Then, on 4 MAT Form "D" (Handout 10.1), concerning the Concept Trainees have selected to develop, Trainees will write the expanded outcome and detail the step-by-step procedures for conducting the teaching/learning activities to be used when teaching the substance and structure of the concept to learners. The pedagogical methods, strategies and techniques used are inherent in the processes and are described in the step-by-step procedures to be followed when presenting the lesson to learners. The instructional materials and student texts to be used are selected and/or created by Trainees as well as the means and methods of assessment to be used to evaluate the implementation and validity of the teaching/ learning activities set out in the Q2,LM segment of the 4MAT lesson plan.

Trainer Directed Activity:

1. Trainer will distribute Handout 10.1, *Analytic Learner: 4MAT Form D.* Trainee will write the Subject, Grade Level, Concept & Topics and duration of the lesson in the appropriate place on Form D (Handout 10). In the upper left hand corner of the form, Trainees will write their names. If the project is a group project, the name of each person in the group should be included.

2. Trainer will explain the difference between using 4MAT to plan a lesson and using 4MAT to implement or present a lesson. Every segment of the lesson relates to the content (i.e., the substance and structure of the concept, topics and subtopics) contained in the Q2,LM segment of the lesson. Therefore, everything in the 4MAT Cycle must promote the learning of that which is presented in an organized, structured form in Q 2,LM. Dealing first with this Quadrant when making the lesson plan helps teachers to clarify and focus their attention on exactly what it is they want learners to learn and, therefore, what they must teach about a specific concept and its subordinate topics and subtopics. At the implementation stage, when the teacher presents the lesson to learners, the teacher begins with Q1,RM, in order to connect the concept to the personal meaning given to it by learners and to bridge that

meaning to understanding its broader meaning when it is taught when the Q2,LM segment of the 4MAT plan is implemented with learners in the classroom. Making a plan and setting it out using the 4MAT formula , therefore, involves Trainees in a different sequence of activity, than when they or Teachers teach the lesson in the classroom. To summarize, planners begin developing the plan with Q2,LM. Teachers begin implementing the plan at Q1,RM.

3. Trainees will write the brief outcomes statement in the Quadrant 2, Left Mode Segment of the 4MAT circle (Handout 10). This statement will guide the planning and implementation of Q2,LM. (See 4 below to diffentiate between the brief and the expanded outcomes statement.)

4. Trainee will write in appropriate space for Q2,LM (see Handout 10.1) an ***expanded outcomes*** statement to guide implementation activities and assessment strategies for the selected concept and its subordinate topics and subtopics.

(Trainer Note:Trainees will differentiate between a ***brief outcomes statement*** and an ***expanded outcomes statement.*** The brief outcomes statement is the statement contained in a segment of the 4MAT circle (Handout 10). The space available for writing the statement in the circle is severely restricted; therefore, the outcomes statement must be brief. On the 4MAT form D (Handout 10.1), however, there is room to expand the outcomes statement to give its full meaning. When the form is on the computer or the 4MATion Developer is used, the space can be expanded to accommodate any length of statement. If a standard form is used, and the number of lines provided do not accommodate the complete expanded outcomes statement, it can be continued on a separate sheet of paper. The statement should be concise and to the point; however, it should not be restricted unecessarily by artificial space limitations.)

5. Trainees will identify, analyze, and write the Teachers Guide, i.e., the step-by-step procedures to be followed by teachers when teaching Q2, LM segment of the lesson unit according to the 4MAT lesson plan.

6. Trainees will identify, describe, and explain the assessment techniques and tools that are to be used and outline in the Teachers Guide the procedures to be followed by teachers to evaluate the achievement of intended learning outcomes achieved through the implementation of the Q2,LM segment of the 4MAT lesson plan.

Evaluation:

Through group discussion, Trainees and Specialist Facilitators agree on the validity of the step by step procedures for teaching the concept they have selected to develop as well as the assessment strategies proposed. Trainees will identify and state the characteristics that become the criteria by which they judge validity of the procedures for teaching and assessing outcomes.

— Quadrant 3, Left mode —

Outcomes: Trainees with the guidance of the Specialist Facilitators will analyze the activities create the instructional materials, student text, and assessment tools necessary to be used to teach and learn the selected concept

Trainer Directed Activities:

1. Trainees will name, describe and explain the type of instructional materials and student texts necessary to implement Q2,LM teaching and learning.

2. With the Specialist Facilitators, Trainees will identify resources which can be used as

models or drawn on to create the instructional materials and student texts necessary to implement Q2,LM teaching and learning.

[Trainer's note: Many resources will be in English; therefore, after the Trainees have named, described and explained the need for particular resource materials, the Trainer's responsibility is to help them find what they need and orally translate ideas as necessary while Trainees take notes in Dari and Pashto.]

Evaluation:

Create draft Q2,LM Teachers Guide product, including instructional materials & teaching aids for teachers and student texts and learning aids for learners. The substance of this product must be correlated with the Teachers Academic Resource Book materials. It must also be correlated with and set out 'proactive' pedagogical methods, strategies and techniques. Trainees and Specialist Facilitators will review and revise the product according to suggestions based on an agreed rationale.

— Quadrant 3, Right mode —

Outcomes: Trainees will be able to analyze the materials they have created using external resources and advice of the Specialist Facilitators to implement Q2,LM, and from their own experience add something original to the instructional materials and student text.

Trainer Directed Activities:

1. Trainees will create appropriate original materials to illuminate and promote *mastery learning* of the concept, i.e., to help learners formulate the concept. Materials are to be added to those already created using external resources to make a complete package of instructional materials and student texts.

Evaluation:

Trainees will present their innovative, original materials to the group and will explain their relevance and appropriateness to be included in the Mastery Learning 'package' contained in the Teachers Guide to be used for teaching and learning the information included in the Q2,LM segment of the 4MAT lesson plan.

— Quadrant 4, Left mode —

Outcome: Trainee will name, describe and explain assessment techniques and create a) assessment tools, b) an outline of assessment techniques, and c) a plan of step-by-step procedures to be used by teachers continuous assess the achievement of learning outcomes resulting from the implementation of the Q2,LM segment of the 4MAT lesson plan.

Trainer Directed Activities:

1. Remembering that *'assessment must look a lot like teaching'*, (quote Dr. J. Bowers, UNO/ESSP Consultant), Trainees will create tools and/or outline assessment techniques relevant to assessing the achievement of learning outcomes planned as a result of implementing the Q2,LM segment of the 4MAT lesson plan.

[Trainer's note: Assessment tools and outlines of assessment procedures and techniques are developed as trainees create the 4MAT lesson plan and teachers guide. Simultaneously, Trainees create the materials necessary to implement the plan for each segment of the 4MAT cycle. This ensures that 'assessment and teaching will look alike' and, therefore, that the assessment will be valid. *EX POST FACTO EVALUATION* will be automatically eliminated from the system. It also insures that assessment will be continuous throughout the teaching and learning process.]

2. Trainees will analyze the assessment implementation plan and outline the step-by-step procedures to be used by teachers, students and/or external examiners to evaluate teaching based on the achievement of specified learning outcomes by students as a result of implementing the Q2, LM segment of the 4MAT lesson plan and teachers guide.

Evaluation:

Trainees and Specialist Facilitators will agree on validity of the assessment outline and procedural plan for evaluating the mastery of specified learning outcomes by all students regardless of their learning style or brain hemisphere preferences. Trainees will develop criteria and state a rationale in support of their contention that the outline and procedures are valid for Afghan teachers and learners.

— Quadrant 4, Right mode —

Outcomes: Trainees will share the completed Q2, LM segment of the 4 MAT lesson plan and teachers with the group, trying it out by ' role playing' and discussng the 'role play' with their peer arrange in ' think-pair-share' groups.

Trainer Directed Activities:

1. Trainer will group Trainees in twos or threes.

2. Trainees will try out the materials, role playing the use of the materials with their partners . Based on the felt success or lack thereof, trainees will make a final revision of Q2, LM Mastery (*lecture*) lesson plan & teachers guide, using the instructional materials and students texts they have created.

Evaluation:

Agreement by Specialist Facilitators that the Q2,LM plan, teachers guide, instructional materials, and student texts, when included with the remainder of the 4MAT plan and materials for the selected concept, is ready to be submitted to ECA for approval through Dr. Boardman and Prof. Azimi before being tried out in the schools.

Concept Unit_____

Topic/Subtopic Index:

_____

_____

_____

_____

_____

Duration of Lesson:

Time:_____

Number of Periods_____

Date:_____

Author/Authors:

Name:_____

Title:_____

Location:_____

_____

_____

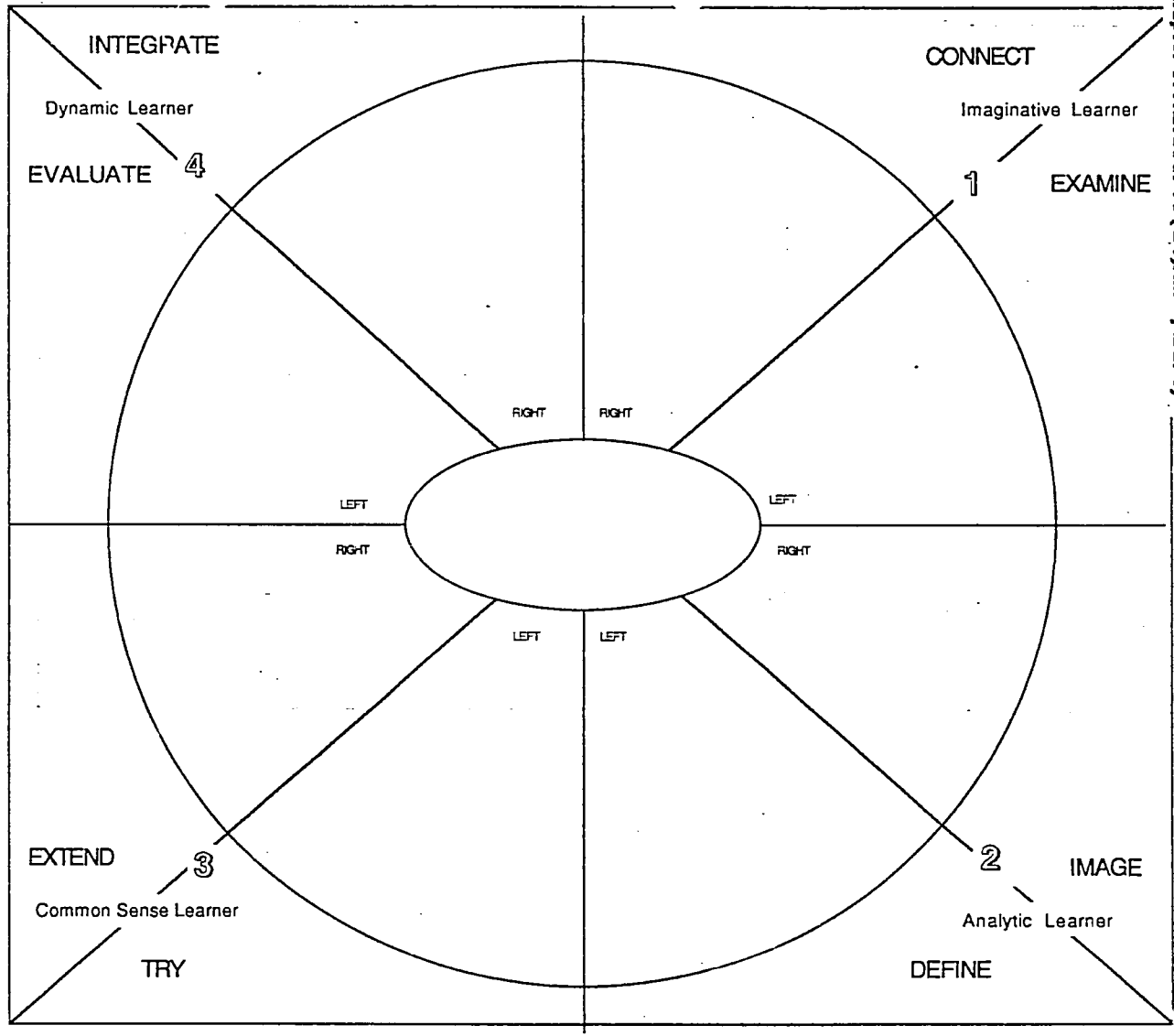
Name:_____

Title:_____

Location:_____

_____

_____



Lesson Plan Development Form: 4Mat® Cycle: Brief Overview & Outcomes Statements

Chapter 5: Handout 10.1 (Q2,LM --para. 1 -- 4MAT: Form D) ANALYTIC LEARNER

Subject:_____Grade Level: _____

Concept:_____Topic:_____

QUADRANT TWO [Perceives Abstractly : Processes by Reflective Observation]
The Analytic Learner's Most Comfortable Place
Concern for the Facts as Experts See Them -- Teach IT To Them
Answer the question, "What?"
Teacher's Role-- Information Giver
Method to be used -- (Information)
Concept Formulation
Integrate Reflections Into Concepts -- Teacher More Active
Develop Theories and Concepts

QUARDRANT TWO -- LEFT MODE

Expanded Outcome:

Activity:

Pedagogical Methods, Strategies, & Techniques:

Materials To Be Used Or Created:

Evaluation:

Advance Organizer -- Mastery Lecture

For each Topic and Subtopic related to **Concept** _____ identify all the information from recorded on Handouts 8.5 and 8.6 that you think is necessary for you to teach the concept. Review the information ar look for relationships among the Id3as. Now you are ready to use this Advance Organizer to plan you lesson.

Planning for The Mastery Lecture

Topic:

List some questions you might ask to introduce your topic to review the personal connections learners have made with the concept (Q1, RM) and which learners analyzed (Q1,LM) and used as image to bridge (Q2,RM) to the broader meaning of the concept that you want to teach.

Q1 RM
Q1 LM
Q 2 RM

Introducing Information

SUBTOPIC	SUBTOPIC	SUBTOPIC
• provide acknowledged body of knowledge •emphasize significant aspects of concept in organized manner organically structured.	•present information sequentiallyso learners see continuity • draw attention to important, discrete details, but don't overcome learners with too many facts	• Use a variety of delivery systems, e.g., mastery lecture, texts, guest speakers, films, visuals, demonstrations, etc.

Q2 LM

Providing Information

What questions might you ask to help your learners practice this information? Try to vary types of questions so students can use different styles of thinking. See Handout 10.1.2. Questions should recall information, compare and contrast, and allow students to use their imaginationss. Note at which point in your lecture you want to use these questions.

Q3 LM
Q3 RM

Practicing Information

Think of an activity to use as a summary for this lecture.

Q4 LM
Q4 RM

[Note: This Advance Organizer is adapted by D. Schutte from ASCD's Teaching Strategies Library, Part I and combined in part (text in *Providing Information* section] with information from 4Mation Developer, a registered trade mark of Excel Inc. and B. McCarthy, Barrington, Il.]

Questioning for Quality Thinking

Knowledge Questions:

Identification and recall of information--

Who, What, When, Where, How _____?
Describe _____.

Comprehension Questions:

Organization and selection of facts & ideas--

Retell _____in your own words.
What is the main idea of _____?

Application Questions:

Use of facts, rules, principles--

How is _____ an example of _____?
How is _____ related to _____?
Why is _____significant?

Analytical Questions (Analysis):

Separation of a whole into components --

Classify _____according to _____?
Outline/Diagram/Web _____.
How does _____compare/contrast with___?
What evidence can you list for _____?

Synthetic Questions (Synthesis):

Combining old ideas to form a new 'whole'--

What would you predict or infer from _____?
What ideas can you add to _____?
How would you create/design a new _____?
What might happen if you combined_____
_____ with _____?
What solutions would you suggest for ____?

Evaluation:

Development of opinions, judgements, or making decisions

Do you agree or disagree _____?
What do you think about_____?
List priorities you give to ___among _____?
How would you decide about _____?
What criteria would you use to assess ____?

Chapter 5: Handout 10.1.2 b (Q2,LM -- paragraph 3)

Strategies To Extend Student Thinking

Language and Learning Improvement Branch, Division of Instruction,
Maryland State Department of Education

1. **Call on students randomly**
   1.1 Not just those with raised hands.

2. **Use 'Think-Pair-Share' Strategy**
   2.1 Two minutes of individual think time, two minutes of discussion with partner, then open up the class discussion

3. **Remember 'wait time'**
   3.1 Wait ten to twenty seconds following the asking of a 'higher level' question.

4. **Ask 'follow-ups'**
   4.1 Why? How did you decide that? Do you agree or disagree with_____? Can you elaborate with more detail or another generalization? Tell me more. Give examples.

5. **Withhold judgement**
   5.1 Respond to student answers in a non-evaluative manner.

6. **Ask for summary (to promote active listening)**
   6.1 "Could you please summarize Kareem's statement or answer."

7. **Survey the class**
   7.1 How many people agree with the author's point of view? How many agree with Shakur's answer? The answer to the Math problem I put on the blackboard is correct Agree?
   ("Thumbs up or Thumbs down": "Agree or Disagree? Strategy)

8. **Allow for student to call upon student**
   8.1 "Shakur, will you call on Farhad to respond to my question?"

9. **Play an adversarial role**
   9.1 Require students to defend their reasoning against different points of view.

10. **Ask students to "unpack their thinking"**
    10.1 "Describe how you arrived at your answer." ("think aloud")

11. **Student questioning**
    11.1 Let the students develop their own questions.

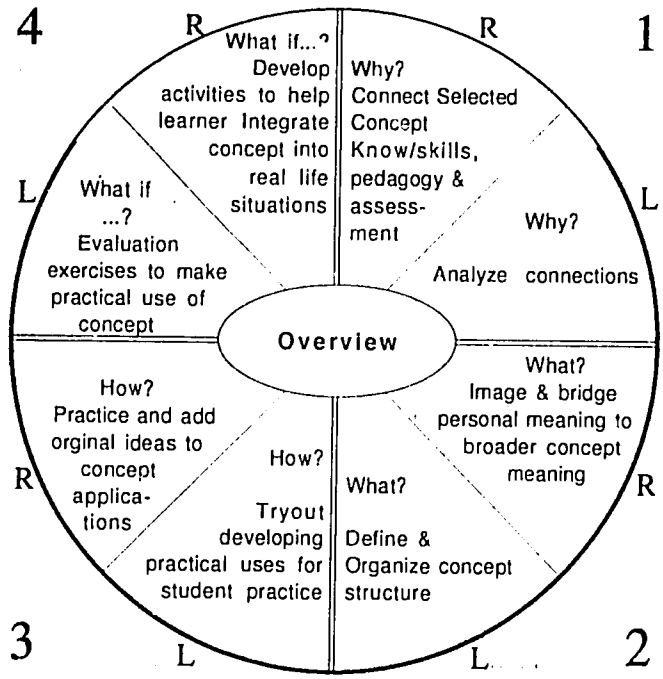
12. **Cue student responses**
    12.1 There is not a single correct answer for this question. I want you to consider alternatives.

THE EMPOWERING SYSTEM
TOTAL EDUCATION SYSTEMS DEVELOPMENT

Trainers Manual

Dr. Donald G. W. Schutte

CHAPTER 6



Title: Ch 6 Tnrs Manual Script
Grade level: Adult
Subject: SF/MTT(TF) Tnsf Wksp 6.3-6.16
Author(s): Schutte w/Specialist Facilitators
Concept: All Quadrants except Q2 LM Complete
Keys/Cross-refs: See D. Schutte TESD Flow Chart

Ref. Code: Flow Chart
Duration: 4 days

— Overview —

11. TESD Flow Chart 6.3 to 6.19

All Quadrants Right & Left Modes Except Q2, LM

Trainer Directed Activities:

I. Trainer will distribute Handout 11, *Flow of TES Development Activity*. Trainer will distribute Handout 12, 4MAT Forms A, B, C, E, F, G, H.

II. Given the previous Q2,LM activites (Chapter 5) concerning a specific selected concept in which a) an overview statement (Aims, Goals, and Outcomes) was written, b) Teachers Academic Resource Book

materials were selected and written, and c) the plan of and guide for teaching and learning as well as assessment activities were constructed and the instructional materials created and assessment tools developed and procedures outlined for Q2,LM, Trainees will construct a 4MAT Lesson Plan and Teachers Guide, according to the sequence prescribed on the Flow Chart and described in Handout 11. Trainees will also create, as necessary, teacher resource materials, student texts and learning materials. In addition, Trainees will develop assessment tools and procedural outlines for evaluating teaching in terms of learning outcomes achieved. The assessment design will look very much like the strategies and techniques used when teaching the concept. Trainees will study Schutte's TESD Flow Chart. They will follow the Flow Chart step by step to develop the concept they have selected to develop, modelling their performance in each segment of the 4MAT on the prior experience gained when developing Q2,LM, Flow Chart Step 6.2. (See Chapter 5) The activity sequenceTrainees is as follows :

Refer to Flow Chart Steps 6.3 to 6.9

1. Trainees will write brief outcomes statement using the 4MAT Circle (Handout 10) on which the Overview Statement was placed during previous activities. (See Chapter 5)

2. Trainees will write expanded outcomes statements for all segments of the 4MAT cycle (See Flow Chart Steps 6.3 to 6.9) using Handout 12, prepared Forms 10A through 10 H, with the exception of Form 10 D which already has been completed for Q2,LM.

Refer to Flow Chart Steps 6.10 to 6.16

3. Trainees will complete the'activities' sections for each segment of the 4MAT Cycle using Forms 10A through 10H with the exception of Form 10D which already has been completed for Q2,LM.

4. Trainees will create the Instructional Materials and Student Texts necessary to implement the activities planned for each segment of the 4MAT ['learning'] Cycle as they proceed to develop the plan and teachers guide.

5. Trainees will complete the 'assessment sections for each segment of the 4 MAT Cycle using Forms 10A through 10H with the exception of Form 10D which has been completed for Q2,LM.

6. Trainees will create the 'tools' and/ or outline the step-by-step procedures teachers will use to continuously assess learning outcomes as they implement each segment of the 4MAT lesson plan as it is set out and related to a specific concept and pedagogical and assessment procedures in the Lesson Guide.

7. Trainees will index all of the above on 4MAT form 'O' . The index should be prepared in three languages, English, Dari and Pushtu.

Evaluation:

Agreement by Specialist Facilitators that the whole 4MAT lesson plan, teachers guide, instructional materials and student texts, for the concepts the Trainees have selected to develop are valid for tryouts with Afghan Students; however, they must be submitted to ECA for approval through Dr. Boardman and Prof. Azimi before being tried out in schools.

Chapter 6: Handout 11
(All Q's, paragraph I.)

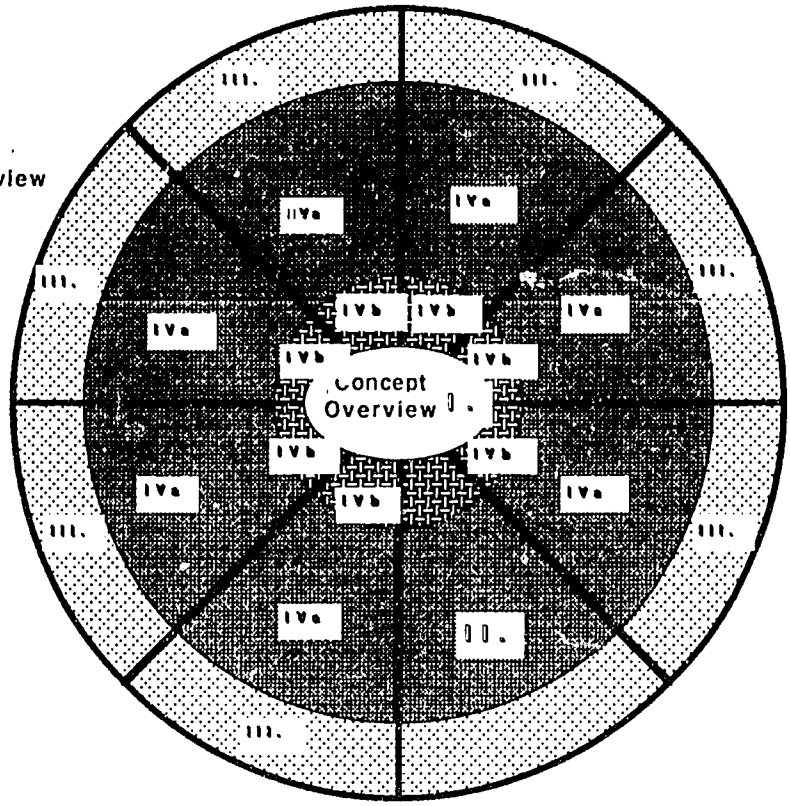
I. Concept/Overview

I. Q2,LM

I. Q1 R&LM
Q2 RM
Q3 L&RM
Q4 L&RM

:e explanation below

'low of TES Development Activity



First - On 4mat Form 'O' Write Specific Concept Overview
I. To Guide Lesson Planning & Other Development Activities

Second - For 4MAT Quadrant 2, Left Mode, Complete Q2,LM, Steps 1-9, below.
II.

Third - For All Other 4MAT Quadrants, Right/Left Mode, To Provide An Image of The Whole Teaching/Learning Idea Associated With The Selected Concept,
III. Complete Brief & Expanded Outcomes Statements, Steps1-2, below

F urth - For Each Other 4 MAT Quadrant, Right or Left Mod
IVa IVb Proper Sequence, Complete 3 - 9, below.

. Write Brief Outcomes In Q2,LM Space On 4MAT Cycle (Wheel).
2. Write Expanded Outcomes On 4mat Form D, Q2,LM.
3. Organize & Write Content To Define And Teach Structural Propositional And Procedural Content Of Concept.
4. Write Modern, Research-Based Step-by-Step Pedagogical Procedures To Cover All Planned Teacher & Learner Activities Designed To Elicit From And Transfer Information And Skills To Learners.
5. Create Instructional Materials And Teaching Aids Necessary A) To Support Teacher's Presentation Of Q2, LM Lesson Activity And B) To Write The Teacher's Academic Resource Book That Will Be Used To Upgrade Teachers' Background Knowledge And Skills Of The Specific Concepts With The Subordinate Topics And Subtopics They Are Expected To Teach.
6. Create And/Or Select Student Text And Learning Aids Necessary To Implement Q2, LM Lesson Activities.
7. Create An Outline To Guide The Assessment Of Teaching/Learning Activities To Ascertain That The Intended Learning Outcomes Have Been Achieved. Such Assessment Is To Provide Basis For Supervision And Action Research Where Intended Learning Outcomes Have Yet To Be Achieved.
8. Create The Evaluation Tools And Assessment Techniques With Step-by-step Procedures To Be Followed By Teachers, Learners, Or External Evaluators.
9. Index The Above Activities For This Concept On 4mat Form O.

Chapter 6: Handout 12 (para, II--4MAT: Form A) IMAGINATIVE LEARNER

Subject:_____ Grade Level:_____

Concept :_____ Topic: _____

QUADRANT ONE [Perceives Concretely : Processes by Reflective Observation]
The Imaginative Learner's Most Comfortable Place
Integrating Experience with the Self
Concern with Personal Meaning -- Teacher Creates a Reason
Answer for the learner the question, "Why should I learn this?"
Teacher's Role -- Motivator
Method to be used: Simulation to encourage brainstorming for imagination, innovation and empathy
Create an Experience -- Teacher more active.

QUADRANT ONE - - RIGHT MODE

Expanded Outcome:

_____
_____
_____
_____

Activity:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Pedagogical Methods, Strategies, and Techniques:

_____
_____
_____
_____

Materials To Be Used Or Created:

_____
_____
_____
_____

Evaluation:

_____
_____
_____
_____

Chapter 6: Handout 12 (para. II -- 4MAT: Form B) IMAGINATIVE LEARNER

Subject:_____ _____ Grade Level:_____

Concept:_____ Topic:_____

QUADRANT ONE [Perceives Concretely : Processes by Reflective Observation]
The Imaginative Learner's Most Comfortable Place
Integrating Experience with the Self
Concern with Personal Meaning -- Teacher Creates a Reason
Answer for the learner the question, "Why should I learn this?"
Teacher's Role -- Motivator
Method to be used: Simulation to encourage brainstorming for imagination, innovation and empathy
Analyze the Experience- Teacher more active.

QUADRANT ONE -- LEFT MODE

Expanded Outcome:

Activity:

Pedagogical Methods, Strategies, & Techniques:

Materials To Be Used Or Created:

Evaluation:

Chapter 6: Handout 12 (para II -- 4MAT: Form C) ANALYTIC LEARNER

Subject:_____ Grade Level:_____

Concept:_____ Topic:_____

QUADRANT TWO [Perceives Abstractly : Processes by Reflective Observation]
The Analytic Learner's Most Comfortable Place
Concern for the Facts as Experts See Them -- Teach It to Them
Answer the question, "What?"
Teacher's Role– Information Giver
Method to be used -- (Information)
Concept Formulation
Integrate Reflections Into Concepts -- Teacher More Active
Analyze the Created Experience

QUADRANT TWO -- RIGHT MODE

Expanded Outcome:

Activity:

Pedagogical Methods, Strategies, & Techniques:

Materials To Be Used Or Created:

Evaluation:

Chapter 6: Handout 12 (para. II -- 4MAT: Form E) COMMON SENSE LEARNER

Subject: _____Grade Level:_____

Concept:_____Topic:_____

QUADRANT THREE [Perceives Abstractly : Processes by Active Experimentation]
The Common Sense Learner's Most Comfortable Place
Practice and Personalization
Concern for Hands-on Experience. Let Them Try It.
Answer the Question, "How does this concept work?"
Teacher's Role -- Coach or Facilitator
Method Used (Facilitation)
Working on Defined Concepts (Reinforcements and Manipulation) Students More Active

---

QUADRANT THREE -- LEFT MODE

Expanded Objective:

Activity:

Pedagogical Methods, Strategies, & Techniques:

Materials To Be Used Or Created:

Evaluation:

Chapter 6: Handout 12 (para. II -- 4MAT: Form F) COMMON SENSE LEARNER

Subject:_____Grade Level:_____

Concept:_____Topic:_____

QUADRANT THREE [Perceives Abstractly : Processes by Active Experimentation]
The common sense learners most comfortable place
Practice and Personalization
Concern for Hands-on Experience. Let Them Try It.
Answer the Question, "How does this work?"
Teacher's Role -- Coach or Facilitator
Method Used (Facilitation)
"Messing Around" [Adding Something of Themselves] Students More Active

---

QUADRANT THREE -- RIGHT MODE

Expanded Outcome:

_____
_____
_____
_____

Activity:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Pedagogical Methods, Strategies, & Techniques:

_____
_____
_____
_____

Materials To Be Used Or Created:

_____
_____
_____
_____

Evaluation:

_____
_____
_____
_____

Chapter 6: Handout 12 (para. II -- 4MAT:Form G) DYNAMIC LEARNER

Subject_____ Grade Level:_____

Concept:_____Topic:_____

QUADRANT FOUR [Perceives Concretely : Processes by Active Experimentation]
The Dynamic Learner's Most Comfortable Place
Concern for Action or Doing Something --Teach Concept to Themselves & Share with Others
Answer the questions, "What can concept become?" or "What can I make of this concept?"
Teacher's Role: Evaluator and/or Remediator
Method: (Self-Discovery)
Analyzing Their Own Application of the Concepts for Usefulness, Originality, and as a Stepping Stone for Future Learning.
Integrating Application and Experience Student More Active

QUADRANT FOUR -- LEFT MODE

Expanded Outcome:

Activity:

Pedagogical Methods, Strategies, & Techniques:

Materials To Be Used Or Created:

Evaluation:

Chapter 6: Handout 12: (para. II -- 4MAT: Form H) DYNAMIC LEARNER

Subject:_____Grade Level_____

Concept:_____Topic:_____

QUADRANT FOUR [Perceives Concretely : Processes by Active Experimentation]
The Dynamic Learner's Most Comfortable Place
Concern for Action or Doing Something -- Teach Concept to Themselves & Share with Others
Answer the questions, "What can concept become?" or "What can I make of this concept?"
Teacher's Role: Evaluator and/or Remediator
Method: (Self-Discovery)
Analyzing Their Own Application of the Concepts for Usefulness, Originality, and as a Stepping Stone for Future Learning.
Doing It Themselves and Sharing What They Do With Others Student More Active

---

QUADRANT FOUR -- RIGHT MODE

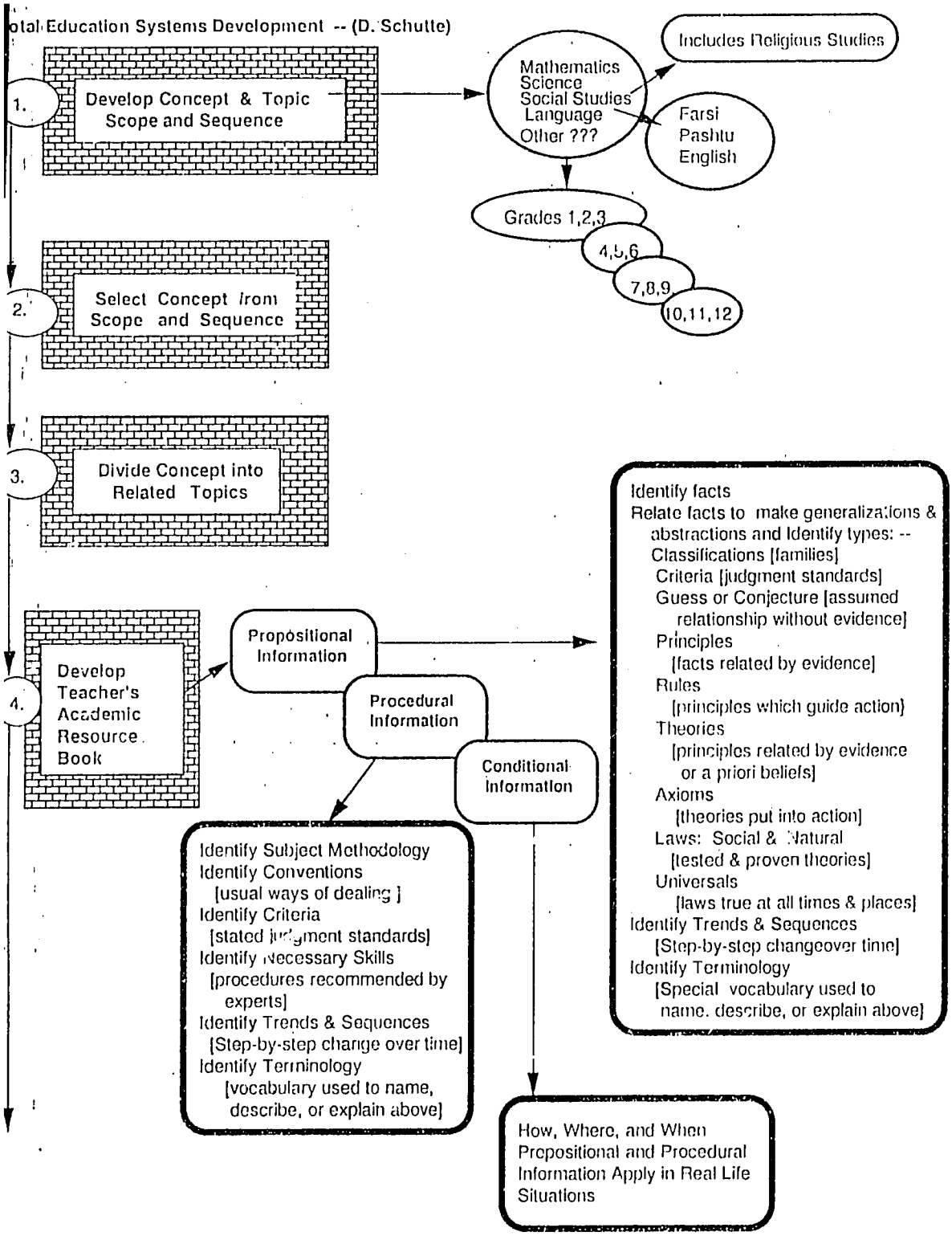
Expanded Outcome:

Activity:

Pedagogical Methods, Strategies, & Techniques:

Materials To Be Used Or Created:

Evaluation:


otal Education Systems Development -- (D. Schutte)
1.
Develop Concept & Topic Scope and Sequence
Mathematics
Science
Social Studies
Language
Other ???
Includes Religious Studies
Farsi
Pashtu
English
Grades 1,2,3
4,5,6
7,8,9
10,11,12
2.
Select Concept from Scope and Sequence
3.
Divide Concept into Related Topics
4.
Develop Teacher's Academic Resource Book
Propositional Information
Procedural Information
Conditional Information
Identify facts
Relate facts to make generalizations & abstractions and Identify types: --
Classifications [families]
Criteria [judgment standards]
Guess or Conjecture [assumed relationship without evidence]
Principles
[facts related by evidence]
Rules
[principles which guide action]
Theories
[principles related by evidence or a priori beliefs]
Axioms
[theories put into action]
Laws: Social & Natural
[tested & proven theories]
Universals
[laws true at all times & places]
Identify Trends & Sequences
[Step-by-step changeover time]
Identify Terminology
[Special vocabulary used to name, describe, or explain above]
Identify Subject Methodology
Identify Conventions
[usual ways of dealing]
Identify Criteria
[stated judgment standards]
Identify Necessary Skills
[procedures recommended by experts]
Identify Trends & Sequences
[Step-by-step change over time]
Identify Terminology
[vocabulary used to name, describe, or explain above]
How, Where, and When Propositional and Procedural Information Apply in Real Life Situations

From
Teacher's Academic Resource Book,
Select
Concept & Topic Information
Appropriate to Grade Level

Use 4 MAT to CREATE
Teacher's Lesson Guide
for Selected
Concept or Topic

WITH EACH CONCEPT DEVELOP:

- Instructional Materials & Aids for Teachers
- Student Text & Learning Aids
- Evaluation and Assessment Techniques, Tests, & Tools For Each Quadrant & Mode
- Teacher"s Pedagogical Resource Book: Methods, Strategies, Techniques; Classroom Management; Discipline

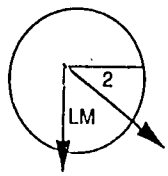
LM RM

Use the 4 MAT Cycle
Write Overview : --
[Theme Statement Contains
Aim, Goal, & Outcome]

6.1

Select Appropriate Level
Propositional & Procedural
Information and Skills
as the Concept Content
at the Heart of Planning
the Lesson Guide

Concept



Quadrant Two : Left Mode
ANALYTIC LEARNER

Write brief Objective in the 4 MAT Cycle to formulate the concept for formal development of knowledge of the concept.

Write expanded Objective in 4 MAT Teacher's Lesson Guide as an organizing principle around which to present propositional, procedural, and conditional information to students

Name, Describe, Explain Activity and Relate to Specific Method, Strategy and Technique.

Identify and Create Teacher Materials and Instructional Aids and Student Texts and Learning Aids.

Name, Describe, Explain Assessment Techniques

Activity:

- Provide "acknowledged body of knowledge" related to the concept
- Emphasize most significant aspects of concept in organized, organic manner
- Present information sequentially so students see continuity
- Draw attention to important, discrete details; don't swamp students with myriad facts
- Use a variety of delivery systems: ~~interactive~~ lecture, text, guest speakers, films, visuals, CAI, demonstrations, etc. when available

Evaluation:

Teacher verbal and/or written check on understanding of information

Quadrant Two : Left Mode
Analytic Learner
Goal: Concept Formulation

Analytic Learner's Most Comfortable Place
Concern for the facts as experts see them.
Teach the concept to them.
Answer the question "What?"
Teacher's Role: Information giver.
Teacher more active.
Method: Informational

Quadrant One: Right Mode
IMAGINATIVE LEARNER

6.3

Use Conditional Information from
Teacher's Academic Resource Book

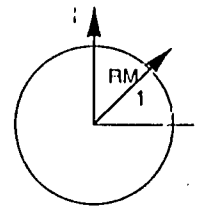
Write brief Objective in the 4 MAT cycle to connect Students personally with the concept through teacher created experiences

Write expanded Objective in 4 MAT
Teacher's Lesson Plan
Objective must create an experience that allows Students to enter into the concept, engaging a Student's Self, and connect personal meaning with experiencing of the concept.

Quadrant One
Right and Left Mode
Imaginative Learner
Goal
Integrating Experience with Self

Learner Preference for Concrete Experience & Reflective Observation

The Imaginative Learners Most Comfortable Place
Concern for Student to Connect Personal Meaning with Concept.
Create a Reason for Learning the Concept. Answer, "Why?"
Teacher's Role: Motivator
Teacher More Active than Student
Method: Simulation to encourage Brainstorming for Imagination, Innovation, and empathy
(See Right Mode Strategies **)



** Right Mode Strategies

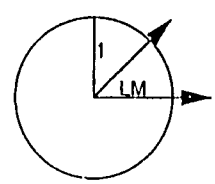
1. Metaphor; 2. Visualization ; 3. Imagery;
4. Paradox; 5. All Forms of Poetry;
6. All Activities which Respect Intuition;
7. All Fine Arts:
   Drawing, Painting, Music, Creative Drama and Writing, Physical Movement ;
8. Modalities: Audio, Visual, Kinesthetic, Mixed;
9. Most forms of Performance: Building, Role Playing, Simulations, Demonstrations, Experiments;
10. All Kinds of Connections: Patterning & Configurations; All synthesis, e.g. Synectics [Metaphor & Analogies], Mind-Mapping, i.e., grouping one's own thoughts & ideas, Clustering, i.e., grouping other's thoughts & ideas, Analogies;
11. Mathematical Conceptualizations: Geometry, Spatial Relations

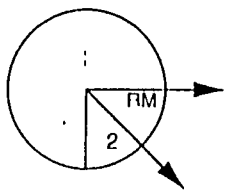
Quadrant One : Left Mode
IMAGINATIVE LEARNER

6.4

Write brief Objective in the 4 MAT Cycle to examine the "whole" right mode experience created in 6.3 to answer question, "Why should I learn this Concept?"

Write expanded Objective in 4 MAT
Teacher's Lesson Guide
which must empower students to examine the "whole" personal experience of the concept, stepping outside it to analyze its parts in terms of its broader meaning in the world beyond the self. Analysis should answer question, "Why?"





5

Quadrant Two : Right Mode
Analytic Learner

Write brief Objective in 4 MAT Cycle to elicit from students a strong image of the Concept.

Write expanded Objective in 4 MAT
Teachers Lesson Guide
to help students integrate personal experience of the concept into conceptual understanding by stepping outside the personal experience of the concept to understand its broader relation to the world outside themselves.

Quadrant Two

Right Mode
Analytic Learner
Goal
Integrating Reflections
into Concepts

Learner Preference for
Reflective Observation and
Abstract Conceptualization

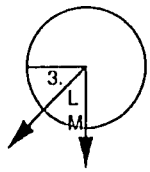
The Analytic Learner's most Comfortable Place
Concern for the facts as experts see them.
Teach it to them.
Answer the question "WHAT?"
Teacher's Role: Give Information
Teacher more active.
Method: Informational
(See Right Mode Strategies**)

6.6

Quadrant Three : Left Mode
Common Sense Learner
Goal
Working on Defined Concepts

Write brief Objective in the 4 MAT Cycle to allow students to work on defined concepts.

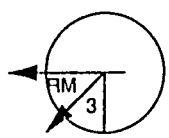
Write expanded Objective in 4 MAT Teacher's Lesson Guide which provides students with framework to reinforce defined concepts by manipulating and practicing use of the defined concept.



Quadrant Three
Left and Right Mode
Working on Defined Concepts
Goal
Practice and Personalization

Learner Preference for Active Experimentation and Abstract Conceptualization

The Common Sense Learner's Most Comfortable Place
Concern is for hands-on experience.
Let them try it.
Answer the question.
"How does this work?"
Teacher's Role: Coach or Facilitator
Students more active
Method: Facilitation
(See Right Mode Strategies **)

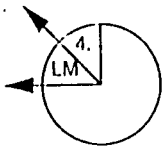


6.7

Quadrant Three : Right Mode
Common Sense Learner
Goal
Practice and Personalization

Write brief Objective in the 4 MAT Cycle to allow student the chance to try using the concept on their own but with teacher supervision.

Write expanded Objective in 4 MAT Teacher's Lesson Guide to provide opportunity for students to use and experiment to try out the concept and add something of themselves



Quadrant Four : Left Mode
Dynamic Learner

Write brief Objective in the 4 MAT Cycle to help students integrate the concept into their own lives by finding useful and original applications for it.

Write expanded Objective in 4 MAT Teacher's Lesson Guide to help students to analyze their own applications of the concept and evaluate them according to the criteria of usefulness and originality and as a stepping stone to further learning.

6.8

Quadrant Four
Right and Left Mode
Dynamic Learner
Goal
Integrating Application and Experience

Learner Preference for Concrete Experience and Active Experimentation

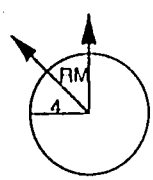
The Dynamic Learner's most Comfortable Place
Concern for action or doing.
Let them teach it to themselves and share what they learn with others.
Answer the questions "If?" and "What can this become?"
Teacher's Role: Evaluator or Remediator
Students more active than Teacher
Method: Self Discovery
[See Right Mode Strategies**]

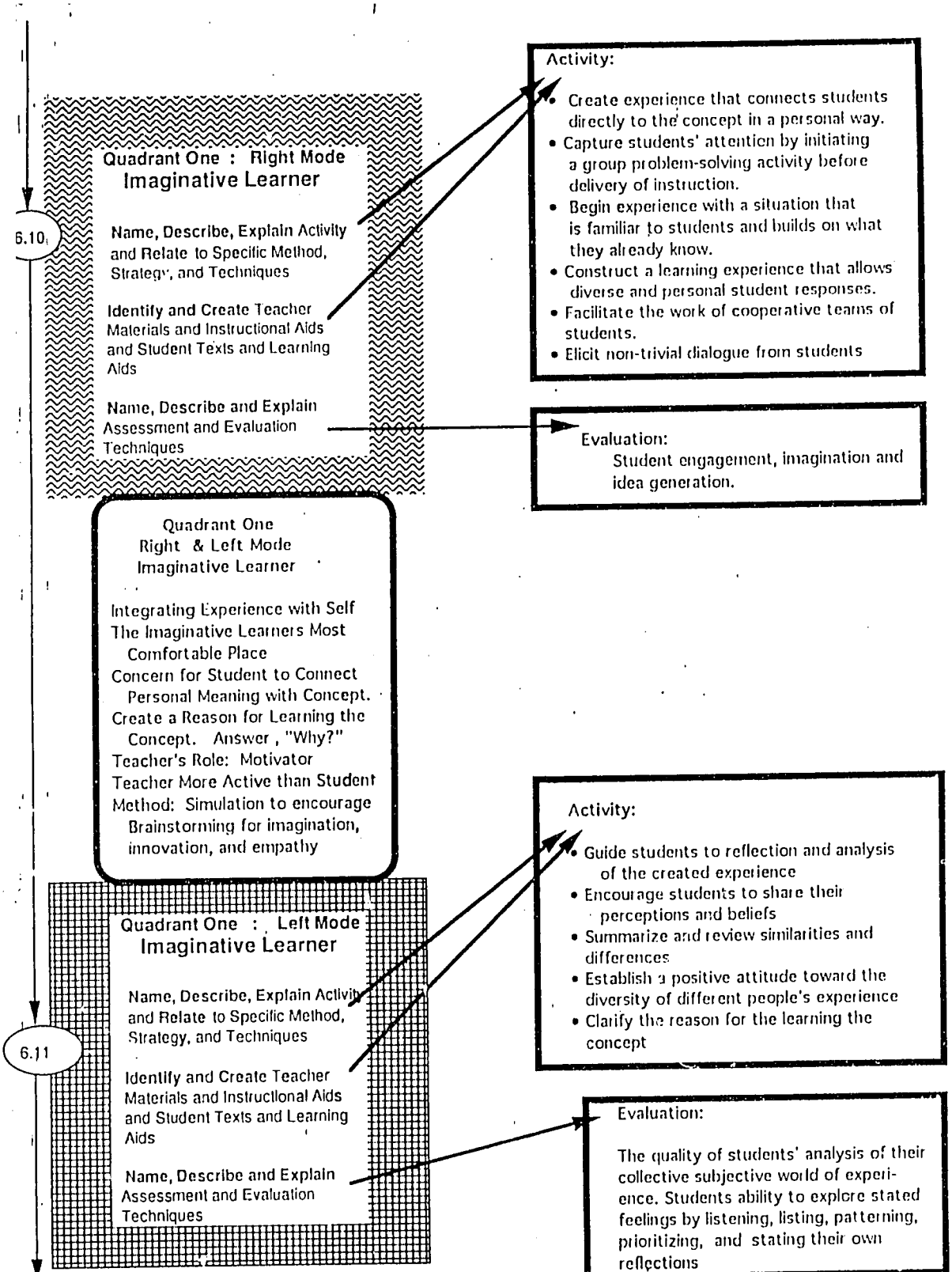
Quadrant Four : Right Mode
Dynamic Learner

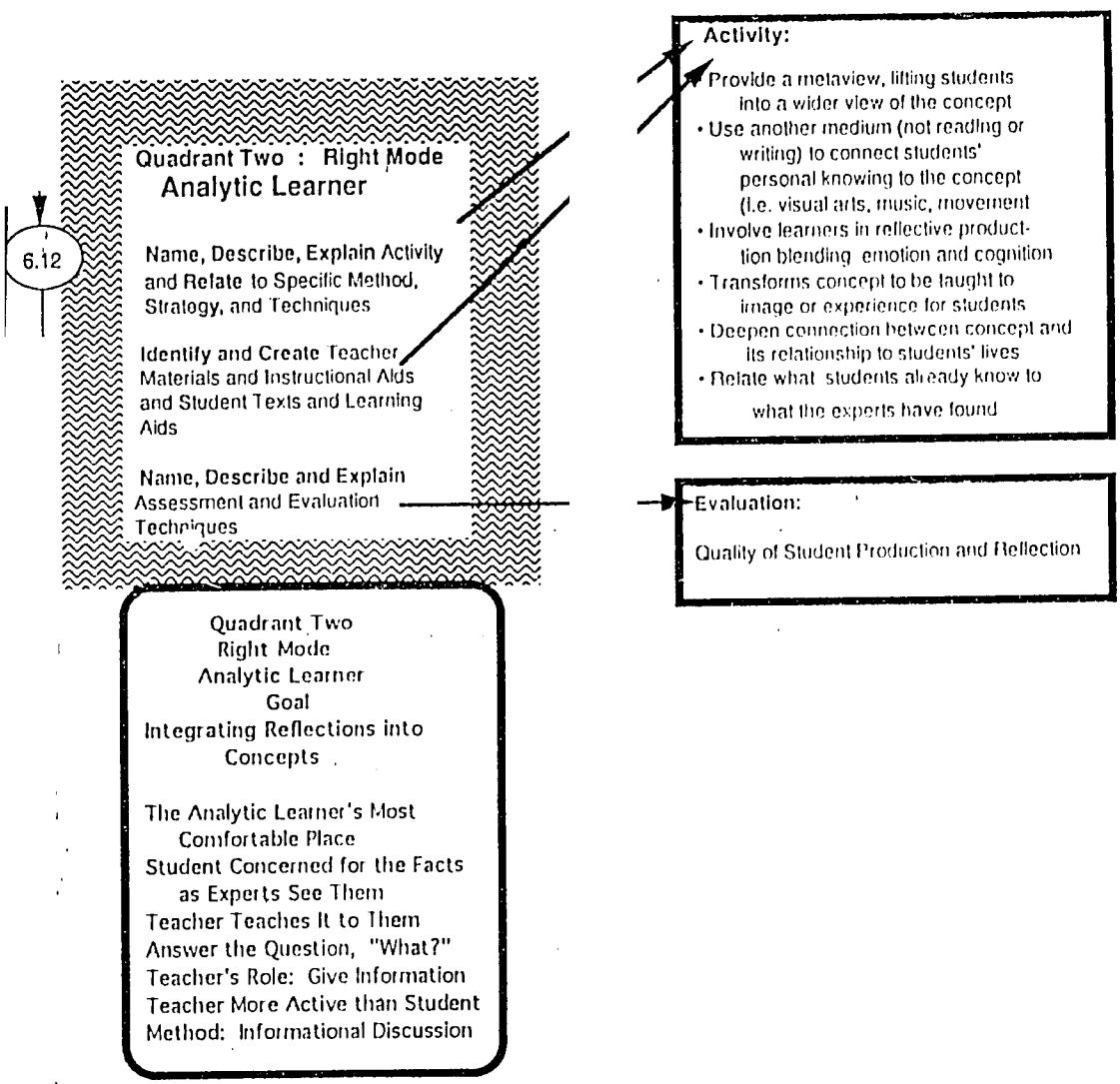
Write brief Objective in the 4 MAT Cycle to allow student to use the concept and share it with others.

Write the expanded Objective in 4 MAT Teacher's Lesson Guide to encourage students to evaluate the use of the concept in their own lives, use it, and share it with others.

6.9




6.10
Quadrant One : Right Mode
Imaginative Learner
Name, Describe, Explain Activity and Relate to Specific Method, Strategy, and Techniques
Identify and Create Teacher Materials and Instructional Aids and Student Texts and Learning Aids
Name, Describe and Explain Assessment and Evaluation Techniques
Activity:
• Create experience that connects students directly to the concept in a personal way.
• Capture students' attention by initiating a group problem-solving activity before delivery of instruction.
• Begin experience with a situation that is familiar to students and builds on what they already know.
• Construct a learning experience that allows diverse and personal student responses.
• Facilitate the work of cooperative teams of students.
• Elicit non-trivial dialogue from students
Evaluation:
Student engagement, imagination and idea generation.
Quadrant One
Right & Left Mode
Imaginative Learner
Integrating Experience with Self
The Imaginative Learners Most Comfortable Place
Concern for Student to Connect Personal Meaning with Concept.
Create a Reason for Learning the Concept. Answer, "Why?"
Teacher's Role: Motivator
Teacher More Active than Student
Method: Simulation to encourage Brainstorming for imagination, innovation, and empathy
6.11
Quadrant One : Left Mode
Imaginative Learner
Name, Describe, Explain Activity and Relate to Specific Method, Strategy, and Techniques
Identify and Create Teacher Materials and Instructional Aids and Student Texts and Learning Aids
Name, Describe and Explain Assessment and Evaluation Techniques
Activity:
• Guide students to reflection and analysis of the created experience
• Encourage students to share their perceptions and beliefs
• Summarize and review similarities and differences
• Establish a positive attitude toward the diversity of different people's experience
• Clarify the reason for the learning the concept
Evaluation:
The quality of students' analysis of their collective subjective world of experience. Students ability to explore stated feelings by listening, listing, patterning, prioritizing, and stating their own reflections


Quadrant Two : Right Mode
Analytic Learner
6.12
Name, Describe, Explain Activity and Relate to Specific Method, Strategy, and Techniques
Identify and Create Teacher Materials and Instructional Aids and Student Texts and Learning Aids
Name, Describe and Explain Assessment and Evaluation Techniques
Activity:
• Provide a metaview, lifting students into a wider view of the concept
• Use another medium (not reading or writing) to connect students' personal knowing to the concept (i.e. visual arts, music, movement
• Involve learners in reflective production blending emotion and cognition
• Transforms concept to be taught to image or experience for students
• Deepen connection between concept and its relationship to students' lives
• Relate what students already know to what the experts have found
Evaluation:
Quality of Student Production and Reflection
Quadrant Two
Right Mode
Analytic Learner
Goal
Integrating Reflections into Concepts
The Analytic Learner's Most Comfortable Place
Student Concerned for the Facts as Experts See Them
Teacher Teaches It to Them
Answer the Question, "What?"
Teacher's Role: Give Information
Teacher More Active than Student
Method: Informational Discussion

6.13

Quadrant Three : Left Mode
Common Sense Learner
Goal
Working on Defined Concepts

Name, Describe, Explain Activity and Relate to Specific Method, Strategy, and Techniques

Identify and Create Teacher Materials and Instructional Aids and Student Texts and Learning Aids

Name, Describe and Explain Assessment and Evaluation Techniques

Activity:

- Provide hands-on activities for practice and mastery
- Check for understanding of concepts and skills by using relevant standard materials, i.e. worksheets, text problems, workbooks, teacher prepared exercises, etc.
- Provide opportunities for students to practice new learning, perhaps in multi-modal ways (learning centers, games fostering skills development, etc.)
- Set high expectations for skills mastery
- Use concept of mastery learning to determine if re-teaching is necessary and how it will be carried out
- Students may create additional multi-modal practice for each other

3, LM

Evaluation:
Quality of student work, perhaps an objective quiz

Quadrant Three
Left and Right Mode
Working on Defined Concepts
Goal
Practice and Personalization

The Common Sense Learner's Most Comfortable Place
Concern is for hands-on experience.
Let them try it.
Answer the question.
"How does this work?"
Teacher's Role: Coach or Facilitator
Students more active
Method: Facilitation

6.14

Quadrant Three : Right Mode
Common Sense Learner
Goal
Practice and Personalization

Name, Describe, Explain Activity and Relate to Specific Method, Strategy, and Techniques

Identify and Create Teacher Materials and Instructional Aids and Student Texts and Learning Aids

Name, Describe and Explain Assessment and Evaluation Techniques

Activity:

- Encourage linkering with ideas, relationships and connections
- Set up situations where students have to find information not easily available in school texts
- Provide opportunity for students to design own open-ended explorations of concept
- Provide multiple options so students can plan a unique "proof" of learning
- Require students to organize and synthesize learning in a personal, meaningful way
- Require students to begin the process of planning how their project will be evaluated, identifying their own criteria for excellence

RM, 3

Evaluation:
Students "on-task" behavior and engagement in their chosen options

6.15

Quadrant Four : Left Mode
Dynamic Learner

Goal
Analyze Own Applications of Concept for Usefulness, Originality, and Basis for Future Learning

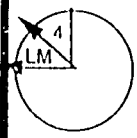
Name, Describe, Explain Activity and Relate to Specific Method, Strategy, and Techniques

Identify and Create Teacher Materials and Instructional Aids and Student Texts and Learning Aids

Name, Describe and Explain Assessment and Evaluation Techniques

Activity:

- Give guidance and feedback to students plans, encouraging, refining, and helping them to be responsible for their own learning
- Help students analyze their use of the learning for meaning, relevance, and originality
- Maintain high expectations for completion of chosen options
- Help mistakes to become learning opportunities
- Summarize by reviewing the whole, bringing students "full circle" to the experience with which the learning began



Evaluation:
Students' willingness and ability to edit, refine, rework, analyze, and complete their own work

Quadrant Four
Right and Left Mode
Dynamic Learner
Goal: Integrating Application & Experience

The Dynamic Learners most Comfortable Place
Concern for action or doing something
Let them teach it to themselves & share what they learn with others.
Answer the questions, "If?" or "What can this concept become?
Teacher's Role: Evaluator or Remediator.
Students more active than teacher.
Method: Self-Discovery

6.16

Quadrant Four : Right Mode
Dynamic Learner

Goal
Make Use of the Concept By Themselves and Share What They Do with Others

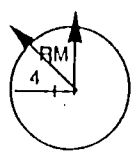
Name, Describe, Explain Activity and Relate to Specific Method, Strategy, and Techniques

Identify and Create Teacher Materials and Instructional Aids and Student Texts and Learning Aids

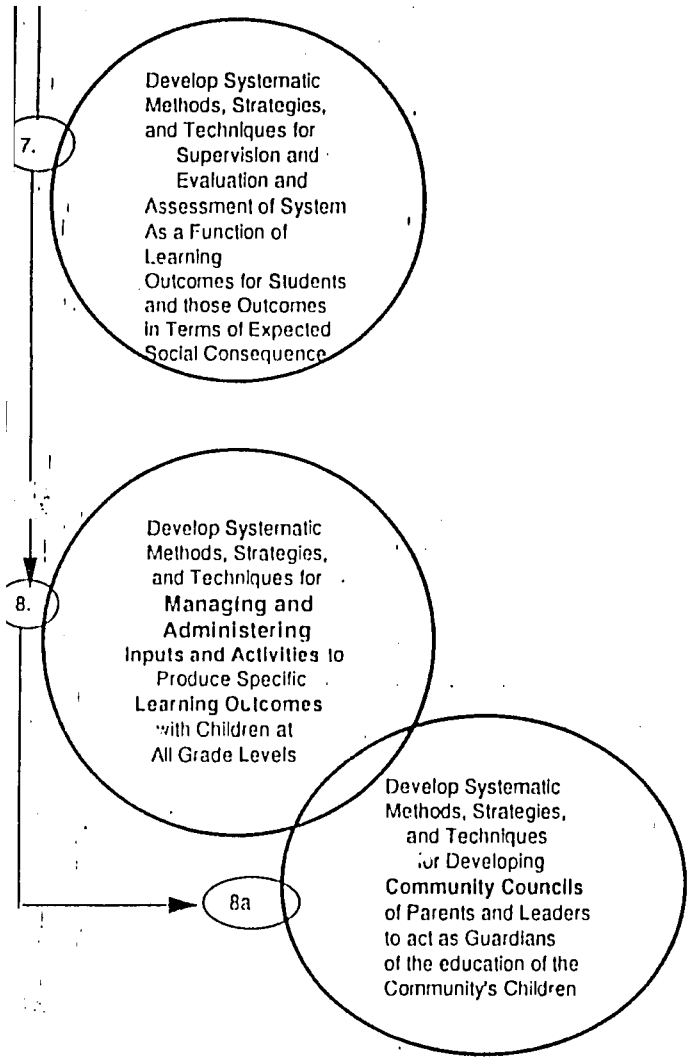
Name, Describe and Explain Assessment and Evaluation Techniques

Activity:

- Support students in learning,teaching, and sharing with others
- Establish a classroom atmosphere that celebrates the sharing of learning
- Have opportunity for students to practice new learnings
- Make student learning available to the larger community, i.e., books students write are shared with other classes; students report in school paper; student work is displayed throughout the school; etc.
- Leave students wondering (creatively) about further possible applications of the concept, extending the "what ifs" into the future.



Evaluation:
Students ability to report and demonstrate what they have learned. Expressions of student enjoyment in the sharing of their learning. Quality of student final products.


7.
Develop Systematic Methods, Strategies, and Techniques for Supervision and Evaluation and Assessment of System As a Function of Learning Outcomes for Students and those Outcomes in Terms of Expected Social Consequence
8.
Develop Systematic Methods, Strategies, and Techniques for Managing and Administering Inputs and Activities to Produce Specific Learning Outcomes with Children at All Grade Levels
8a
Develop Systematic Methods, Strategies, and Techniques for Developing Community Councils of Parents and Leaders to act as Guardians of the education of the Community's Children

Pedagogical Applications : Format

Dear Colleagues: Following is a format to be used in analyzing any pedagogical method, strategy, or technique whether encountered in practice in the classroom, or described in Videotapes, Manuals, or Books. Educators will use this format as an *advance organizer* to help them study and understand the pedagogy they and other people use so as to be able to repeat peak performances themselves. A good place to start the study is the ASCD Videotape/Manual Library established by UNO/ESSP. .....Dr. Donald GW Schulte

Give credit to yourself and others:
Extracted and Adapted from_____& Related to TESD and 4MAT by_____

What is _____(*Name of Strategy/Tactic*)

When to Use _____(*Name of Strategy/Tactic*)

How to Use _____(*Name of Strategy/Tactic*)..

Planning Phase:
1._____
2._____
3._____
etc._____
(Step-by-Step Process To Be Used To Plan Strategy/Tactic)

Implementation Phase:
1. _____
2. _____
3. _____
etc._____
(Step-by-Step Process To Be Used In-Class To Implement Strategy/Tactic.)

How to Evaluate and Assess:
1. _____
2._____
3._____
etc._____
(Step-by-Step Process To Be Used To Assess Intended Learning Outcomes.)

Things to Remember about_____(*Name of Strategy/Tactic*)

** Note:

4MAT* List of Right Mode Strategies

1. Metaphor
2. Visualization
3. Imagery
4. Paradox
5. All Forms of Poetry
6. All Activities which respect intuition

7. All Fine Arts:
   - 7.1 Drawing
   - 7.2 Painting
   - 7.3 Music
   - 7.4 Creative Dramatics
   - 7.5 Creative Writing
   - 7.6 Movement
   - 7.7 Physical Education

8. Modalities
   - 8.1 Audio
   - 8.2 Visual
   - 8.3 Kinesthetic
   - 8.4 Mixed

9. Most forms of Doing, i.e., performance
   - 9.1 Building
   - 9.2 Role Playing
   - 9.3 Simulations
   - 9.4 Demonstrations
   - 9.5 Experiments

10. All Kinds of Connections:
    - 10.1 Patterning & Configuration
    - 10.2 All Synthesis
    - 10.3 Mind-Mapping
    - 10.4 Clustering
    - 10.5 Analogies
    - 10.6 Paradox

11. Mathematic Conceptualizatior
    - 11.1 Geometry
    - 11.2 Spatial Relationships

Pedagogical Applications - Brainstorming

Dr. Donald G.W. Schulte

What is Brainstorming?

Brainstorming is a valuable tactic or strategy used to discover solutions to problems, to create an idea, to create a process, to plan and to achieve a specific outcome, or simply to stimulate an unrestricted discussion to explore an issue.

When to Use Brainstorming:

Brainstorming is used to connect learners' prior personal experiences with an idea, person, place or thing with a new idea, person, place or thing that the teacher wishes to introduce. (4MAT QI, RM) It can be used to stimulate discussion in all 4MAT Quadrants.

Brainstorming is normally used with groups, but it can also be used by individuals. In that case it is called ***internal brainstorming***, but the rules governing group brainstorming still must be faithfully obeyed. The rules are mentioned below.

How to Use Brainstorming: [Planning]

1. Form a group of students to solve a problem, to create an idea, to plan a process to achieve a specific outcome, or to stimulate an unrestricted discussion in order to explore an issue.

2. Announce to the group the purpose of the 'brainstorming session'.

3. Each person in the group is asked to voice any idea or solution that comes to mind, no matter how fragmented or impractical it might seem.

4. All students are asked to follow the **four basic and unalterable rules** of brainstorming. No deviation is allowed. **The rules to follow are:**

   4.1 Defer judgment on any idea that is expressed by any group member. This even includes giving encouraging comments to others or attaching qualifying phrases to your own suggestions. For example, avoid such statements as, 'That's a good idea!' or 'My thought is probably irrelevant, but here it is!.'

   4.2 The session must be as unrestrained or uninhibited as possible, with each person voicing whatever idea comes to mind without reservation or self-imposed or group restraint.

4.3. Participants are encouraged to hitchhike (catch a free ride) on the ideas of others. When one person's suggestion sparks an idea by another, it should be *instantly* expressed, but without interrupting the person making the suggestion before he/she is finished.

4.4. Quantity of idea, not quality of idea, is the brainstorming goal. Analysis, evaluation and elimination can be accomplished later. During the right-brained part of brainstorming, however, negatives are inappropriate and out of order.

How to Evaluate Brainstorming: [Assessment]

The first set of criteria for evaluating the use of 'brainstorming' as a tactic or strategy for problem solving or creating ideas is established by observing individual behavior in the group to ensure the four inviolable rules have **NOT** been broken .

The second set of criteria relates to purpose. Did the brainstorming session achieve the goal as outcome.? Did the brainstorming session elicit sufficient information which could later be analyzed to provide several alternative solutions to a problem from which the group could choose the best or most desirable one according to either the group or individual standards? Was an idea created? Did a planning process to achieve a specific intended outcome emerge? Did a discussion ensue which allowed the group to explore all sides of an issue?

Things to Remember:

Brainstorming can be used as a tactic in relation to a strategy or a strategy in relation to a method!

Modified and Adapted by Dr. Donald G.W.Schutte from Jacquelyn Wonder & Priscilla Donovan. *Whole-Brain Thinking: Working From Both Sides Of The Brain To Achieve Peak Job Performance.* Balantine/Random House, 1984. This approach has been used for many years and is found in many references.

Pedagogical Applications: Compare & Contrast

Extracted, Adapted, & Related to TESD and 4MAT** by Dr. Donald G.W. Schutte from ASCD's* *Teaching Strategies Library: Part II: Compare & Contrast* by.

What is a Compare & Contrast Strategy

Definition: American Heritage Dictionary:

Compare: verb 1. To represent [something] as similar, equal, or analogous; to liken [one thing to another];
2. To examine in order to note the similarities or differences of [two or more things]

Contrast: verb 1. To set in opposition in order to show differences [of two or more things];
2. To show differences when compared [between/among two or more things]

Compare and Contrast used as a teaching/learning strategy, develops learners' abilities to collect, organize and remember information. It also helps learners to apply information developing new learning during the application.

The strategy has three phases --
1) the Description Phase,
2) the Comparison Phase, and
3) the Application Phase.

When to Use Compare & Contrast Strategy:

Use Compare & Contrast Strategy as an important tool when you want learners: --

Q1,LM -- to take a more active role in learning.
Q2,LM -- to see relationships between general ideas and specifics.
All Q's -- to keep meaningful notes.
Q2,LM -- to observe and describe accurately.
Q1,LM -- to focus attention on criteria to use to decide what is important to learn & remember.
Q3,LM -- to review important ideas.
Q2,RM -- to establish effective sets for new learning.
Q4,LM -- to get new information from reading, listening, and observation.
All LM -- to compare and contrast two ideas and concepts that might otherwise be confused.
Q4,LM -- to compare two concepts, find new applications & form generalizations.
Q3,LM -- to become independent learners.
Q3LM -- to review material previously taught.

How to Use Compare & Contrast Strategy :

Planning:

1. Select two ideas you would like your learners to compare.
2. Identify or create resources learners can use to learn about the ideas or concepts to be compared.
3. Establish a set of criteria that can help learners focus on what they have learned.
4. Provide learners with a visual, 'advance' organizer. (See Form attached)
5. Create an application activity that will help learners reflect on what they have learned.

Implementation:

Description Phase:

1. Teacher provides learners with a visual or *Advance Organizer.* (See *Advance Organizer* Form, attached.)
2. Teacher provides learners with sources of information about two related ideas or concepts.
3. Teacher provides learners with a set of criteria on which to focus their observations.
4. Learners use these criteria and the sources of information to develop independent descriptions of both ideas or concepts.

Comparison Phase:

1. Teacher and learners work together to identify similarities and difference between the two ideas or concepts.
2. Use *Advance Organizer* to record learners descriptions on the chalkboard or the overhead and use learner's descriptions to help them identify similarities and differences between the two ideas or concepts being compared.

Application Phase:

1. Teacher asks questions that encourage learners to reflect on and explore the implications of what they have learned.
2. Teacher asks learners to apply what they have learned to new contexts.

How to Evaluate It: [Assessment]

1. Are learners able to distinguish between the ideas they have studied? What is the quality of the distinctions made? Are they surface distinctions or do they reflect in-depth analysis and understanding of important facts, details and generalizations about the two ideas or concepts compared.

2. Are learners able to independently make generalizations about the ideas or concepts which have been compared?

3. Are learners able to support their observations with a rationale acceptable to the teacher and their peers?

4. Are learners able to find new applications for the concepts or ideas that have been compared?

Things to Remember about it:

Be sure and check the visual, *Advance Organizer* to establish that notes have been correctly recorded for later review and recitation or to support assessment.

*ASCD is Association for Supervision and Curriculum Development, Alexandria, Va.

**4MAT is a Registered Trademark of Excel, Inc. and Bernice McCarthy of Barrington, Il.

COMPARE AND CONTRAST VISUAL ADVANCE ORGANIZER FORM

Criteria	Differences	Similarities	Differences

Pedagogical Applications: K - W - L Strategy

Extracted, Adapted & Related to TESD and 4MAT** by Dr. Donald GW Schutte from ASCD's* Videotape & Facilitator's Manual, Teaching Reading As Thinking, pp 11 -17.

Background:

The K-W-L Strategy was developed by Ms. Donna Sederburg Ogle. Her work was based on her own classroom study. It showed K-W-L to be an effective tool. It helps students become more active thinkers and helps them remember better what they read. It has also been useful in helping teachers better communicate the active nature of reading in group settings. Ms. Ogle also based her work on the research of R. Andersen. His research confirmed the importance of prior knowledge or schemata in determining how readers interpret what they read. Ms Ogle also cited the work of C. Andersen and Smith. They demonstrated by their research with science concepts that teachers and texts must directly address the schemata or prior "folk" assumptions about those concepts that are being taught if students are to change their understanding.

Ms.Ogle is scheduled to act as a short-term consultant to the UNO/ESS Project at sometime in the future. She will find the K-W-L Strategy has been used in the Total Education Systems Development (TESD) process as an effective thinking tool in oral discussion as well as in reading. It is a particularly effective strategy when used in Quadrant 1 of 4MAT to help learners to connect their concrete experience of a concept with the organized abstract formulation the teacher wants to teach.

K-W-L is particularly effective as a tactic in relation to other strategies as well. For example, it can be used as a tactic within the *Synectics Strategy* . There is a point in the *Synectics Strategy* at which, for the purpose of comparison, Teachers and Learners identify the important characteristics of the two objects or ideas (concepts) within a metaphor where the focus is on making comparisons. These characteristics are used by Teachers and Learners as criteria to judge, define and classify the important points, i.e., the similarities and differences between the two objects or ideas (concepts) within a metaphor. This is a prerequisite to analogical thinking. It is important for both Teacher and Learner to know ***what they know*** **(K)** about the two ideas being considered within a metaphor in order to connect learners with the concept. It is helpful to know ***what they want to know*** **(W).** This stimulates interest. At points of assessment in the lesson, learners' statements concerning ***what they have learned*** **(L)** permits Teachers, their peers, and parent to understand the difference between what was actually learned and what the Teacher intended to teach.

What is the K - W - L (Small or Large Group Instruction) Strategy :

K-W-L is a strategy that models the active thinking needed when reading expository text. The letters ***K, W, and L*** stand for three activities students engage in when reading (or communicating) with a purpose, i.e., to learn. The three activities are: 1) recalling what they **KNOW**, 2) determining what they **WANT** to learn, and 3) identifying what they **LEARN** as they read. A worksheet given to every student includes columns for each of these activities.' (See Attachment.)

As noted under Background, above, in TESD we use K-W-L as a Speaking, Listening, & Writing strategy as well as a Reading Strategy. The worksheet provided works well in any case.

K-W-L is a five step process. **Step 1: Preparation, Step 2: Group Instruction, Step 3: Individual Reflection, Step 4: Reading, Step 5: Assessment of Learning.**

The essential elements of the strategy are that learners:-

-- first activate their own knowledge of the topic as fully as is useful for learning,
-- formulate their own questions to motivate and focus their reading,
-- read actively and attend to information that is new to them as they read, or listen, and
-- summarize and evaluate their accomplishments when finished.

When to Use the K-W-L Strategy for Small or Large Group Instruction :

Use the K-W-L strategy when you want:--

-- to help learners develop a more active approach to reading, listening or discussing expository material by connecting their personal experiences relative to the concept under consideration. (Q1,R &LM)

-- to help learners acquire the ability to decide what they want to know about materials they read or discuss. (Q2,R&LM)

-- to help learners develop a questioning attitude towards materials they read or hear or as a means of anticipating questions and answers when they speak or write. (Q3,L&RM) and (Q4,L&RM)

How to Use K-W-L Strategy:

[Note: These steps are presented as reading strategies but they may be adapted to become speaking, writing, and listening strategies and applied when teaching all subjects.]

Step 1: Preparation: --

-- Teachers prepare by reading (or reviewing) the materials (concept. topics, and subtopics) to be learned by students in class. (In TESD, this means reading and reviewing the Propositional, Procedural and Conditional Information and skills, i.e., Teachers Academic Resource Book materials concerning the concept under consideration.)

-- Teachers determine the key content concept that will elicit the significant knowledge and skills that learners should learn about the concept. (In TESD this is the overview concept that governs the entire lesson unit or the Topics or Subtopics that govern the sub units within the whole unit.)

-- Teachers produce learners' worksheets. (See Attachment for example.) (In TESD, the information from the completed worksheet may be used to develop an ***advance organizer*** to be used in Quadrant 2, LM.)

Step 2: Group Instruction [3 Parts]:--

-- **Part 2.1:**

2.1.1: Teachers engage learners in a discussion of what they as a group already know about the concept they want to teach

2.1.2 Teachers list on the chalk board all that the learners think they know about the concept.

2.1.3 Teachers note disagreements and questions as they emerge from the discussion and suggest that learners include them on the center column of the worksheet as questions they want to have answered from what they read or hear.

-- **Part 2.2:**

2.2.1 After learners have given all the information they can think of about the concept, Teachers ask them to categorize the information they have generated. (Teachers may have to identify one general category that incorporates two or more pieces of information on the board to model the building of chunks or categories of information.) [In TESD, these categories form the basis of criteria that allow learners to judge, define and differentiate objects, ideas (or concepts) as one thing rather than another. As criteria they focus learners' attention on the important points. These criteria allow both teacher and students to organize the information to be rehearsed in the short-term memory in preparation for transfer to and easy access and recall from the long-term memory bank.]

-- **Part 2.3:**

2.3.1 When learners are familiar with the categorization process, teachers ask them to anticipate or predict the categories of information they expect an author will include in an article or discussion on this or a similar topic.

Ms Ogle's example (modified to fit Afghan situation): If social studies classes are reading or discussing about Abdur Rahman's reign, learners should be able to anticipate or predict the categories of information which will be found in the reading materials or lecture/discussion. Learners then will raise questions. When they read text or listen to the lecture, they will answer such questions as follows: (i) the King's accession to power, [ii] major issues during the time of his reign, (iii) how the King and his Court resolved or tailed to resolve those issues, (iv) who the King's opponents were and the circumstances of their opposition) (v) the circumstances surrounding the end of his reign, (vi) some evaluation of his accomplishments, (vii) the social consequences of his reign .

These same categories can be generalized and used for topic to topic to discuss other Kings, Presidents or Leaders at all levels of government. Standardizing the categories allows learners to compare and contrast different leaders who have governed them or their ancestors over time. or to think about qualities they should look for in future leaders. These categories become embedded in learners' minds. They become tools which allow them to think independently about the past, present and future..

Step 3: Individual Reflection:--

-- After the group introduction to the concept or topic, learners are asked to individually write on their own worksheet what they feel confident they know about the concept.

-- Learners are also asked to write down the categories of information which they anticipate will be included in the reading materials, lecture or discussion.

-- Teachers will help learners raise questions that have emerged from the discussion or that come from thinking of the major categories of information they expect to find. Learners will be expected to think of at least three questions or issues that they WANT to learn about as they read. These questions should be written on their individual worksheets.

[Note: Of course, all this written work will have to be modified if the strategy is used in the early grades before learners have writing capabilities.]

Step 4: Reading (Lecture or Discussion):-

-- Teachers direct learners to read the text or listen (and take notes) to the lecture or discussion, focusing on what they already know about and what they want to find out about the concept under consideration.

-- Learners will note the information they learn on the worksheet as well as new questions and answers as they emerge from reading, writing, speaking, or listening.

Step 5: How to Evaluate K-W-L: Assessment of Learning:-

-- Teachers engage students in a discussion of what they have learned from reading texts or listening to the lecture or discussions.

-- Teachers review questions and issues raised by themselves or their students to determine how well students answered the questions or resolved the issues. During the review process teachers help students to correct misinformation or misunderstandings. Teachers encourage students to help as much as possible to correct their peers.

-- Teacher and students together construct a summary of the lesson, rehearsed and organized for storage in and retrieval from the long-term memory.

Things to Remember about In the early grades before children can write or when their writing skills are just developing, Teachers can use chalk board mind-mapping and modify each step by discussion and writing things in appropriate language levels on the board.

Working in pairs is a very effective way of helping students develop the ability to ask questions and build categories. Think-Pair-Share is a good way to elicit discussion.

DONNA OGLE'S K-W-L STRATEGY SHEET (For Use By Learners)

WHAT (I / WE) KNOW	WHAT (I / WE) WANT TO FIND OUT	WHAT (I / WE) LEARNED OR STILL NEED TO KNOW

2. CATEGORIES OF INFORMATION (I / WE) EXPECT TO USE

Note: Attachment To Pedigogical Applications: K-W-L Strategy

Refer to Main Text)}

**4MAT is a registered Trademark of Excel, Inc., and Bernice McCarthy of Barrington, Il.
*ASCD is the Association for Supervision and Curriculum Development, Alexandria, Va.

Pedagogical Applications--- Mind-mapping (or Clustering)

Modified, Adapted, Supplemented and Related to TESD and 4MAT by Dr. Donald G.W. Schutte from Tony Buzan, *Use Your Perfect Memory*, E. P. Dutton, N. Y., 1984, or Linda Verlee Williams, *Teaching for the Two-Sided Mind, A Guide to Right Brain/Left Brain Education* , Prentice Hall, Englewood Cliff, NJ, 1983

• • **Definition from American Heritage Dictionary:**

Cluster --- [noun] 1. a group of things growing or gathered closely together; a bunch.

To Cluster [Verb] 2. to gather, grow, or form into clusters.

Exercise:

Visualize a bunch of grapes (*angur*). Individual grapes grow on branches which gather or **cluster** around a central stem. ***Clustering*** is used here as a metaphor. Ideas, like grapes, tend to cluster about a central theme or concept as that theme or concept grows through analysis and is elaborated in terms of related ideas that, within the framework of the specific central theme, are increasingly subordinate to each other.

What is Mind-mapping (or Clustering • •]

Mind-mapping (or Clustering) is a strategy or tactic used in the Total Education Systems Development Process (TESD) in one or the other of two ways.

1) Mind-mapping is used as a system to take notes about what others say, orally or in writing. It is a system by which learners map the thoughts of others as they listen to them, read what they have written, or make inferences about their observed actions. In the process of listening, reading or observing, learners identify , attend to, and note in written and/or multi-dimensional forms the formal and informal patterns that emerge as associated ideas cluster around a central theme or concept. These notes provide a means to organize and rehearse information briefly in the the short-term memory for subsequent transfer to the long-term memory for easy access, retrieval, elaboration, and use.

2) It is used as a system to bring to consciousness and record one's own ideas as these ideas cluster about a central theme,. Mind-mapping leads to the creation of original prose or poetry. This means bringing to consciousness the formal and informal patterns of one's own thoughts or ideas and setting them out in written or multi-dimensional form. These thoughts and ideas tend to cluster as subordinated topical and subtopical bits of associated information surrounding a central theme or concept.

(Important Note: Whether the mind-mapping or clustering is made while taking notes about the ideas of others as you read, listen, and observe, or setting out notes about your own thoughts, the 'cluster pattern' or 'mind-map' that emerges around a central idea or concept will depend upon your prior experience, the nature of the new information filtering in at the the moment of mapping, and your conscious or unconscious purpose for the mapping.)

Standard *left-brained* approaches to note-taking include the use of a) complete sentences, b) phrases, c) lists and line, and d) numbers. These

involve basic *left-brained* memory principles of i) order, ii) number and, iii) sequence.

Mind-mapping (or Clustering), in contrast, uses both the right and left sides of the brain and, therefore, both *left-brained and right-brained.* memory principles. These principles include: i) imagination, ii) association, iii) exaggeration, iv) contradiction, v) absurdity, vi) humor, vii) color, viii) rhythm, ix) the senses, and x) sensuality. These *right-brained* approaches increase the capacity to remember because they promote rehearsal in the short term memory and, thus, transfer to storage in the long-term memory. The use of *right-brained* approaches and the establishment of organized patterns of relationships also increase the possibilities for later access and recall of the information stored in the long-term memory.

(Special note: In TESD it is not considered necessary to make the same distinction which Buzan makes between mind-mapping and clustering. He considers mind-mapping as a formal exercise. A central theme or concept is written in a square in the center of a diagram. Topics are written on line branches and are attached to the center to indicate the relationship of the topic to the central theme. Branches have attached diagonal lines radiating from them on which ideas subordinate to the topics are written. Buzan considers 'Clustering' to be more informal. The central theme is written in a circle at the center of the page and is attached to topic and subtopics enclosed in other circles joined by arrows that indicate clusters of relationships between and among ideas. See Attachement number 1.).

When to Use Mind-mapping (or Clustering:

Use Mind-mapping or Clustering: --

-- in any 4MAT Quadrant or across Quadrant boundaries when a theme activity is introduced in the Right Mode and is followed immediately by Left Mode activity. Use depends on your purpose and appropriateness of the approach to the content you want taught and learned and the depth of recall you wish to achieve.

-- when you want learners to see the connections or relationships between and among ideas to increase their understanding of a central idea and its component parts.

-- when you want learners to use both the right and left sides of their brains, as well as to use fundamental memory principles related to both sides of the brain.

-- when you want to increase learners' ability to recall and to be able to immediately and almost totally remember everything they write down by building up a multidimensional, associative, imaginative, and colorful memory notes.

-- when you want learners to better understand, analyze, and think critically about whatever it is they are noting, while simultaneously giving them more time to pay attention to the speaker or the audio/video or printed resource from which they are learning.

-- when you want learners to become conscious of what they know about ideas associated with and grouped around a central theme and to use this knowledge to create a new synthesis as a summary statement with main and subordinate ideas or as a stimulus to create and express an entirely new idea. The latter goes beyond note-taking. Notes are created. Others, therefore, may take down your thoughts. The product may lead to creative writing (nonfiction or fiction prose or poetry], verse set to music, physical movement, new theory, new skills, etc.

(Note: Mind-mapping may be a strategy or technique, depending on whether it is used in relation to a method, in which case it is a strategy, or a strategy, in which case it is a technique or tactic. Whether used as strategy or technique, its use can be recommended as a framework for activities in 4MAT Quadrant 3 RM when trainees 'add something of themselves' or 4MAT Quadrant 4 RM when they are designing systems to integrate the concept they have just learned with their own real world as they claim ownership of the idea.)

How to Use It: [Planning]

1. Use blank and unlined paper, if possible, or a slate or chalk board.

2. Identify a key memory image (right-brained), word or visual representation that summarizes the central theme or main idea of whatever it is you or the learner are or to attend to and teach or learn.

3. Place the memory image in a circle in the center of the paper, slate or chalk board. The image may be a written word or a drawing or picture of the theme.
4. From this central theme image the learner will draw a series of lines or arrows to connect circles of words or visual representations that cluster as ideas. These ideas are associated in increasingly subordinate groups as the central theme is analyzed and elaborated in terms of its parts. (Left Minded)

   [Note: The central theme image which learners begin with is a 'whole'. Therefore, the activity begins with the right-mind. Dividing it into topics is a left-minded activity. But once divided each topic becomes a right-minded 'whole' that can be further analyzed as a left-minded activity in which topics are subdivided into subtopics. These, in turn, become 'wholes' that can be further divided into sub-subtopics, *ad infinitum*)

5. When mind-mapping or clustering is used as a stimulus for creating original prose or poetry, follow the same step-by-step procedures listed above. However, tell the learners that after a certain amount of time, they will begin to feel the need to create a new whole. (Trainer may set time limits) At this point learners are to review their mind-map and turn the paper over or put it aside and begin to write -- prose or poetry.

How to Evaluate Mapping [Assessment]

Mind-maps are a highly individual form of representing information. Maps allow individuals to find the best way of remembering information by themselves. The suggestions above are not to be taken as rules, but as suggested guidelines. When the Trainers comment on the learners' maps, they can point out where the style of organization used by learners may create problems that learners should be aware of when such occur. The Trainer's criteria should always be how well the map works for the map maker, not an arbitrary set of rules. (adapted from Williams)

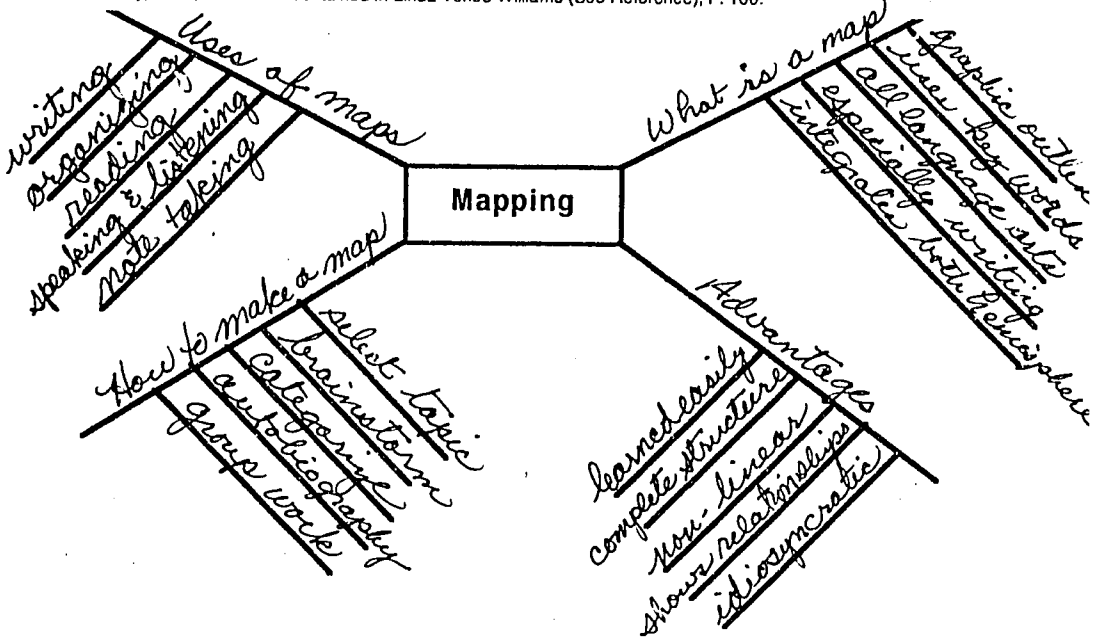
Success in the use of mind-mapping is judged by how well it helps learners --

-- a) to recall and use what others have said or written,
-- b) to know what information and skills they know and can use,
-- c) to create original syntheses (prose or poetry) by dividing a whole (central theme) into its components and, then, adding new information or by juxtaposing old ideas to form new relationships.

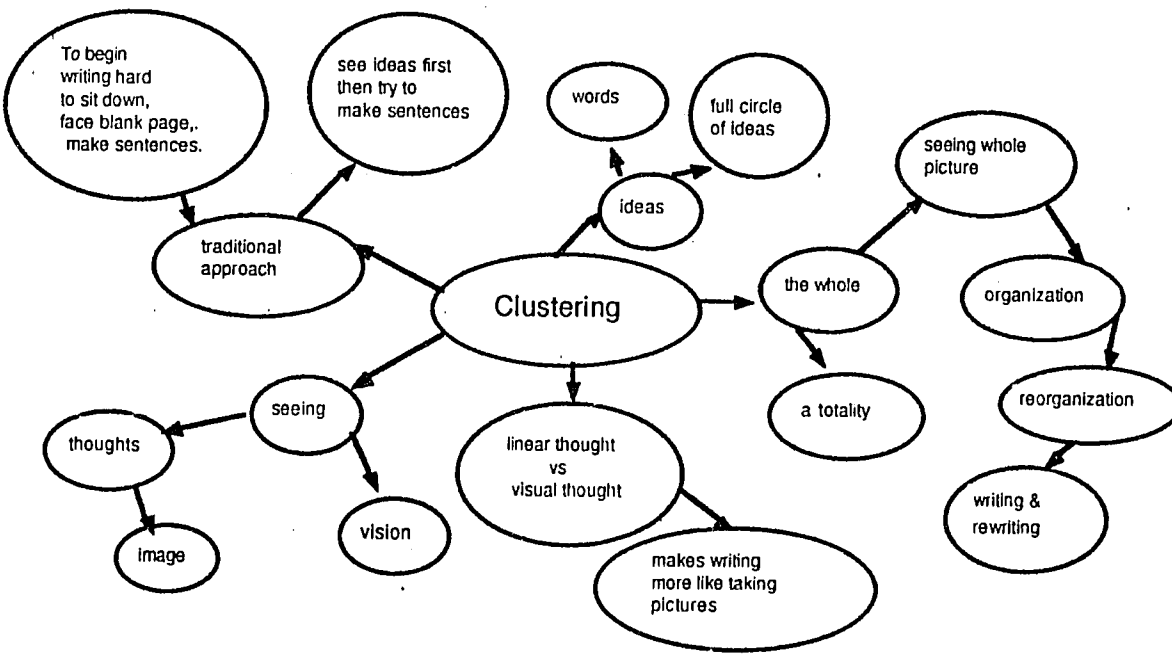
Assessment may be made by having learners use their notes or their original works in a think-pair-share discussion session. Such sessions will reveal the accuracy of the notes taken . They also will allow peers and teachers to assess accuracy of both the learners' notes and understanding of them. If the session involves original work, the surprise and joy of the session will indicate the success of the technique.

**4MAT Is a registered Trademark of Excel, Inc., and Bernice McCarthy of Barrington, Il.

This Map Is Used To Summarize The Discussion Of Mapping In Marilyn Hanf Buckley And Owen Boyle, *Mapping The Writing Journey* (Berkeley, Calif.: Bay Area Writing Project, Tolman Hall, University Of California, Berkeley, 1981, P. 36. As Contained In Linda Verlee Williams (See Reference), P. 100.



This Cluster Diagram Was Done By A Student Who Had Studied Clustering In A Writing Class. ... (Sharon Hall In Garbriele Lusser Rico And Mary Frances Claggett, *Balancingthe Hemispheres: Brain Research And The Teaching Of Writing* (Berkeley, Ca.: Bay Area Writing Project, University Of California, Berkeley, 1980, Pp. 34 - 35. As Contained In Linda Verlee Williams (See Reference) P. 99.



Pedagogical Applications -- Metaphor

Extracted and Adapted by Dr. Donald G. W. Schutte from Linda Williams. *Teaching for the Two-Sided Mind: A Guide to Right Brain/Left Brain Education.* Prentice Hall, Inc., Englewood Cliffs, New Jersey 07632, 1983.

What Are Metaphors When They Are Used As Teaching-Learning Strategy?

Definition from American Heritage Dictionary:

Metaphor (noun) A figure of speech in which a term that ordinarily designates an object or idea is used to designate a dissimilar object or idea in order to suggest comparison or analogy, as in this phrase -- **evening** of **life.**

Metaphors are the most powerful of right-hemisphere strategies because the process by which learning occurs is explicit. Using metaphor as a strategy reinforces the process of making connections or seeing relationships, providing new insights, facts and generalizations about a concept. Metaphors connect known to unknown, strange to familiar (in science) or familiar to strange (in literature and art). In short, metaphors organize and connect knowledge unlike the traditional linear, textbook approach that tends to separate and compartmentalize knowledge. This means, however, that the degree to which the use of metaphorical analogy is effective depends to a great extent on the learner's experience and the teacher's and/or learner's wisdom in selecting the metaphor that will serve the specific educational purpose.

As a teaching-learning strategy, metaphors are used to facilitate initial learning of information and to rehearse information in the short term memory before subsequently transferring it to the long-term memory for storage and easy recall. Learners see connections, recognizing common traits and principles ostensibly shared between two unlike objects or ideas contained within the metaphor.

Metaphors are an extremely efficient way to create a new synthesis that a) increases the understanding of facts, generalizations, and details concerning the two concepts contained within a metaphor and b) allows learners to rehearse and organize information in the short term memory. In place of separate attributes, metaphors offer a single image. These emerge when learners make analogous comparisons between the two concepts contained within the metaphor. Within the 'whole', this image contains most of the attributes of the person, place, thing or idea under consideration. The process of comparison also allows learners to see relationships that were not previously apparent and to create links or connections between the attributes of the person, place, thing, or idea under consideration and their own prior experience with it. It also helps learners to identify and remember facts, generalizations, and details about the concept the teacher wants them to remember.

Such comparisons allow learners to use the attributes of the brain's right hemisphere to enhance the learning process. Right-brain attributes include 1) simultaneous, non-linear processing, and 2) constant combining and recombining of many parts to create a large variety of new and unique spatial patterns, seen visually as wholes, or verbal descriptions of persons, places, or things and ideas.

Used as a teaching-learning strategy, metaphorical teaching is holistic. It constantly focuses on the processes of recognizing and understanding patterns and general principles that give meaning to specific facts. Each new unit is no longer an isolated set of information but an opportunity to make new connections, to gain insight into the new subject and learners' prior knowledge. When learning has a sense of integration and the emphasis is on seeing relationships, it is both more efficient and more satisfying. Metaphor provides the context for asking questions that make learning easier. **Meaning in life is, after all, not in an object or idea itself. It is in the relationships between and among persons, places, things, and ideas!**

When to Use Metaphor as a Teaching Learning Strategy:

Metaphor as a teaching-learning strategy is used effectively at all stages of instruction. It is applied when introducing a concept (Q 1 R) and when clarifying a concept (Q 2 R). It is used as a means for reviewing what has been learned about a concept (Q 3 R), or testing how well a concept which has been learned can be applied. (Q 4 R). At each stage it may stimulate writing and discussion.

> *(Consider the meaning of this quote from Robertson Davies "Experience is not what happens to a man; it is what a man does with what happens to him.")*

Use Metaphor When You Want :

- -- to place a concept within the realm of the concrete world, forging a connection between the abstract concept and the learner's experience.
- -- a concept to be more engaging and satisfying as an experience than giving a simple dictionary definition.
- -- to deepen the understanding of a concept and to clarify facts and details where there is confusion
- -- to tease the mind to think about and explore the meaning of a concept further.
- -- learners to use metaphorical thinking as a part of their repertoire of thinking skills.

-- to be efficient in the sense that new information need not be taught from 'scratch' but use can be made of what the learner already knows. Thus, learners need not be overpowered by a large body of separate, compartmentalized knowledge. The traditional linear, textbook approach separates and compartmentalizes knowledge. This approach confronts and overpowers learners with a great mass of 'new' factual and detailed information and generalizations. These can be overwhelming! In contrast, metaphors organize and connect knowledge.

-- to encourage learners to bring their own experiences into the classroom by proposing their own metaphors.

-- to deepen learners' understanding of literature or science and to integrate knowledge drawn from different subject areas.

Think for a moment here about 4MAT Applications: 4MAT moves in a circle from Concrete Experience to Reflective Observation to Abstract Conceptualization to Active Experimentation and back to Concrete Experience. The Action words as you move around the circle are Connect - Analyze - Image - Define- Tryout - Apply - Evaluate - Integrate. Apply this information to the above generalizations to determine when to use Metaphor when planning, developing, and teaching lessons and materials.

How to Use Metaphor As A Teaching/Learning Strategy:

[Planning] Select a metaphor and plan a lesson around it. It is a fivestep process:

1. Decide exactly what propositional, procedural, or conditional information you want to teach concerning a specific concept.

2. Identify the defining characteristics concerning the concept or topic you have chosen?

3. Generate several metaphors from your own experience that you feel will teach the types of facts and generalizations you want to teach. Select the one metaphor that best communicates the concept you have chosen to teach.

4 Clarify the discrepancies or the ways in which the analogs do not fit or are not similar to each other as well as the ways in which they are similar.

5. Make a lesson plan that includes how you will elicit metaphors from students. For example, directly, ask learners, "What do you know which is like the concept or object being studied.?" Ask, "How are they similar?" (compare) "How are they different?" (contrast)

[Presentation]

1. Use metaphor to introduce a lesson or entire unit when a) learners are completely unfamiliar with a concept and need help in relating it to something they already understand or b) learners are so familiar with the concept that it no longer engages their attention or interest. [Q 1 R]

2. Use metaphor to clarify a specific point. [Any Q R]

3. Use metaphor to review. [Q 3 R, Q 4 R]

4. Use it to test comprehension. [Q 2 R, or Q 3 R] (See below under assessment)

Note: Metaphor, used as strategy, can be used in the left mode components in all quadrants.as well as in the right-mode quadrants. However, when teachers approach the use of metaphors by asking learners to analyze a specific metaphor, care must be taken to keep learners from feeling that metaphors are generated analytically. Metaphors are a product of associative thinking, which is a right-minded process. They are a 'whole', but they can be understood by analyzing them. Analysis is a left-minded process. When you ask learners what a metaphor suggests to them or what images and/or sounds or feelings it stimulates, they can gain understanding of facts and details from their analyses and by comparing shared and idiosyncratic meanings with their peers.

How to Evaluate Metaphor Used As A Teaching/Learning Strategy: [Assessment]

Use metaphor as an assessment technique. Assessing learning outcomes using metaphor transforms the 'dead learning time' of traditional testing into an opportunity to practice valuable skills. For example, consider the following two questions from a history examination:

1. List the major events leading up to the Saur Incursion in Afghanistan and explain the importance of each as a factor in bringing about the Incursion.

2. How was the period leading up to the Saur Incursion in Afghanistan like the building up of a *thunderstorm* ? Be sure to include in your analogy the major events leading up to the Incursion (or *storm*).

When using metaphor to teach substantive material, teachers can evaluate whether the learners' connections are based on what teachers consider to be important aspects of the subject.

When teachers evaluate written responses to questions concerning a metaphor, the focus of or criteria for the evaluation should be on how well learners use the metaphor to discuss the important points about the subject which have been or are being studied.

Also, teachers can make a list of important characteristics that define the similarities and differences between the two concepts within the metaphor. As a means to evaluate learners' understanding of the concept, learners may be asked to create a metaphor that covers all the important points surrounding a concept and explain it in terms of the similarities and differences between the two concepts compared within the metaphor. The teacher's prior list of important points becomes the **criteria** by which the substantive information is judged. Extra points may be given for particularly imaginative or creative metaphors or analogies suggested by the learner.

- **LEARNER OUTCOMES** derived from using metaphor as a teaching/learning strategy can be evaluated either from the standpoint :

  a) of the learners' ability to comprehend and/or competency to use important substantive information creatively and as means of solving problems according to predetermined criteria.
  b) of the learners' ability to understand metaphor and use it as a thinking tool according to predetermined criteria.
  c) of the learners' ability to exhibit listening skills according to predetermined criteria.
  d) of the learners' ability to exhibit oral and written communication skills in naming, describing and explaining the analogies within the metaphor according to predetermined criteria.
  e) of the learners' ability to discover and exhibit the joy in learning according to predetermined criteria based on identifying and observing approach or avoidance behavior. (Affective domain)

Remember! Using metaphor as a learning strategy is a new skill for most learners; therefore, it is best to give them plenty of practice before you do an evaluation. The validity of the use of this strategy must not depend on one single lesson. Evaluation of learners' use of metaphors is not a matter of assessing what they have done wrong. Learning to use metaphor is a process. Processes are not learned at one sitting. Processes demand that teachers pay attention to learners over time. In evaluating a learner's metaphorical abilities (and all other right hemisphere processes, the teacher's job is not so much as to judge proficiency as it is to assess learners in terms of what they need to help them improve their performance. If a learner has trouble analyzing the similarities and differences between concepts within the metaphor, don't consider that to be a statement of ability. Rather take the 'proactive' attitude that it is a sign that a learner needs further work in that area. Learners must trust that the teacher will not ridicule, nor permit other learners to ridicule, the connections they make when they risk making a comparison or contrasting analogs. The teacher should never 'put down' a learner's connection nor ignore it. Ignoring a response is a negative, reactive response.

Other Things to Remember:

A teacher may be deceived by how easy it is to describe the metaphorical process. **To listen for students' connections and help them articulate and clarify their thoughts** requires skill and practice on the part of the teacher. This produces very basic changes in a classroom.

It is tempting to think up a metaphor five minutes before class, but this is dangerous since you may find yourself face to face with a class and a metaphor that doesn't fit your purpose or focuses on a characteristic you did not want or need to emphasize. The point is plan your use of metaphors to do what you want them to do.

** Note :

There are several problems you may encounter when you begin using metaphor. Most are a result of content goals that are not absolutely clear. Solution: Make sure your propositional, procedural, and conditional content goals are absolutely clear so that comparison and contrast may be made between concept and concept analog.

Problem 1: You can't find a metaphor that fits what you want to teach.

1.1. You may be trying to teach too many things at once. Ask yourself what is the most important thing for learners to understand and look for a metaphor for that; other points may be worked in as discrepancies.

Problem 2: Questions arise about the analog that confuse you or the learners.

2.1: Either you or your learners may not know enough about the the set of analogs you have chosen. If learners know more about either of them than you know, ask them to help clarify, but keep focusing on the general principle(s) you want to teach. If learners are unfamiliar with your set of analogs, use another set of analogs or back off the use of metaphor as a strategy until you or your students find a set of analogs with which everyone is familiar.

Problem 3: Learners become so interested in the an analog that they generate too many ideas and discussion wanders and loses focus.

3.1: Metaphors are seductive; they can lead in many directions. You can help clarify connections by noting them on the blackboard. Be sure to sum up by stressing the main points you want remembered. Also include any significant points which emerge during discussions.

Problem 4: Learners generate metaphors based on connections that are not of primary importance.

4.1: This is not a problem as long as you clarify for the class the relative importance of connections for understanding the subject. Be sure to reward even less effective metaphors. They demonstrate metaphorical thinking which you as a teacher should encourage. Never put down or ignore a learner's metaphor..

To promote the use of metaphor in the classroom is to promote the search for genius. Please consider the following quotes from , The Puzzle of Genius, *Newsweek*, June 28, 1993, pp. 34-42.

"Through analysis of hundreds of history's greatest thinkers, scholars are teasing out what styles of thought, what temperaments, what personalities characterize the Darwins, Titians, Mozarts and Napoleons of history. Their work promises to help ordinary mortals become more creative (though not certified geniuses) and to teach schools and parents how to nurture unusual intelligence. ...."

"If one style of thought stands out as the most potent explanation of genius, it is the ability to make juxtapositions that elude mere mortals. Call it a facility with ***metaphor*** (emphasis mine), the ability to connect the unconnected, to see relationships to which others are blind. 'The images that scientists have as the do science are metaphorical,' says Roald Hoffmann of Cornell University. Hoffman shared the 1981 Nobel Prize in Chemistry for the most significant breakthrough in theoretical organic chemistry; a way to predict from first principles whether a reaction will occur. He is also a poet. 'The imaginative faculties are set in motion by mental metaphor. Metaphor shifts the discourse, not gradually, but with a vengeance. You see what no one had seen before.' ".

Pedagogical Applications - Synectics

Extracted, Adapted, & Related to TESD and 4MAT** by Dr. Donald GW Schutte from ASCD's* *Teaching Strategies Library: Part II: Synectics.* The development of the Synectics Strategy is credited to W. W. Gordon and ASCD adapted the Synectics Strategy. The 'Library' entry is from his work.

What Is The Synectics Strategy?

Synectics is a special case use of metaphor. It expands the use by expanding metaphor to become a teaching strategy that helps learners to deepen their understanding of the many details, generalizations, and meaningful relationships that must be remembered about a concept they are studying. Simultaneously learners increase their ability to use analogical thinking as a means to create solutions to problems or explore new ways of doing things.

The Synectics Strategy moves through four phases: **1) Direct Analogy, 2) Personal Analogy, 3) Contrast, and 3) New Analogy.**

When To Use Synectics:

1. Use Synectics as a teaching learning strategy if you want learners to deepen their understanding of the many facts, details and generalizations about a concept that must be rehearsed and organized and stored in the long-term memory in such a way as to permit easy access and recall..

2. Use Synectics if you want learners to learn to use analogical reasoning as a means of exploring new ways of doing things.

3. Use Synectics if you want learners to use their imagination as one means of solving problems.

How To Use Synectics: Planning Stage:

When using Synectics to develop a lesson relate the general steps listed below to the specific concept, topic, or subtopic being developed:

1. Decide what idea (concept) you want learners to explore using metaphor and analogical reasoning.

2. Describe some of the key components or characteristics that make up the concept that can be used as criteria for distinguishing this concept from others with which it may be confused.

3 Decide what are some things in your learners' personal experiences that resemble the concept. List at least four.

4. Select one and describe some of the connections between the concept and the direct analogy you have selected. What are the similarities that characterize the connection?

5. Decide what are some questions you might ask to help immerse your learners in the analogy, i.e., the relationship between the analogous connections within the metaphor. List at least four questions.

6. Decide what some of the differences are that learners should notice about the relationship.

7. Decide how to stimulate learners to create their own analogies concerning the concept, topic or subtopic under consideration. Suggest several ways and then select one.

[Note: Because of steps 4 and 6, above, and the need to establish criteria in step 2, above, you may want to combine the Synectic strategy with the 'Compare and Contrast' strategy described elsewhere in the TPRB section of the Trainers Manual.]

How To Use Synectics: Implementation Stage:

When using the Synectics strategy as an activity, these are the step-by-step procedures that are stated here as generalizations but that must be restated specifically in relation to the concept, topic or subtopic being taught.

Phase 1: Direct Analogy Phase:

1. Teacher and learners review and describe a key concept learners have been studying.

2. Teacher and learners identify the key elements of the concept.

3. Teacher presents the learners with a metaphorical analogy for the concept.

4. Teacher asks learners to explore the connections between the concepts within the metaphor.
   Example: i) A language class is studying *contractions* in English class, e.g. *can't, don't, won't , doesn't.*
   ii) Teacher asks class to describe the nature of contractions, i.e. "What are the essential characteristics of *contractions* which can be used as criteria to judge whether or not a word may be labeled or defined as a *contraction* ?"
   iii) Teacher then asks, "How is a contraction like a can of frozen orange juice?"
   iv) Learners may then suggest that both contractions and frozen orange juice are concentrated, both have something removed, both can be returned to their original form by adding something.

Phase 2: Personal Analogy Phase

1. To deepen learners' perceptions, Teacher asks learners to pretend they are the idea or object being compared to the concept being studied. Example: "A contraction is like a can of frozen orange juice." ***Be*** the can of orange juice. Describe your ideas and feelings about being a can of frozen orange juice."

2. Teacher asks learners to write sentences beginning with the personal pronoun, "I" , to describe the experience of *being* the idea or object. (See 1, above.)

3. Learners use these sentences to identify new and unexpected analogous connections between the two ideas contained within the metaphor.

Phase 3: Contrast Phase

1. Learners focus on the differences between the two ideas within the metaphor.

Phase 4: New Analogy Phase

1. Learners are encouraged to use what they have learned, i.e., the characteristics and criteria involved in the analogs, to create and explain their own metaphors for the concept they are studying. This helps learners to develop the ability to see analogies independently.

How to Evaluate Synectics [Assessment]: Answer the following questions!

1. Are learners able to develop and explain metaphors?

2. Are learners able to use analogical reasoning in discussing the concept that is at the heart of the lesson?

Things to Remember about Synectics:

1. Give learners the opportunity to use simple analogies and metaphors before using this strategy. (See Pedagogical Applications - Metaphors)

2. Make the analogies relate to the learners' personal experiences.

3. Find an imaginative way to help learners *become* the *Direct Analogy* . (See, Phase 1, above.)

**** Note)**

* ASCD is Association for Supervision and Curriculum Development, Alexandria, Va.

**4MAT is a registered Trademark of Excel, Inc., and Bernice McCarthy of Barrington, Il.

Tape Application Index - DL1

Extracted, Adapted, & Related to TESD and 4MAT** by Dr. Donald G.W. Schutte from ASCD's *Dimensions of Learning -- Dimension 1 -- Helping Students Develop Positive Attitudes and Perceptions About Classroom Climates.* (R. Marzano, et al)

All 4MAT Quadrants

HELP! STUDENT FEEL ACCEPTED. Students feel accepted when:--

1. Teacher has established a 'connecting' relationship with each student in class.
2. Teacher monitors own attitude toward individual students and actively sets up positive mental sets regarding 'problem students'.
3. Teacher engages in classroom behaviors that overtly treat students equally and positively.
4. Teacher responds positively to students' incorrect responses or lack of response.
5. Teacher provides students with opportunities for cooperative learning.
6. Teacher directs activities which help students develop their own strategies for gaining acceptance of peers.

HELP! STUDENTS DEVELOP A SENSE OF COMFORT AND ORDER.

A sense of comfort develops when: --

7. Teacher frequently and systematically uses activities that involve physical movement.
8. Teacher allows students to identify their own standards for comfort and order.
9. Teacher introduces concept of 'back tracking' to help students mentally block out troublesome, distracting thoughts.

A sense of order develops when:--

10. Teacher establishes and communicates classroom rules and procedures.
11. Teacher establishes clear policies about the physical safety of students.
12. Teacher is aware of and takes steps to stop teasing or threats in or outside of the classroom.

Sample Lessons:

Science: How is the atmosphere like a blanket? This is a **Direct Analogy** question posed after studying a unit on the atmosphere in which learners have discussed the gases in the atmosphere, nitrogen, oxygen and carbon dioxide cycles, the layers of the atmosphere, the ozone layer; the greenhouse effect; convection; conduction; radiation; the way atmospheres vary on different planets. Follow the procedures for planning and implementation given above.

Mathematics: Imagine you are nearing the end of a unit on the addition and subtraction of fractions. Design a Synectics lesson that will help your students remember important information about fractions by creating a direct analogy and then exploring some of the connections on your own.

Design a direct Analogy: How is a _____like a _____? Answer this question and proceed with planning and implementation steps mentioned above.

Tape Application Index - DL1

Extracted, Adapted, & Related to TESD and 4MAT** by Dr. Donald G.W. Schutte from ASCD's *Dimensions of Learning -- Dimension 1 -- Helping Students Develop Positive Attitudes and Perceptions About Classroom Climates.* (R. Marzano, et al)

All 4MAT Quadrants

HELP! STUDENT FEEL ACCEPTED. Students feel accepted when:--

1. Teacher has established a 'connecting' relationship with each student in class.
2. Teacher monitors own attitude toward individual students and actively sets up positive mental sets regarding 'problem students'.
3. Teacher engages in classroom behaviors that overtly treat students equally and positively.
4. Teacher responds positively to students' incorrect responses or lack of response.
5. Teacher provides students with opportunities for cooperative learning.
6. Teacher directs activities which help students develop their own strategies for gaining acceptance of peers.

HELP! STUDENTS DEVELOP A SENSE OF COMFORT AND ORDER.

A sense of comfort develops when: --

7. Teacher frequently and systematically uses activities that involve physical movement.
8. Teacher allows students to identify their own standards for comfort and order.
9. Teacher introduces concept of 'back tracking' to help students mentally block out troublesome, distracting thoughts.

A sense of order develops when:--

10. Teacher establishes and communicates classroom rules and procedures.
11. Teacher establishes clear policies about the physical safety of students.
12. Teacher is aware of and takes steps to stop teasing or threats in or outside of the classroom.

HELP STUDENTS DEVELOP POSITIVE ATTITUDES AND PERCEPTIONS ABOUT CLASSROOM TASKS:

HELP STUDENTS PERCEIVE LEARNING TASKS AS VALUABLE.

1. Teacher must develop a sense of academic trust that is observable in the classroom.
2. Teacher must help students to link classroom tasks to their own interests and goals.
3. Teacher asks students to generate tasks that apply to their interests and goals.

HELP STUDENTS BELIEVE THEY HAVE THE ABILITY TO PERFORM LEARNING TASKS.

4. Teacher must provide and peers must be taught to provide positive feedback.
5. Teacher must encourage students to use positive self-talk.

HELP STUDENTS UNDERSTAND AND BE CLEAR ABOUT LEARNING TASKS.

6. Teacher must identify and articulate the specific behaviors expected of students during and after completion of learning tasks.
7. Teacher breaks complex tasks into smaller steps or parts.

*ASCD is Association for Supervision and Curriculum Development,. Alexandria Va.
**4MAT is a registered Trademark of Excel, Inc., and Bernice McCarthy of Barrington, Il

Tape Application Index - DL 2

Extracted or Adapted, & Related to TESD and 4MAT** by D. Schutte from ASCD's* -- *Dimensions of Learning -- Dimension 2 --- Acquire and Integrate Knowledge.* (R. Marzano, et al)

What Is the Strategy for Acquiring and Integrating Procedural Knowledge?

This strategy provides the means to help students construct models of skills, procedures and processes, give shape to their knowledge of processes and procedures, and internalize processes and procedures to the point of automation or near automation of applications.

When to Use It :

Use it when developing background material concerning skills, procedures, and processes for the Teacher's Academic Resource Book:

1. To Help Student Construct Models for Procedural Knowledge
2. To Help Student Shape Procedural Knowledge
3. To Help Student Internalize Procedural Knowledge

The use of this strategy must be coordinated in the Teacher's Academic Resource Book when developing background materials for declarative or propositional knowledge concerning the same concept. Also by giving consideration to the conditional knowledge related to the skill, procedure, or process, one will have provided the foundation for relating a specific skill, procedure, or process to the lives of individual students.

How to Use It:

1. To Construct Models of Procedural knowledge:

1.1. Have students "think aloud" to explain the process or procedure they are using to demonstrate a new process, skill or procedure they have just learned. (Q3,LM)

1.2. Present students with a written set of step-by-step procedures or have students write their own set as they demonstrate the acquisition of the new process or skill. (Q2, LM)

1.3. Teach students to create flow charts. (Q2,LM -- Mastery Lecture, Q3,LM:: Q 4:LM)

1.4. Teach students to mentally rehearse the steps involved in a skill or process. (Q2,LM::Q3, LM)

2. To shape Procedural Knowledge:

2.1. Teacher or students demonstrate and provide practice in the important variations of the skill or process. (Q3,LM)
2.2. Teacher or students pcint out common errors and pitfalls. (Q2 LM :: Q3 LM
2.3. Teacher provides variety of situations in which students can use a specific skill or process. (Q3, L orRM :: Q4 LorRM)

3. To Internalize Procedural Knowledge:

3.1. Teacher helps students set up a practice schedule. (Q3, LM)
3.2. Students, individually or in peer groups, chart their accuracy when new skills or processes are practiced. (Q3, LM)
3.3. Students, individually or in peer groups, chart their speed when learning a new skill or process. (Q3,L or RM)

How to Evaluate It?

Are students able:

1. To perform important skills, procedures, or processes without error or within an acceptable amount of error.
2. To perform important skills, procedures, or processes quickly enough to use them effectively.
3. To perform important skills, procedures, or processes easily enough to use them effectively
4. To perform important skills, procedures, or processes in a variety of appropriate settings.

Tools for assessing procedural knowledge include students' own charts of accuracy and speed along with teacher observation, which are simply anecdotal comments written while observing students using the impoprtant skills, procedures, or processes. Student Self Assessment is an important learning method.

*ASCD is Association for Supervision and Curriculum Development.
*4MAT Is A Registered Trademark of Excel, Inc. and Bernice McCarthy of Barrington, Il.

Tape Application Index - DL3

Extracted, Adapted, & Related to TESD and 4MAT** by Dr. Donald G.W .Schutte from ASCD's* -- Dimensions of Learning -- Dimension 3 -- Extending and Refining Knowledge (R. Marzano et al)

What is one strategy used to help "Students Extend & Refine Knowledge" :

Comparison To examine the simalarities and differences between or among two or more persons, places, things or ideas by indentifying the characteristics that determine how one is similar or different (contrasts) from the others and, then, drawing conclusions concerning the whole relationship.

When to Use Comparison:

- When you want students to compare and contrast two ideas they might otherwise confuse. [Q 1L, Q2L]
- When you want students to compare two ideas and find applications and form generalizations. [Q 3L, Q 4L]
- When you want your students to review material previously taught. [Q3L]
- Comparisons can be used in all left mode quadrants, but also in right mode quadrants when metaphor and analogue are compared.

How to Use Comparison: [Planning]

1. Introduce comparison to students as a learning strategy.

2. Present students with the steps involved in the comparison process.

   - Select two items, ideas, or events you want to compare related to the concept or topic you want to teach.
   - Identify some resources (including using yourself or your materials as resources) the student can use to learn about the ideas.
   - Select the characteristics of the items on which you want to base your comparison, i.e., establish your criteria for making the comparison which will help students to focus on what is most important.
   - Create an application activity that will help students reflect on what they have learned.
   - Provide the resources and ask students a question which provokes them to name, describe and explain how the items are similar and different with respect to the characteristics and the criteria you selected.
   - Record the students' responses on a chalkboard or overhead.
   - Use your discussion question to explore the implications and the applications, i.e., summarize and/or draw conclusions about what you have learned.or, more simply put, teach students to ask the following important Questions:
     * What do I want to compare?
     * What are the important characteristics about each item that can be used as criteria for comparing similarities and differences?
     * How are they the same? How are they different?
     * What did I learn from making the comparison?

3. Provide students with ways of graphically representing the comparison process.

4. Present students with teacher-structured comparison tasks.

5. Present students with student-structured comparison tasks.

6. Present students with expanded comparison activities.

How to Evaluate Comparison Activities: [Assessment]

1. Assess the **completeness** of the student's use of the strategy of comparison.

   - Did the student clearly identify the elements (specific pieces of information) to be compared?
   - Did the student clearly state the characteristics on which the elements were to be compared?
   - Did the student clearly state the exstent to which each element possesses each charaacteristic?

2. Assess the accuracy and effectiveness of the student's thinking during the comparison task.

*ASCD is Association for Supervision and Curriculum Devlopment, Alexandria, Virginia.
**4MAT is a registered Trademark of Excel, Inc. and Bernice McCarth of Barrington, Il.

Tape Application Index - TSL .1

Extracted or Adapted and Related to TESD & 4 MAT* by Dr. Donald G.W. Schutte from ASCD's** -- *Teaching Strategies Library: Part I: Mastery -- Mastery Lecture Strategy*

What is Mastery Lecture?

Mastery Lecture is a modern lecture strategy designed to give students a way to learn. The lecturer's performance is memorable and students remember the information about a concept or topic which the teacher deems to be important. Mastery Lecture is based on the work of David Ausebel and Madeline Hunter.

Simply put, the strategy works by keeping in mind the basic principles of memory -- connecting, organizing, and elaborating. It helps students to connect concepts to their personal life(Q1,RorLM, Q2,RM), to organize information in ways that can be remembered (Q2,LM and Q3,LM), and elaborate on the data (Q3,RM, Q4,LorRM). It stimulates learning in at least two channels.

When to Use Mastery Lecture:

When you want students to remember and understand propositional or declarative knowledge, that is facts and/or important relationships between and among facts, i.e., generalizations, e.g., classifications, criteria, conjectures [opinions], principles, rules, theories, axioms, laws, universals. Also when you want students to remember and understand, and use specific skills, procedures or processes. (Q2,LM)

Use Mastery Lecture Strategy to teach a concept or topic in order to help students:

- to focus their attention. (Q1 R or LM, Q2, RM)
- to identify main ideas. (Q2,LM)
- to keep meaningful notes. (Q2, LM)
- to perceive the relationships between general ideas and specific instances. (Q2, RM:: Q3,L or RM :: Q 4L orRM)

Mastery Lecture can help teachers to:

- teach study skills such as note-taking and memorization.
- increase student participation.
- provide a lot of information in an organized, structured format.
- monitor students' understanding and adjust presentations to students' needs.
- adapt lessons to a variety of students' learning styles & modality preferences.
- adapt lecture method to any grade level.

How to Use Mastery Lecture: [Planning]

1. Select a topic and identify important information.
2. Design an Advance Organizer.
3. Select questions for the learners to answer about the information.
4. Present the Advance Organizer.
5. Provide the information through continued lecture, film, reading, tape, etc.
6. Ask questions and secure closure.

How to Evaluate Master Lecture: [Assessment]

1. Are the students able to recall what they have learned?
2. Does their ability to sustain attention develop over time?

Things to Remember:

1. The human mind can easily store seven new bits of information. (Q2, LM)
2. Make these key bits of information vivid. (All Q,RM's)
3. Let the students secure closure. (Q4, LorRM)

** Note:

** Coordinate with ASCD's Facilitators Manual develcped by Patricia Wolfe & Pam Robbins with accompanying videotapes, especially Tape 1: Instructional Decisions for Long-Term Learning, 1987. See Memory Model below as reference.

**ASCD is Association for Supervision and Curriculum Development, Alexandria, Va.
*4MAT is a registered Trademark of Excel, Inc. and Bernice McCarthy of Barrington, Il.

Tape Application Index - TSL II.4

Extracted,Adapted & Related to TESD and 4MAT** by Dr. Donald G.W. Schutte from ASCD's -- Teaching Strategies Library: Part II Involvement -- Circles of Learning

What is the Circle of Knowledge Strategy?

This strategy provides the teacher with a means to meet the criteria which characterize a good discussion. Good discussions are characterized by high levels of participation, clear focus, and good thinking. Such discussions are active, clear, and meaningful.
[**NOTE: This total strategy incorporates the strategy of **THINK-PAIR-SHARE.**]

The **Circle of Knowledge Strategy** has three phases:

Phase I: 1. Teacher begins discussion by posing a question which focuses on concept or topic being considered. (Q1,RM::Q2,RM) This 'focus question' gives clear direction to the discussion. (*Focus Questions* are called 'kindling' questions in this strategy.)

2. The teacher also asks questions which help students relate the concept or topic being considered to their prior knowledge. (Q1,RM, related to Q2,RM) (These questions are called 'sparking questions' in this strategy.)

3. While working with these two types of questions, as a way of internalizing the questions students are encouraged to think, to write down their provisional ideas, and to share their ideas with partners or small groups. This builds the focus necessary for the large group discussion in Phase II, below.

Phase II: 1. Students explore and revise their ideas related to the two types of questions asked in Phase I. (Q1,LM and Q2,L M)

2. Teacher helps students in large group discussion to expand and clarify their thinking by organizing and recording, or allowing students to organize and record their ideas on the board, and/or asking student to restate what they heard other students say and to cite reasons for their ideas, and/or to react to one another's ideas, and/or play roles that stimulate the development of new perspectives by personalizing and actualizing the concept in terms of possible behaviors or applications.

Phase III: Teacher ask 'summarizing questions' that require students a) to summarize knowledge in an organized, structured way, b) to identify ways in which their thinking has changed during the course of the previous discussions, and c) to raises questions that still need to be answered as a step to further learning.

When to Use The Circle of Learning Strategy

Use it when you want your discussions to have wide student participation, keep their focus, and encourage students to develop and deepen their thinking about a concept or topic.

Use it when you want to help students internalize a question by thinking about it, visualizing their ideas about it, communicating in writing and in small and large groups about it.

Use it when you want students to learn to reinforce and support their statements with logical, clear arguments, to learn to effectively listen to others, and to develop new insights.

Use it when you want students to learn to apply a concept to their own lives as a result of processing their thoughts.

How to Use The Circle of Learning Strategy [Planning]

1. Establish a focus question as the topic of discussion. (Q1,RorLM)
2. Develop a 'sparking' question to link students' experience with the topic. (Q2,RM)
3. Have students write down their thoughts and then meet and discuss them in small groups. (All Q's)
4. Conduct a large-group discussion using such techniques as recording student's thoughts, restatements by other students, reacting to one another's ideas, and role playing. (Q2,LM & Q 3 LorRM)
5. Present a summarizing question to pull everything together. (Q4,LorRM)

How to Evaluate The Circle of Learning Strategy: [Assessment]

1. Are your students participating actively and effectively in discussions?
2. Can your students support and review generalizations?
3. Are your students listening more actively?

Things to Remember:

1. Your focus questions should be broad and should promote good dialogue. (Q 2 LM)
2. Sparking questions are specific and draw entirely on your students' experience. (Q1,RorLM)
3. Summarizing questions ask students to reflect on and apply what they have learned in discussion. (Q3R & Q4RM)

*ASCD is Association for Supervision and Curriculum Development, Alexandria, Va.
**4MAT is a registered Trademark of Excel, Inc., and Bernice McCarthy of Barrington, Il.

The Empowering System;
Total Education Systems Development

Trainers Manual

UNO/ESSP TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

SCIENCE SECTION
SAMPLE LESSON UNITS PRODUCED

During The Group Product Workshop: Part I- 24 April - 20 May 1993
Part II- 22 May - 10 June1993

Specialist Facilitator	Master Teacher Trainers (Training Facilitators)
Dr. Bakhtari	Mr. Gulam Nabi Mr. Agha Gul Mr. Zundai Hafizi

Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	6 :	Land
Topic	6.1:	Land Forms
SubTopic	6.1.1:	Mountains
SubTopic	6.1.2:	Hills
SubTopic	6.1.3:	Plains
SubTopic	6.1.4:	Deserts

AND

During The Individual Product Workshop: Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Prof. Nedai with Prof. Najmi and Dr. Bakhtari	Mr. Nasratullah

Concept Scope and Sequence - Classes 1-3

Class 1

Concept	6:	Land
Topic	6.4:	Kinds of Soil
SubTopic	6.4.1:	Clay
SubTopic	6.4.2:	Black Soil
SubTopic	6.4.3:	Sand
SubTopic	6.4.4:	Soil Erosion

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

Group Product Workshop: Part I- 24 April - 20 May 1993
Part II- 22 May - 10 June1993

Specialist Facilitator	Master Teacher Trainers (Training Facilitators)
Mr. A. K. Azizi	Mr. Abdul Rahman Mr. Azizurrahman Mr. Gula Jan Mr. Mohd Ishaq

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**2:**	**Whole Number Operations**
Topic	**2.1:**	**Addition**
SubTopic	**2.1.1:**	**Understanding Concept of Addition**
SubTopic	**2.1.2:**	**Properties of Whole Numbers**
SubTopic	**2.1.2.1:**	**Commutative Property**
SubTopic	**2.1.2.2:**	**Zero Property**
SubTopic	**2.1.3:**	**Basic Number Facts**
SubTopic	**2.1.4:**	**Missing Addends**

Index:

2-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

2-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

2-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

2-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

2-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Mr. A. K. Azizi	Mr. Gula Jan

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	2:	Whole Number Operations
Topic	2.2:	Subtraction (0-18)
SubTopic	2.2.1:	Understanding Concept of Subtraction by using (-) & (=)
SubTopic	2.2.2:	Missing Subtrahends
SubTopic	2.2.7:	Mental Subtraction
SubTopic	2.2.8:	Assessment

Index:

2-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

2-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

2-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

2-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

2-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Mr. A. K. Azizi	Mr. Azizurraman

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**2:**	**Whole Number Operations**
Topic	**2.1:**	**Addition (50 - 99)**
SubTopic	**2.1.5:**	**Column & Horizontal Addition (1 & 2) and (2 & 2) digit without regrouping**
SubTopic	**2.1.9:**	**Mental Addition**
SubTopic	**2.1.11**	**Assessment**

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Mr. A. K. Azizi	Mr. Abdul Rahman

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**2:**	**Whole Number Operations**
Topic	**2.2:**	**Subtraction (0-49)**
SubTopic	**2.2.3:**	**Column Subtraction (1 - 1) and (2 - 2) digit numbers**
SubTopic	**2.2.7:**	**Mental Subtraction**
SubTopic	**2.2.8:**	**Assessment**

Index:

2-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

2-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

2-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

2-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

2-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator — Mr. A. K. Azizi

Master Teacher Trainer (Training Facilitator) — Mr. Mohammed Ishaq

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept 2: Whole Number Operations
Topic 2.1: Addition (0-49)
SubTopic 2.1.5: Column & Horizontal Addition (1 & 2) and (2 & 2) digit without regrouping
SubTopic 2.1.9: Mental Addition
SubTopic 2.1.11 Assessment

Index:

2-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

2-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

2-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

2-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

2-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

Group Product Workshop: Part I- 24 April - 20 May 1993
Part II- 22 May - 10 June1993

Specialist Facilitator

Mr. M. A. Yadgari

Master Teacher Trainers (Training Facilitators)

Mr. Shah Mohd* (*ECA)
Mr. Mohd Qaher

Mr. Mohd Gul ^^
Mr. Mohd Enam^^
[^^Withdrawn at end of Part I)

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**1:**	**Number & Number Theory**
Topic	**1.1:**	**Counting**
SubTopic	**1.1.1:**	**Counting 1 - 99**
Topic	**1.4:**	**Reading and Writing Numbers**
SubTopic	**1.4.1:**	**Reading and Writing Numbers 1-99**

Index:

1-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

1-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

1-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

1-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

1-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Mr. M. A. Yadgari	Mr. Shah Mohammed

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**1:**	**Number & Number Theory**
Topic	**1.3:**	**Ordinal and Cardianal Numbers**
Topic	**1.4:**	**Reading and Writing Numbers**
SubTopic	**1.4.1:**	**Reading and Writing Numbers 1-99**

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator — Master M. T. Trainer (Training Facilitator)

Mr. M. A. Yadgari — Mr. Mohd Qaher

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	1:	Number & Number Theory
Topic	1.2:	One -to-One Corresponden ce (1-99)
Topic	1.4	Reading and Writing Numbers
SubTopic	1.4.1:	Reading and Writing Numbers 1-99

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Mr. M. A. Yadgari	Mr. Mohd Gul

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept
Topic
SubTopic

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator — Master Teacher Trainer (Training Facilitator)

Mr. M. A. Yadgari — Mr. Mohd Inam

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept
Topic
SubTopic

Index:

_-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

_-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

_-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

_-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

_-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science
Life Science Group

Group Product Workshop: Part I- 24 April - 20 May 1993
Part II- 22 May - 10 June1993

Specialist Facilitator	Master Teacher Trainers (Training Facilitators)
Prof. Nedai	Mr. Gulham Jailani Mr. Mohd Dorud* [*ECA] Mr. Mohd Rafiq Mr. Nasratullah Mr. Said Abdul Ghani

Concept Scope and Sequence - Classes 1-3

Class 1

Concept	3:	Plants
Topic	3.1:	**Different Plants in Our Community**
SubTopic	3.2.1	Grasses
Subtopic	3.2.2	Flowers
Subtopic	3.2.3	Vegetables
Subtopic	3.2.4	Cereal Crops
Subtopic	3.2.5:	Trees

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator: Prof. Nedai with Prof. Najmi and Dr. Bakhtari

Master Teacher Trainer (Training Facilitator): Mr. Said Abdul Ghani

Concept Scope and Sequence - Classes 1-3

Class 1

Concept	**15:**	**Machines**
Topic	**15.1:**	**Simple Machines**
SubTopic	**15.1.1:**	**The Importance of Simple Machines**

Index:

15-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

15-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

15-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

15-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

15-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator: Prof. Nedai with Prof. Najmi and Dr. Bakhtari

Master Teacher Trainer (Training Facilitator): Mr. Gulham Jailani

Concept Scope and Sequence - Classes 1-3

Class 1

Concept	6:	**Land**
Topic	6.3:	**How Rocks Form**
SubTopic	6.3.1:	**Magma**
SubTopic	6.3.2:	**Lava**
SubTopic	6.3.3:	**Sediments**

Index:

6-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

6-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

6-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

6-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

6-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator: Prof. Nedai with Prof. Najmi and Dr. Bakhtari

Master Teacher Trainer (Training Facilitator): Mr. Mohd Dorud (*ECA)

Concept Scope and Sequence - Classes 1-3

Class 1

Concept	**18 :**	**Magnets**
Topic	**18.1:**	**Magnetic Poles**
SubTopic	**18.1.1:**	**Like Poles**
SubTopic	**18.1.2:**	**Unlike Poles**
SubTopic	**18.1.3:**	**Attraction**
SubTopic	**18.1.4:**	**Repulsion**
SubTopic	**18.1.5:**	**Use of Magnets**

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- D aft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Prof. Nedai with Prof. Najmi and Dr. Bakhtari	Mr. Mohd Rafiq

Concept Scope and Sequence - Classes 1-3

Class 1

Concept	**14:**	**Force, Work and Moving Things**
Topic	**14.3:**	**What Is Motion?**
SubTopic	**14.3.1:**	**Moving Things**
SubTopic	**14.3.2**	**Static Things**

Index:

14-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

14-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

14-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

14-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

14-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator: Prof. Nedai with Prof Najmi and Dr. Bakhtari

Master Teacher Trainer (Training Facilitator): Mr. Nasratullah

Concept Scope and Sequence - Classes 1-3

Class 1

Concept	**6:**	**Land**
Topic	**6.4:**	**Kinds of Soil**
SubTopic	**6.4.1:**	**Clay**
SubTopic	**6.4.2:**	**Black Soil**
SubTopic	**6.4.3:**	**Sand**
SubTopic	**6.4.4:**	**Soil Erosion**

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science
Earth Science Group

Group Product Workshop: Part I- 24 April - 20 May 1993
Part II- 22 May - 10 June1993

Specialist Facilitator	Master Teacher Trainers (Training Facilitators)
Dr. Bakhtari	Mr. Gulam Nabi Mr. Agha Gul Mr. Zundai Hafizi
	Mr. Mohd Yunus^^ [^^Part Time]

Concept Scope and Sequence -- Classes I-3

Class 1

Concept	**6 :**	**Land**
Topic	**6.1:**	**Land Forms**
SubTopic	**6.1.1:**	**Mountains**
SubTopic	**6.1.2:**	**Hills**
SubTopic	**6.1.3:**	**Plains**
SubTopic	**6.1.4:**	**Deserts**

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator: Dr. Bakhtari with Prof. Najmi and Prof Nadai

Master Teacher Trainer (Training Facilitator): Mr. Gulam Nabi

Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**3:**	**Plants**
Topic	**3.8:**	**How People Use Plants**
SubTopic	**3.8.1**	**Using Plants For Food**
SubTopic	**3.8.2**	**Other Ways People Use Plants**

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Dr. Bakhtari with Prof. Najmi & Nadai	Mr. Agha Gul

Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	3:	Plants
Topic	3.7:	Conservation
SubTopic	3.7.1:	Our Environment
SubTopic	3.7.2:	Home
SubTopic	3.7.3:	Neighborhood
SubTopic	3.7.4:	Our Province
SubTopic	3.7.5	Our Country

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Dr. Bakhtari with Prof. Najmi and Prof Nedai	Mr. Mohd Yunus

Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**6:**	**Land**
Topic	**6.2:**	**Rocks and Earth Layers**
SubTopic	**6.2.1:**	**White**
SubTopic	**6.2.2:**	**Black**
SubTopic	**6.2.3:**	**Grey**
SubTopic	**6.2.4:**	**Pink**
SubTopic	**6.2.5:**	**Mineral**

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator

Dr. Bakhtari
with Prof. Najmi and Prof Nedai

Master Teacher Trainer (Training Facilitator)

Mr. Zundai Hafizi

Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**4:**	**People**
Topic	**4.1:**	**Body Parts (Outside)**
SubTopic	**4.1.1:**	**Head**
SubTopic	**4.1.2:**	**Arms**
SubTopic	**4.1.3:**	**Hands**
SubTopic	**4.1.4:**	**Legs**
SubTopic	**4.1.5:**	**Feet**

Index:

4-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

4-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

4-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

4-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

4-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Prof. Najmi with Prof Nedai and Dr. Bakhtari	Mr. Gul Nabi

Concept Scope and Sequence -- Classes1-3

Class 1

Concept	4:	People
Topic	4.2:	Body Parts of People (Inside)
SubTopic	4.2.1:	Heart
SubTopic	4.2.2:	Lungs
Sub Topic	4.2.3:	Stomach
Sub Topic	4.2.4	Bones

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science
Physical Science Group

Group Product Workshop: Part I- 24 April - 20 May 1993
Part II- 22 May - 10 June1993

Specialist Facilitator	Master Teacher Trainers (Training Facilitators)
Prof. Najmi	Mr. Mohd Wali Mr. Gul Nabi Mr. Mohd Anwar
	Mr. Mohd Jan (^^withdrawn from 5 June) Mr. Mohd Rahim (^^withdrawn from 12 June)

Concept Scope and Sequence -- Classes1-3

Class 1

Concept	**14:**	**Force, Work, and Moving Things**
Topic	**14.1:**	**What is Force?**
SubTopic	**14.1.1:**	**Push, Pull, Lift**

Index:

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Prof. Najmi with Prof. Nedai and Dr. Bakhtari	Mr. Mohd Anwar

Concept Scope and Sequence -- Classes1-3

Class 1

Concept	**14:**	**Force, Work, & Moving Things**
Topic	**14.2:**	**What Is Work?**
SubTopic	**14.2.1:**	**Define Work.**
SubTopic	**14.2.2:**	**When Work Is Done.**

Index:

14-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

14-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

14-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

14-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

14-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator: Prof. Najmi with Prof. Nadai and Dr. Bakhtari

Master Teacher Trainer (Training Facilitator): Mr. Mohd Wali

Concept Scope and Sequence -- Classes1-3

Class 1

Concept	4:	People
Topic	4.3:	Five Senses
SubTopic	4.3.1:	Seeing (Visual)
SubTopic	4.3.2:	Hearing (Auditory
SubTopic	4.3.3:	Feeling (Tactile)
SubTopic	4.3.4:	Tasting (Gustatory)
SubTopic	4.3.5:	Smelling (Olfactory)

Index:

4-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

4-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

4-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

4-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

4-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator — Master Teacher Trainer (Training Facilitator)

Prof. Najmi
with Prof. Nedai and Dr. Bakhtari — Mr. Mohd Jan

Concept Scope and Sequence -- Classes1-3

Class 1

Concept
Topic
SubTopic

Index:

_-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

_-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

_-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

_-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

_-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator: Prof. Najmi with Prof. Nedai and Dr. Bakhtari

Master Teacher Trainer (Training Facilitator): Mr. Mohd Rahim

Concept Scope and Sequence -- Classes1-3

Class 1

Concept
Topic
SubTopic

Index:

_-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

_-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

_-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

_-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

_-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

Group Product Workshop: Part I- 24 April - 20 May 1993
Part II- 22 May - 10 June1993

Specialist Facilitator	Master Teacher Trainers (Training Facilitators)
Mr. A. K. Azizi	Mr. Abdul Rahman Mr. Azizurrahman Mr. Gula Jan Mr. Mohd Ishaq

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**2:**	**Whole Number Operations**
Topic	**2.1:**	**Addition**
SubTopic	**2.1.1:**	**Understanding Concept of Addition**
SubTopic	**2.1.2:**	**Properties of Whole Numbers**
SubTopic	**2.1.2.1:**	**Commutative Property**
SubTopic	**2.1.2.2:**	**Zero Property**
SubTopic	**2.1.3:**	**Basic Number Facts**
SubTopic	**2.1.4:**	**Missing Addends**

Index:

2-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

2-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

2-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

2-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

2-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

OVERVIEW: 4MAT FORM O

Subject: Mathematics

Grade Level: One

Concept: Whole Numbers Oprations

Topic: Addition

Aim, Goal, Outcome:

Understunding concept of addition in whole numbers system and its propertis such as commutative property and zero property for numbers(0-9)
Reading and writing addition sentences(0-9)
Application of addition in to the learners daily life

BRIEF OUTCOME INDEX

uadrants	Segments	
R-M	A	Learners connect their numbers experience to the addition of whole numbers (0-9)
L-M	B	Learners examine and analyze their number experience concerning addition of whole numbers (0-9)
R-M	C	Learners image the exsmed and analyzed numbers experience related to the addition of whole numbers (0-9)
L-M	D	Learners define concept of addition and create activities to read and write-addition sentences (0-9) and to use commutative and zero
L-M	E	Learners try out or practice commutative and zero properties of addition sentences.
R-M	F	Learners state the addition examples such they show properties of commutative and zero
L-M	G	Learners integrate their work by applying with examples on addition sentences, commutative and zero properties.
R-M	H	Learners use what t ey gave learned about addition in their real life.

ACTIVITY INDEX:

uadrants	Segments	
-R-M	A	Teacher creates an experience to motivates learners by asking questions-Teacher more active.
-L-M	B	Teacher group learners and gives each group a number and asks learners, How many ways they can show the given number. Teacher more active
-R-M	C	Teacher uses a story problem to help learners to introduce addition by using the words "and" and "in all" which they are familiar to learners. Teacher more active
-L-M	D	Teacher uses models for teaching addition - teacher more active
-L-M	E	Practice activity sheets on addition - learners more active
-R-M	F	Learners should apply addition and add some examples. Learners more acti-
-L-M	G	Learners explain their examples to their teacher and classmats. Learners more acti.
-R-M	H	Learner apply addition in real life, learners more active.

26

Pedagogical, Method, Strategies, Techniques Index:

Quadrant	Segments	Method	Strategies	Techniques
Quad 1	A	Discussion and interaction	Questioning	creating the experience
//	B	Discussion and interaction	Grouping	Bridging
Quad 2	C	Informational	Analyzing	Bridging
//	D	Informational	Physical and mental model	Advance organizer
Quad 3	E	Coaching	Practing	Questioning
//	F	Coaching	Experimentation	Questioning
Quad 4	G	Self-discovery	Analyzing	Questioning
//	H	Self-discovery	Using it for further knowledge	Questioning

MATERIALS INDEX:

Quadrant	Segments	
Quad 1	A	Wooden sticks, gravels, nuts, chalk-board, student text-book.
//	B	Corn, marbles, pictorial cards, leaves, student text-book
Quad 2	C	What ever is easily found, student text-book,
//	D	Graphic organizer, addition cards, student text-book
Quad 3	E	Worksheet, student text-book,
//	F	learners create their own materials, learner text-book
Quad 4	G	Gravels woolden sticks, pictorial charts, story tens table student text-book.
//	H	Whatever is easily found in school, at home, etc.

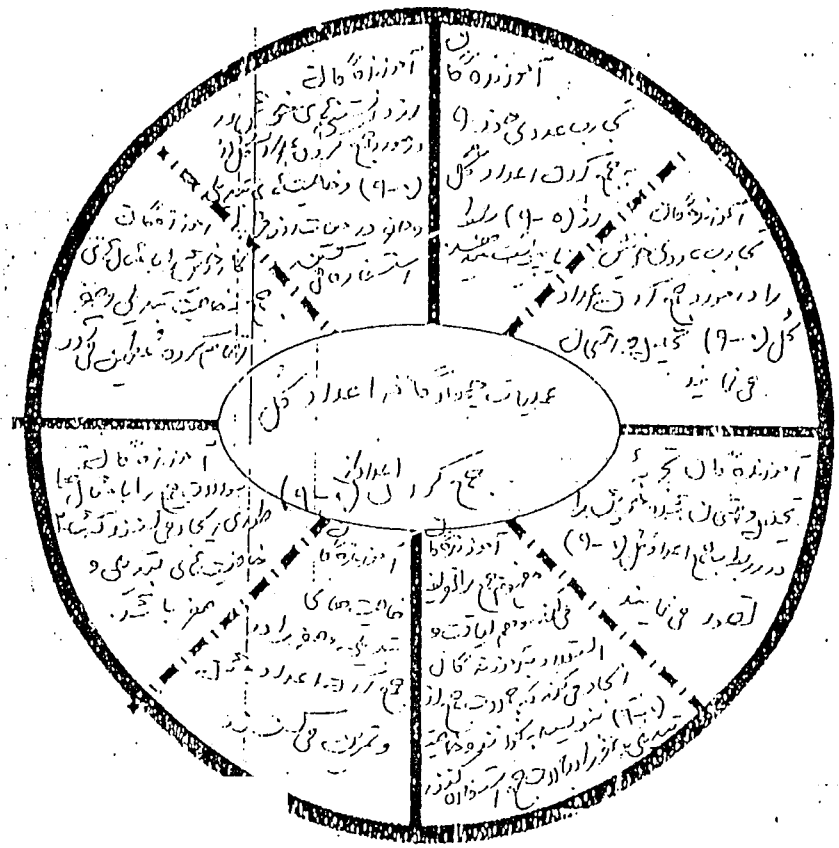
EVALUATION AND ASSESSMENT STRATEGIES AND TECHIQUE

Quadrant	Segments	Assessment Techniques
Quad 1	A	Participation and contribution of learners to group activi
//	B	Quality of group lists and uderstanding of concept
Quad 2	C	Ability to complete each activity,
//	D	Students ability to recognize and define basic shape
Quad 3	E	The quality of their worksheet activities
//	F	Quality of learners stated problem or examples on addition
Quad 4	G	Learners on-task behavior and contribution to group efforts
//	H	Quality of group disply, participation and delight in learnin


لا إله إلا الله محمد رسول الله


بسم الله الرحمن الرحيم

MATH - CONCEPT - 2 CLASS 1
CONCEPT SCOPE & SEQUENCE: CLASSES 1-3
2-Ind 2 4MAT LESSON OUTCOMES CYCLE
WITH BRIEF OUTCOMES STATEMENT



۲:۱: مضمون: عددی جملوں کا حل اعداد کل ۱۰

۲:۱۰۱: موضوع: جمع کرنا (اعداد کل ۱-۹)

موضوع کی ذیلی شاخیں:

۲:۱۰۱۱ — درست جمع مفہوم جمع

۲:۱۰۱۲ — خاصیت جمعی (تبدیلی والی) جمع

۲:۱۰۱۳ — جمع متواتر و توفیقی

۲:۱۰۱۴ — جمع نامعلوم

حوالہ:

(اعداد کا کھیل (تجربی)

(اعداد جان (ظہیر)

(عبدالرحمٰن (نظری)

(محمد اسحٰق (محمودی)

(غزالہ رحمٰن (آزمائشی)

یاد داشت: پہلے تصویر بنائی جائے۔

آموزنده / تحلیلگر: فرم سه الف فرم ست

مفهوم: ریاضیات صنف: عنوان فرعی: جمع اعداد یکرقمی (۰ — ۹)

مفهوم: عملیات جمع با گذاشتن اعداد مقابل هم عنوان: جمع

روش اول: [اهمیت عینی درک میکنند: از ممرین شاهدهٔ انعکاسی عمل میکنند] راحتترین جای برای آموزنده تحلیلگر تجربه را به خود به انجام میرساند، به معنی شخصی آن نمیشد بیشد - معلم دلیلی را ایجاد میکند به سوال آموزنده "چرا من این را باید یاد بگیرم؟" جواب میدهد

نقش معلم: نشستن کنار بستر و مورد استعمال جمع تشویق، ظاهر ساختن برای تحلیل، آشکار، تشریک عی برای یکدیگر، معلم بیشتر فعال است

روش اول ... مورد است:

نتیجه مطلوب:-

معلم باید تجارب را تنظیم ایجاد نماید که به معلومات قبلی آموزندگان ارتباط داشته و به مفهوم جمع کمک کند.

فعالیت: A : معلم جهت تفهیم صدا کتاب درسی سوالات ذیل را از آموزندگان میپرسد

① کی میتواند بتواند برای من بگوید؟ ② اگر اشتباه بگوید که این (——) چه است؟ ③ چه وقت یاد گرفتی ④ کجا یاد گرفتی ⑤ = عدد مرکب؟ آن چطور نوشته میشود؟ ⑥ معلم باید چطور آموزندگان را راهنمایی تخته و آنها به تمرین اعداد (26 ، 35 ، 17 و 49) را بالای تخته بنویسد بعد شاگرد را صدا کرده از شاگرد که: در مجموعه مذکور کدام یک بزرگ است، رقم کدام یک کوچک است؟

⑦ : معلم صدا کتاب درسی را با آموزندگان مشق بکند و به ارتباط آن در صورت لزوم وظایف منازل بدهد

متودهای فن تدریس، استراتیژی ها و تکنیک ها: متود: مباحثه.

ستراتیژی: سوال و جواب

تکنیک: ایجاد تجربه بالای مواد درسی

مواد مورد استعمال یا ایجاد شده: اشیا محیطی قابل شمار مانند: سنگچین، چوبک ها، تخته سیاه، تخته پاک و تباشیر، پرگار، چوکی ها، میز ها و غیره و در صورت امکان تصاویر و مودل ها.

که از 50 ذانه کم نباشد

بخاطریکه تا 50 خواندن و نوشتن را یاد گرفته اند.

ارزیابی: شاگردان توانایی داشته باشند که مفهوم عدد را به صورت صحیح فهمیده و حل نموده و نوشته بتوانند.

main - CONCEPT - 2 CLASS 1
CONCEPT SCOPE & SEQUENCE: CLASSES 1-3
2-Ind 3 T. Guide 4MAT Lesson Outcome Cycle
Form A-H - ped Plan

آموزنده تحلیلگرا: درسه (ب) تقویت

مقصدین: دبستانی صنف: اول

موضوع: عملیات چهارگانه اعداد صحیح عنوان: جمع اعداد یکرقمی (۱ — ۹)

هدف اول: دانش آموزان عینی درک می کنند: از طریق مشاهده و انعکاس عمل توسط دانش آموزان جای مناسبی برای آموزندگان تحلیلگرا. بخصوص ارتباط میدهد به معنی شخصی عمل و تشبیه بتشابه عمل یک پدیده ایجاد میکند. جواب سوال ۱۰ چرا من اینرا باید بیاموزم برای آموزندگان ارزش میگذارد. پس متعلم تشویق میشود مورد استعمال: تمثیل جهت تشویق کردن اوقات، تعطیلات برای تحلیل استفاده شرکت مشاهی: ایجاد کتب بخوبی، مدیریت مدرسه

ربع اول میز و چپ

نتیجه مطلوب: فعالیت ایجاد شده قبلی به آموزندگان توانائی دهد تا آنها را تحلیل و امتحان نموده و بصورت وسیع تر آن در حیات خویش مورد استفاده قرار دهند

مدیریت: معلم آموزندگان را به گروپ های شش نفری تقسیم کند و سوالات ذیل را به شاگردان مطرح سازد و روز فعالیت تر تیب نظارت نماید: ① به گروپ ها به ترتیب (مثلث سنگین، 7 چوبک، 4 لوبیا، 9 برگ، 5 شاخه) بدهد و هدایت دهد که هر گروپ اشیای فوق را به دو قوت (مساوی یا مختلف) جدا نماید و معلم نتیجه فعالیت آنها را روی تخته یادداشت و تثبیت به همه اعلان نموده و نظر دیگران را بخواهد. مثلاً: ۵ سنگین ← (xx, xxx) ① (xxxxx) ② (x, xxxx) ← ۴ سنگین

در فعالیت دوم اشیا را بدو قوت دیگر جدا سازد مثلاً ←

در فعالیت سوم صفحات (2 ، 3) کتاب درسی را معلم با آموزندگان کار کند.

و در صورت لزوم وظیفه خانگی نیز داده شود: مانند سوالات صفحه 3، 2 کتاب درسی

منبع های تدریس، انتزاعی ها و تکنیک ها: متود: مباحثه

ستراتیژی: کار گروپی

تکنیک: اتصال (پل سازی)

مواد مورد استعمال یا ابداع شده: مانند اینکه در ورق گذشته Rm تحریر شده است

ارزیابی: اینکه آموزندگان همراه را در کل به چیز و برز چیز به کل بصورت صحیح نمایش داده میتوانند یا نه؟ حل تمرین و نوشته میتواند یا نه؟ برز یابی متود

آموزنده ی تجربگرا: اوزمه ج فورست

مقدمه: ریاضیات صنف: اول عنوان فرعی: جمع اعداد یکرقمی (۱-۹)

توضیح: عملیات چهارگانه ای اعداد کل (جمع) عنوان: جمع

دلیل دوم [بعد از درک مفهوم] تمایل به استفاده مجدد از مهارت های مکتسبه تمایل به ارتقای مهارت ها، راحتی بیشتر جانی بررسی آموزندگان یکدیگر

حقایق را مانند مشخص جدول ضرب مشاهده و آنرا حفظ نمایند. آنرا برای شان تدریس میکنند

جواب به سوال چه؟ نقش معلم: معلومات دهنده. متود مورد استعمال: مهارت تفکر انعکاسی

انعکاسات را با مفاهیم یکجای میسازند: قابلیت تعمیم بعد از تجربه ایجاد شده را تحلیل میکنند

.....

رابع دوم ـ مورد است

نتیجه مطلوب: آموزنده گان باید مفاهیم آموخته شده قبلی خویش را با استفاده از کلمات «و» و «مساوی است به» در سوالات استعمال نموده منعکس سازند تا به مفهوم جمع نیز ریپیت شوند.

نمایت: معلم به سوالات ذیل به آموزنده گان را جع سازد.

① احمد! دو نفر و شش نفر کل چند نفر میشود؟

② زلمی! دو رکعت نماز سنت و دو رکعت نماز فرض کل چند رکعت نماز میشود

و چند سوال دیگر نیز مطرح سازد.

ورزش 504 کتاب درسی نیز کار بگیرد.

و شاگردان را موقع دهد که خود شان سوالاتی که در آن (و) و کل چند) میشود بیایند

و همدیگر بکنند.

متدولوژی تدریس: استراتیژی ها و تکنیک ها: متود: معلوماتی

استراتیژی: سوال و جواب و

تکنیک: اتصال (پل سازی) یعنی تجربه جدید متصل گردن.

مواد مورد استعمال یا ابزار وسایل:

مواد محیطی، شاده، تخته دیم ماشتر

Q, Rm

ارزیابی: معلم ارزیابی کند که شاگردان کلمه (جمع) و حرف (و) را بصورت صحیح آن در سوالات گفته میتوانند

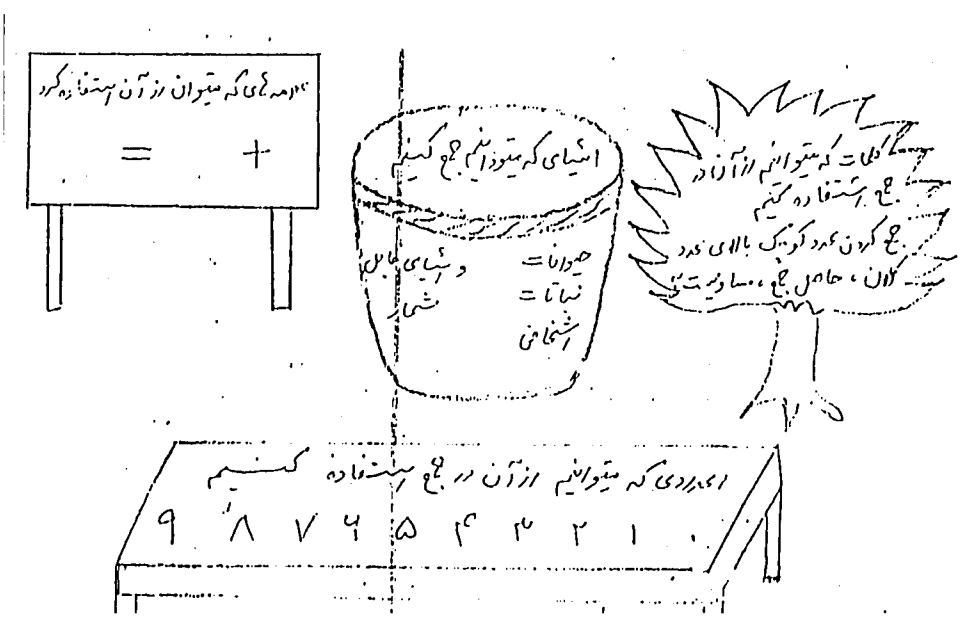
توجه: معلم همکار قبل از تدریس جلسه اول (LA1) این صفحه را با استفاده از تکنیک کپی کند.

تنظیم کننده قبلی جلسه: آشنایی با لغات ریاضی در جمع

معلم تنظیم کننده قبلی دایل را در تخته فلانش (نصب) محتویات آنرا که عبارت اند از:
(اشیا، کلمات، علامت‌ها و اعدادی که در جمع بکار میروند) با آموزنده‌گان مباحثه کند
و معلم با آموزنده‌گان کمک نماید تا آنها دریابند که چطور کلمات و مفکوره‌های عددی یکجا بکار میروند
و رابطه آنها با یکدیگر چطور است؟

ترتیب کننده قبلی به آموزنده‌گان کمک میکند تا آنها اجزای جمع را تشخیص نموده و بشناسند،
معلم دهم بخش تنظیم کننده قبلی را جداجدا به آموزنده‌گان بحث کند و واضح نماید.

معلم آموزنده‌گان را کمک نماید تا آنها با استفاده از طوفان دماغی (مناقشه) در مورد کلمات
و اعداد و سمبول‌ها فکر کنند.



آموزنده: تحلیلگرا: نرم‌افزار فهرست

مقطع درس: ابتدایی صنف: اول

موضوع: عملیات جمع با اعداد کمتر از ۱۰ (موضوع ۲) عنوان: جمع ... عنوان فرعی: جمع اعداد دیگر (۵–۹)

رابع دوم: آموزش جمع، درک مفهوم عملیات، توسعه مهارت، عدد متقارن، پیشنهاد، آموزش جمع اعداد

آموزندگان تحلیلگرا، جمع‌ها را با تجسم مشخص شده و آنرا عمل بیاورند. آنرا برای آشنایی تدریس

مفکوره: جواب به سوال (چه؟) نقش معلم: مدیریت، توسعه‌دهنده میتود: مورد استعمال: مواد

تنظیم مفهوم، مکالمات را با هم بیان کنید: تجربه ایجاد شده را تحلیل نمایند

.....

.....

ابزار درس به مورد است

تشریح مطلوب: ① آموزندگان باید مفهوم جمع و عملیات (+ ، =) و طرز استعمال آنرا بدانند. ② اجزای جمع را بطور عمودی و افقی جمع کرده و طرز جمع کردن آنرا بدانند. ③ بدانند که هرگاه جای اجزای جمع عوض شود نتیجه در حاصل جمع تغییری نمی‌آید. ④ هرگاه صفر یک عدد جمع شود، بدانند که حاصل جمع خود همان عدد است. ⑤ جزء ناملوم جمع را دریافت نموده و طرق بدست آوردن آنرا توضیح دهد ⑥ مواد فوق را در حیات روزمره بدانند که چطور و چه وقت و در کجا استعمال میشود

نوت: بالای شماره‌های (2، 3، 4، 5) در وقت درس زیاد تاکید شود.

فعالیت:- فعالیت اول: معلم طور ذیل سوال کند: کی گفته میتواند که در سوال (2 گل و 3 گل چند گل میشود) به عوض (و و عملی) کلمه که باید نوشته شود. تا آموزندگان نتوانند خود معلم دافع بنازد. ② معلم با شاگردان سوالات ص 6 کتاب درسی را مشق و تمرین کنند فعالیت دوم: ① معلم جهت بیان موضوع رزجارت جیب دراز افقی و عمودی استفاده نماید و سوالات 5+2= و 4+3 = را بقسم عمودی و افقی حل نماید ② معلم جهت مشق و تمرین سوالات ص 7، 8، 9 کتاب درسی استفاده کنند.

فعالیت سوم: معلم سوالاتی مانند 5=3+2 و 5=2+3 را با استفاده از جارت جیب‌دار عمودی و افقی کار کند و سوالات ص کتاب درسی را بالای شاگردان مشق و تمرین کنند. فعالیت چهارم: معلم باید با استفاده از مثال‌های دال متره ص کتاب درسی مفهوم را به شاگردان بفهماند. فعالیت پنجم: معلم در قسمت جزای ناملوم جمع توجه آموزندگان را به سوالات قبلی جلب نماید.

.....

وسایل درس: آثار ابتدایی، ما و تابلت ما: میتود: معلومات

سنتراکتوری: مدول‌های فزیکی (فزیکی دیجیتل و تنظیم آینده تبدیل)

تکنیک: کار عملی با الات مدول فزیکی لیتی تحلیل

مواد مورد استعمال یا ایجاد شده: از مواد ساده و تحلیلی و قابل دید و تصاویر و مدول‌های فزیکی استفاده شود

.....

ارزیابی:- ارزیابی شود که آیا آموزندگان مفهوم جمع و علامات (+ ، =)، اجزای جمع، جمع متوالی و افقی خاصیت تبدیلی، خاصیت صفر در جمع و طرز دریافت جزء ناملوم جمع را دانسته یا خیر

آموزنده گان عادی در سه مقطعه فوریت

مضمون: ریاضیات صنف: اول

موضوع: عملیات جمع با ارقام اعداد کامل (۹-۰) عنوان: جمع: ... عنوان فرعی: جمع اعداد یک رقمی

هدف: آموزنده گان عادی: ایشان مشق میکنند و کمک از ابتکار میدهند. به تقاضای عملی توجه میکنند برای شان موقع داده میشود تا مفهوم را بیاموزند. جواب به سوال ۱۰ این مفهوم چطور کار میکنند؟ نقش معلم - رهنمای و فراهم آوری شرایط. مشق در مورد استعمال (فراهم آوری شرایط) در مورد مفاهیم داده شده (تاکید روی فعالیت عملی) را انجام میدهد. شاگردان چند مثال میگویند

وسایل: ...

نتایج مطلوب: - به آموزنده گان باید وقت داده شود که مفاهیم آموخته شده را مشق و تمرین نماید.

فعالیت: فعالیت اول: معلم جهت مشق و تمرین حقایق و محورهای ذیل سوال میکند: ① چطور (5=3+2) یک مثال جمع است؟ ② چطور (4=10-?) یک مثال قانون نمره جمع است؟ ③ چطور (5=2+3) و (5=3+2) یک مثال خاصیت تبدیلی در جمع است؟ در صورت ارزوم معلم جوابهای توسط اشیا واضح میسازد.

فعالیت دوم: ۱- چطور این شکل (XXX) (XXX) با ۶+۴=۷ مرتبط دارد. جهت مشق به ۱۵ الی کتاب مراجعه شود.

فعالیت سوم: ① چرا در زندگی جمع مهم است؟ جواب: بخاطریکه در همه روز ما از آن استفاده میکنیم

مواد و وسایل فن تدریس، تجهیزات ها و تکنیک ها: میتود: فراهم آوری شرایط

ستراتیژی: مشق و تمرین، نشان دادن، توزیع

تکنیک: سوال و جواب

مواد مورد استعمال یا ابکار شده: تخته، دیتر جهت مشق و تمرین و سوالات تهیه شده توسط معلم

کتاب درسی شاگردان، ... سنگچل، چوبک ها، میز ها، چوکی ها، برگ ها و غیره

ارزیابی: معلم باید کیفیت کار آموزنده گان را بررسی کند.

توسط: شاهده - رضایتمند، سوال و جواب و غیره

آموزندگان عادی دوره دوم و ... فوریست

موضوع درس: ریاضیات صنف: اول

موضوع: عملیات چهارگانه (جمع، تفریق، ضرب، تقسیم) بعنوان: مجموعه فرعی: جمع و تفریق اعداد (۱ - ۹)

هدف سوم: [illegible] عمده را از طریق [illegible] آسان جمع

برای آموزندگان عادی ضرورت تمرین مکرر و تکرار را متذکر شوید. شکی به تجربه عملی بیشتر بگذارید که آنها را انجام دهند. جواب سوال: (این چطور کار میکنند؟) نقش معلم: راهنمائی و یا غیره هم آوری شرایط. مقدمه و مورد استعمال: غیر از هم آوری شرایط. از خود چیزی علاوه نکنید تا آموزندگان بیشتر فعال باشند.

رابع سوم - مواد درسی

نتیجه مطلوب: - آموزندگان باید مفهومی را که مشق و تمرین نموده اند از نظر معنی درک کرده و در رابطه با آن قدرت توانائی برخود ساختن را توسط مثالهای حیاتی از خود نشان دهند.

فعالیت: - فعالیت اول: - معلم با استفاده از سوالات ذیل مفاهیم آموخته شده را تحریر و تحلیل نماید.

۱- سوال ۲+۳=۵ را بالای تخته بنویسید و بگوید که (۲ و ۳ = ۵) - در این سوال ۵ چه نامیده میشود؟

فعالیت دوم: - فامیل ۵ را در [illegible] (۵+۰=۵، ۴+۱=۵، ۳+۲=۵، ۲+۳=۵، ۱+۴=۵، ۰+۵=۵) و مرتب کرده فامیلهای (۶ و ۷) را دریافت نماید. جهت تمرین مختصر از صفحه کتاب درسی استفاده نماید.

مفردهای نامفرد: آموزش، آموزگار، آموزنده، آموزندگان

مفرد: آموزش

جمع: آموزندگان

تکنیک: سوال و جواب

مواد مورد استعمال یا ابزار: -

مواد محیطی که چگونه استعمال آن مفهوم را فراهم میسازد

ارزیابی: - آموزندگان به پرسانی مشغولیت آنها که در تجارب دلخواه شان ادامه میدهد ارزیابی میشود. (از قبیل: شنیدن، کار عملی، سوال و جواب و غیره)

: آموزندگان پیرتلاش فوریه‌ای فوریه‌ست

موضوع: ریاضیات صنف: اول

موضوع: عمل جمع را به اشکال مختلف عنوان: جمع عنوان فرعی: جمع اعداد یکرقمی (۱ — ۹)

هدف: روشن عینی درس عبارت است از طریق تجزیه و تحلیل عمل را مشخص سازد. درآخر این جلسه برای آموزندگان پیرتلاش قابل به انجام یک عمل یا یک پیچیده تدریس. مفهوم را بخوبی تدریس و با دیگران درمیان میگذارد. سوالات را جواب میدهند. مفهوم چیست؟ چند راه و یا راز این مفهوم چیست هستند؟ میتوانند؟ نقش علم: از ریاضی گسسته و یا رهائی گسسته. میتوانند (نکته ی خوبی) مفهوم را خودشان تحلیل میکنند مفهوم چیست و چیست سنگ اول تهیه در آموزش آینده ابتدا. تحلیلش، تجاوب را انداره که تهیه شان بگیرند بهتر قبال بدهد.

Qu — Lm

نتیجه مطلوب: آموزندگان فوریه آموخته شده را با تطبیق مثالها در داخل و خارج صنف عملی عاملند و صمیمیت آنرا به آموزگار، آینده خود، سکون و محاصلین دیگر ارتباط دهند.

فعالیت اول:- سوال که توسط خود آموزنده گان تهیه شده آنرا ترتیب نموده صورت حل آنرا به ولا به معلم خود توضیح نماید ((در صورت لزوم معلم با آنها کمک نماید)) شاگرد دیگر توضیحات خود را بسبب دیگر به او دوا حالا بگوئید کدام جمع چند سیب دارد؟ ((توجه معلم کوشش نماید که آموزنده گان سوال را با برداشته ابتدا یا مورد آی فرد یکی تصاویر، مورد آی ذهنی را اعتراف آنرا حل و توضیح نماید.

معلم سوالات مانند سوالات ذیل را از آموزنده گان بپرسد. الف:- کدام سوال جمع است؟ ب:- جواب سوال چه چیز را میگوید؟ ج:- چگونه میتوانیم سوال جمع را بیان کنیم؟ د ۱- در صورت یکی بخواهد دو قلم را دو قلم را در یک جا جمع کند؟ ((در یکی بخواهد جمع کردن را اضافه کرد به دو:- بهترین حل سوال فوق ((۲+۳)) کدام طریقه حل را پیشنهاد میکنید؟ ((در سوال دو: آموزنده گان باید یکی از این چیزها را انتخاب کنند عبارت اند از: ① اعمال ذهنی یا مورد؟ ② قرینه ③ تصاویر ④ مورد آی ذهنی ⑤ سمبول آی عددی

مورد آی این درس: آسانترین ها و تجاوب با فعالیت دوم: معلم سوالات صفحه 13 بالای شاگردان تمرین کنند.

مقدمه ۱- رسانه ی صوتی

ستراتیژی: ترکیب گروپ

تاکتیک: سوال وجواب

مواد مورد استعمال یا ابزار: سوال محدود سی از قبیل: سنگها، چوبکها، کتاب، کاپی، قلم و غیره

ارزیابی: باید نسبت آی آموزنده گان به ① پرسی خود در صورت لزوم ادامه دهد.

موسسه آموزشی [illegible] فرم شماره (۲) مدرسه

موضوع درس: ریاضیات صنف: اول

موضوع: عملیات جمع با ارقام یک رقمی محاسبه: جمع محتوای درس: جمع اعداد یک رقمی (۱ - ۹)

اهداف کلی: آموزنده گان را آماده میسازد: از طریق تجربه عمل عملی میکنند تا آموزنده گان را برای [illegible] آماده سازد. تا در اجرای عمل و یا در انجام یک چیز توجه میدارند. بخود و تدریس نمود و با دیگران آشنا شوند. جواب سوالات را میفهمند چه شنیده میتوانند؟ و یا از زبان آموزگار چیست فهمیده میتوانند؟ نقش معلم از زبان بیان میکنند. اصطلاح میکنند. میتوانند: (اضرب خوری) تشویش خوری اجیت مقیدیت مفاهیم تجسمی رنگ با پدیده های آموزشی آشنا میسازد را تجربه گذاری میکنند. آموزنده گان نهایت تمایل خود را در انجام عمل مثبت با دیگران نشان میدهند و بکار میکنند

Q4 - Rm

نتیجه مطلوب: آموزنده گان باید درین قسمت جمع اعداد یک رقمی را در حیات روزمره خود در [illegible] و [illegible] قرار بدهند که مفید باشد آن آنها در آموزش موضوع آینده را نیز تهدارک گذاری کرده بتوانند.

فعالیت: معلم درین قسمت از ستراتیژی T.P.S (فکر کردن زوجی، دونفری و تمام صنف) استفاده کرده سوالات ذیل را از آموزنده گان در قسمت جوابات آنها بپرسد: ① محمود: آیا تمام جواب را هر مورتی هستید؟ ② محمد صادق تمام را چه جواب را فکر میکنید؟ ③ نظر شما کدام طریقه حل بسیار مهم است؟ ④ حق اولیت بکدام طریقه حل آموزنده گان خواهید داد؟ ((اعمال شفی یا دول آن، تقاضا، غیر تا حل ذهنی تا حل عددی)) ⑤ راجع به تطبیق آن در حیات چه تصمیم خواهید گرفت؟ ⑥ شما برای ارزیابی کار خود از کدام طریقه استفاده میکنید؟

فعالیت دوم: معلم سوالات [illegible] درس را از آموزنده گان بپرسد

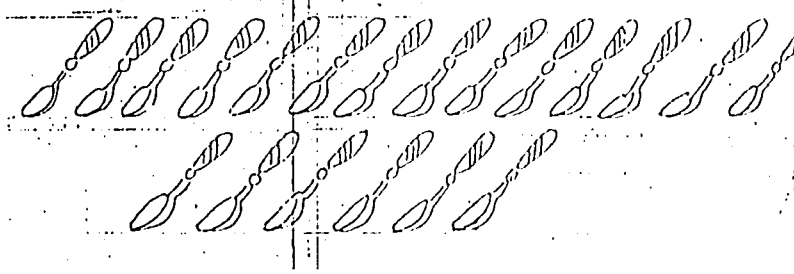
[illegible] ارزیابی این درس از راه های ذیل انجام میشود:

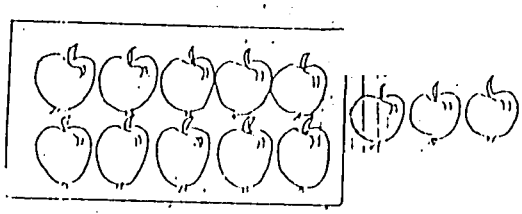
مشاهده: [illegible] سهم گیری: [illegible] سوال جواب: تکمیک: سوال و جواب

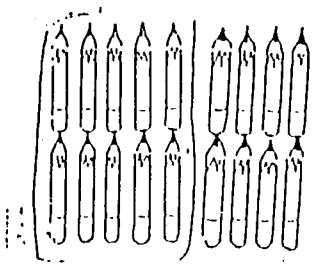
مواد مورد استعمال یا ایجاد شده: مواد محدود مثل ساده و [illegible] از قبیل: سنگچل، چوب بلگی، برگهای وغیره استفاده شود

ارزیابی: معلم کیفیت سهم گیری آموزنده گان را در تطبیق عملیه جمع طوری بررسی نماید که آن از آموزنده گان جمع اعداد یک رقمی خود را بتوانند در حیات روزمره خود این بکار ببرند

سوال اول : نام آشنای اشکال ذیل را گرفته و عدد مربوطه را آنرا بنویسید .







سوال دوم : در خالیگاه های ذیل اعداد مناسب آنرا بنویسید .

				۱۵		۱۳		۱۱	۱۰

سوال سوم : جدول های ذیل را دیده عدد بزرگ و کوچک آنرا جداگانه نام بگیرید .

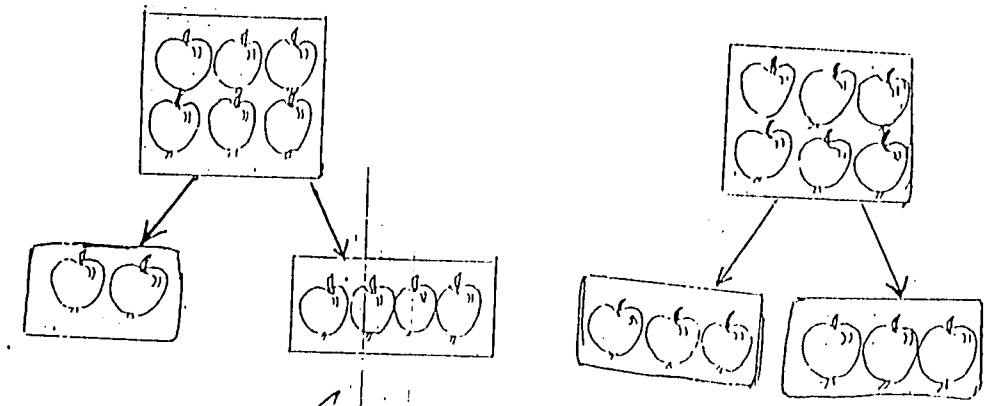
۱۲۰	۴۸	۱۲	۱۹	۲۷	

۳۲	۱۴	۲۱

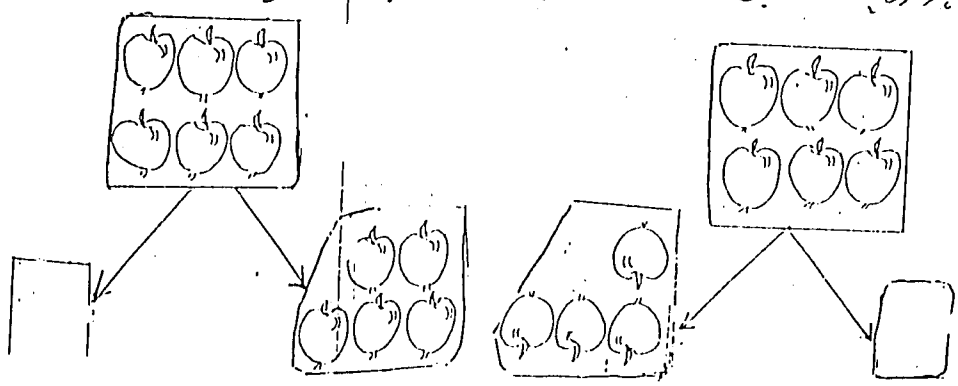
۴۲۰	۳۵	۲۶	۱۷	۱۹

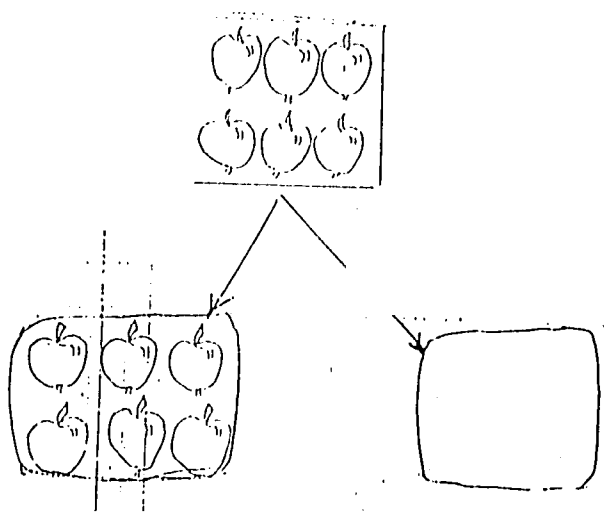
۲۰	۱۰	۱۵۰

جدا نمودن گروه

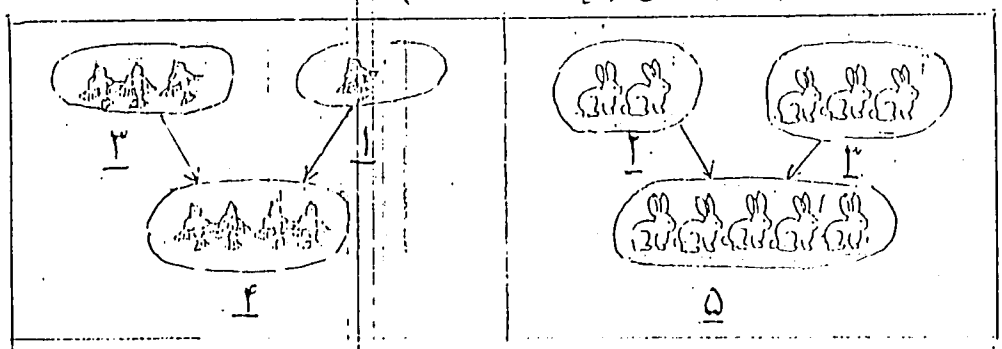


۱- هر گروه را مطابق مثالهای حل شده بالا به دو گروه جدا کنید

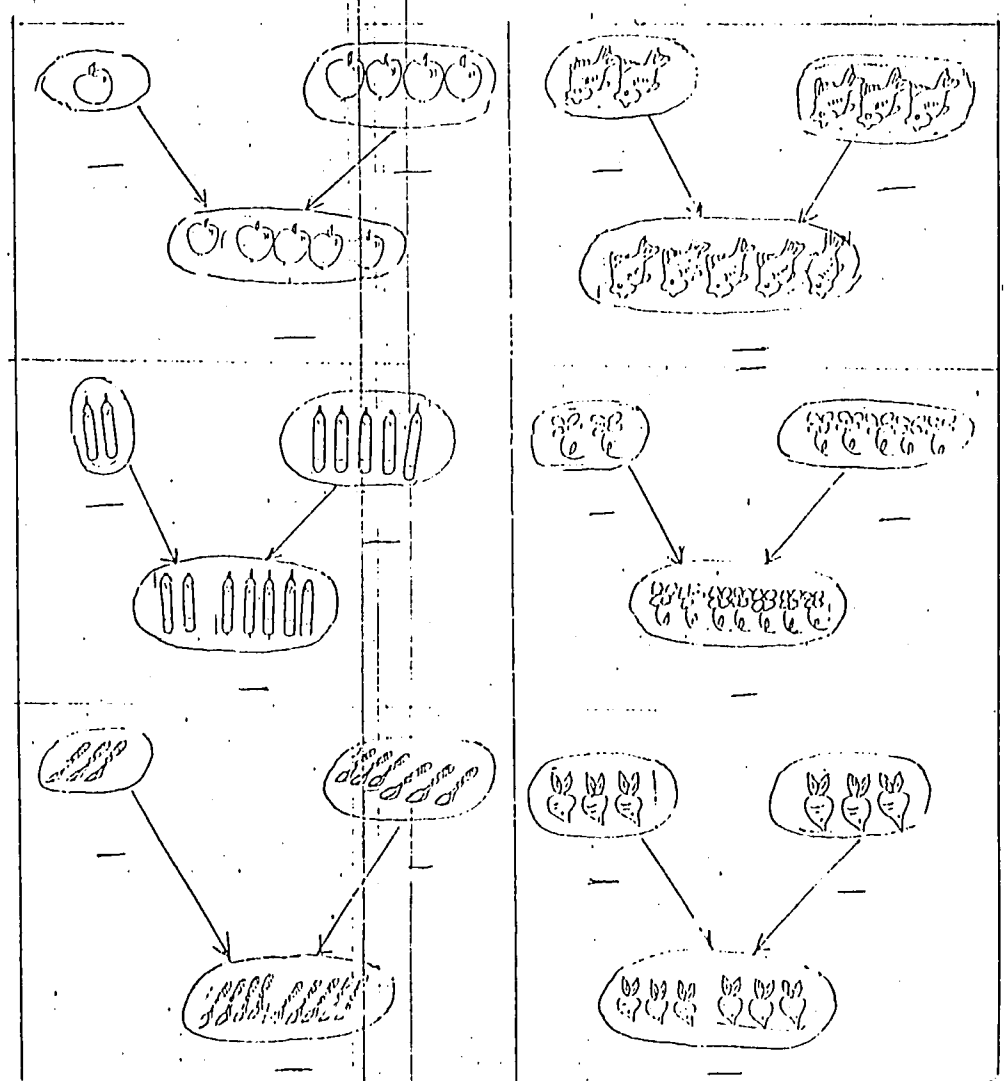


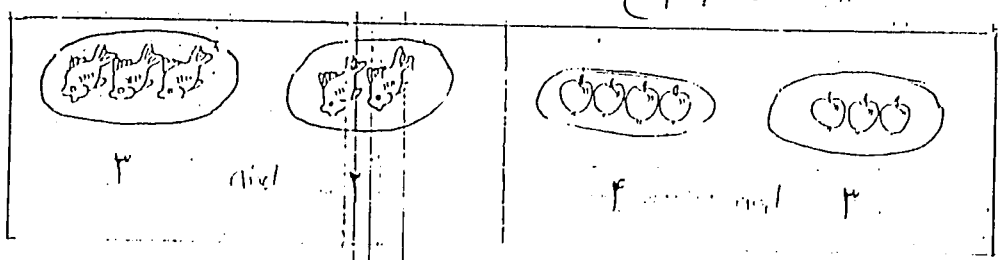


یکجا نمودن گروپ ۴ یا (سیستها)

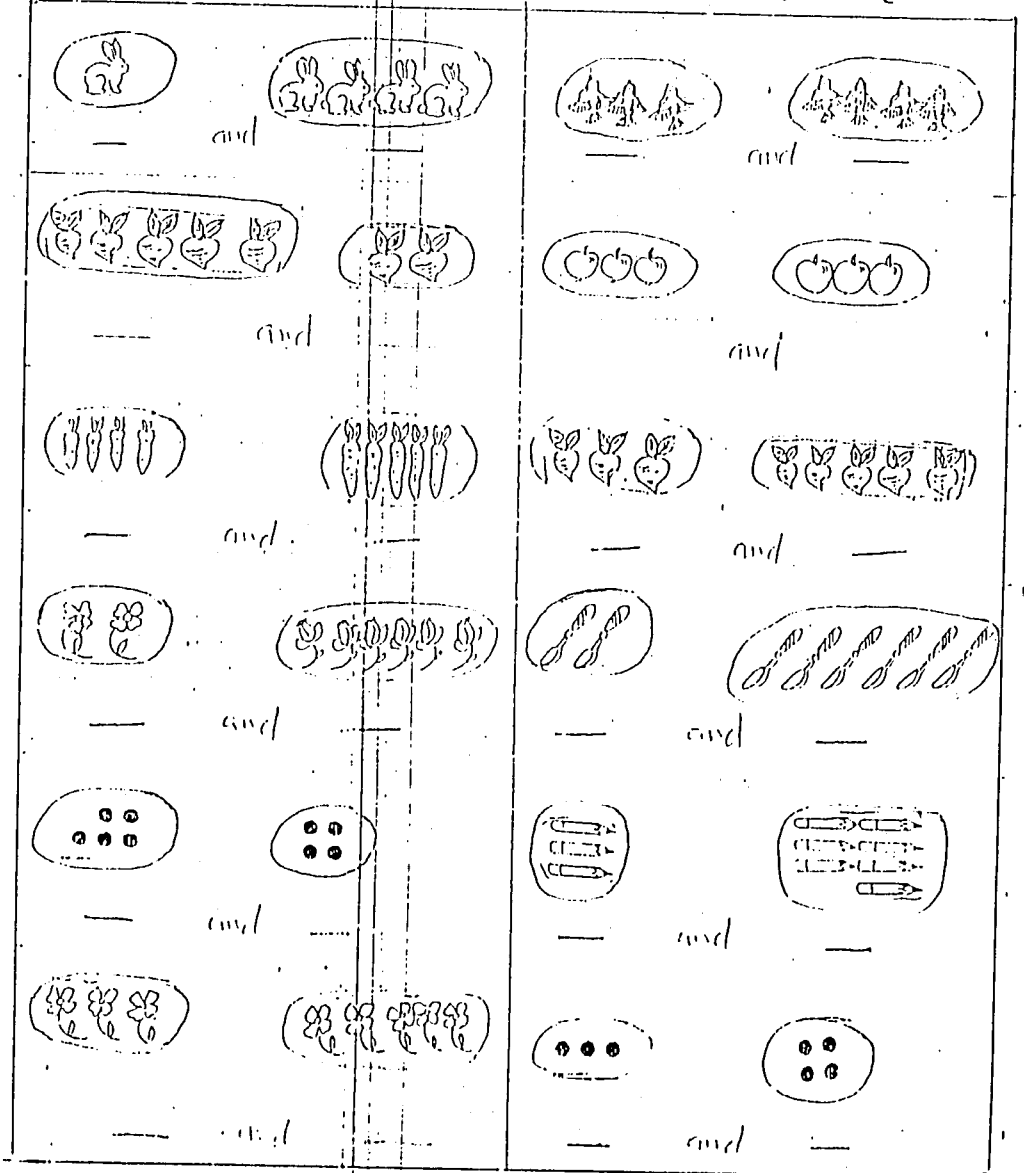


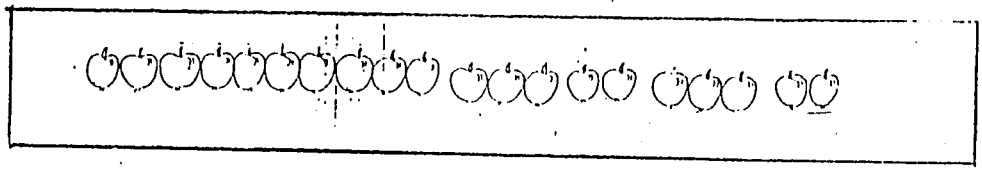
بعد هر گروپ را مطابق مثالها بنویسید





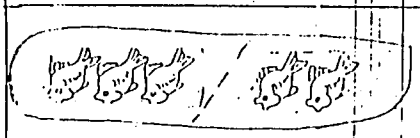
عدد هر گروه را مطابق مثالها در جاهای مناسب آن بنویسید





۱ ، ۲ مساویست به ۳	۷ ، ۷ مساویست به ۱۴
۶ ، ۳ مساویست به ___	۵ ، ۴ مساویست به ___
۴ ، ۳ مساویست به ___	۵ ، ۲ مساویست به ___
۶ ، ۲ مساویست به ___	۲ ، ۵ مساویست به ___
۴ ، ۴ مساویست به ___	۷ ، ۱ مساویست به ___
۸ ، ۲ مساویست به ___	۹ ، ۱ مساویست به ___
۷ ، ۳ مساویست به ___	۶ ، ۷ مساویست به ___
۵ ، ۵ مساویست به ___	۶ ، ۶ مساویست به ___
۵ ، ۶ مساویست به ___	۶ ، ۴ مساویست به ___
۸ ، ۲ مساویست به ___	۶ ، ۸ مساویست به ___

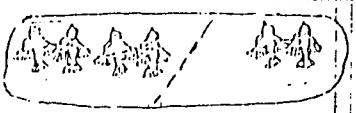
معرفی علامت مساوی یعنی (+ ، =) شاگرد باید بداند که جمع و مساوی به معنی چه دارد!



۲ + ۴ = ۶

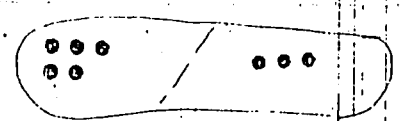
۳ + ۲ = ۵

مثالها را زیاد سوالات ذیل را خوانده و حاصل جمع آنان را در جاهای مربوط آن بنویسید.



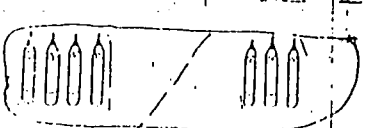
۴ + ۲ = ...

۳ + ۴ = ...



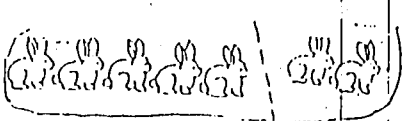
.... + ... = ...

.... + ... = ...



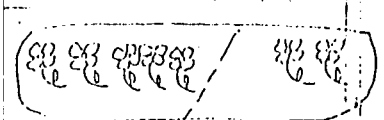
.... + ... = ...

.... + ... = ...



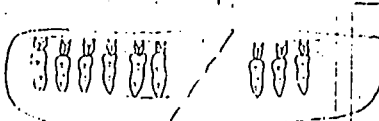
.... + ... = ...

.... + ... = ...



.... + ... = ...

.... + ... = ...



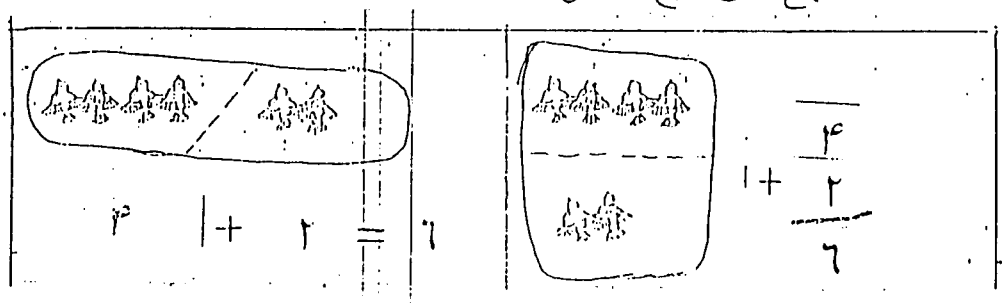
.... + ... = ...

.... + ... = ...

.... + ... = ...

.... + ... = ...

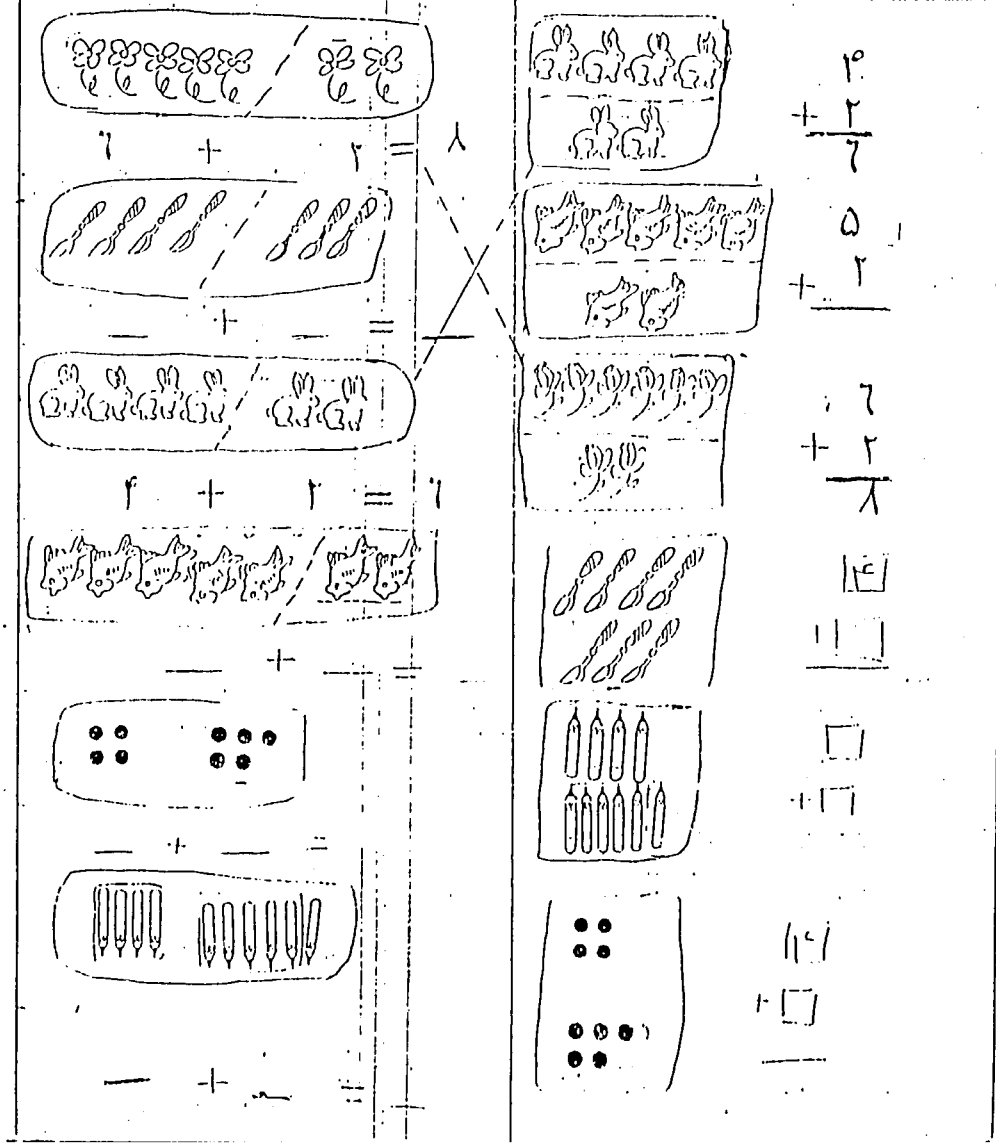
جمع افقی و جمع ستونی



۴ + ۲ = ۶

۳ + ۲ + ۱ = ۶

شاگردان را در حل جمع های سوالات ذیل راهنمایی نمایید و آنها را مقایسه کنید.



۱۰ + ۲ = ۶

۵ + ۲ = ۷

۶ + ۲ = ۸

۴ + ۱ = ۵

۱۰ + ۱ = ۱۱

۶ + ۲ + ۲ = ۱۰

۴ + ۲ + ۲ = ۸

دریافت حاصل جمع ها

$۲ + ۳ = ۵$	$\begin{array}{r} ۲ \\ +\ ۳ \\ \hline ۵ \end{array}$	$۱۰ + ۲ + ۱ = ۱۳$
		$\begin{array}{r} ۱ \\ +\ ۲ \\ \hline ۳ \end{array}$

اگر شی مضروب جمع استفاده کنید

مثالها را حل و حاصل جمع های سوالات ذیل را دریابید.

$۴ + ۲ = \_\_$	$\begin{array}{r} ۱۰ \\ +\ ۲ \\ \hline \end{array}$	$\_\_ = ۳ + ۴$
		$\begin{array}{r} ۴ \\ +\ ۳ \\ \hline ۷ \end{array}$
$۳ + ۲۰ = \_\_$	$\begin{array}{r} ۷ \\ +\ ۱۰ \\ \hline \end{array}$	$\_\_ = ۳ + ۵$
		$\begin{array}{r} ۵ \\ +\ ۳ \\ \hline \end{array}$
$۴ + ۲ = \_\_$	$\begin{array}{r} ۷ \\ +\ ۴ \\ \hline \end{array}$	$۵ + ۱۰ = \_\_$
		$\begin{array}{r} ۴ \\ +\ ۵ \\ \hline \end{array}$
$۵ + ۶ = \_\_$	$\begin{array}{r} ۶ \\ +\ ۵ \\ \hline \end{array}$	$۲ + ۵ = \_\_$
		$\begin{array}{r} ۵ \\ +\ ۲ \\ \hline \end{array}$
$۶ + ۷ = \_\_$	$\begin{array}{r} ۷ \\ +\ ۶۰ \\ \hline \end{array}$	$۷ + ۴ = \_\_$
		$\begin{array}{r} ۱۰ \\ +\ ۷ \\ \hline \end{array}$

مشق و تمرین

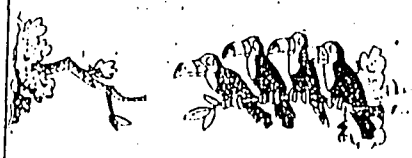
مثالهای زیر را با اعداد مناسب در خانه‌های خالی کامل کنید

۶ + ۱ = ۷	۶ = ۵ + ۱
۶ + ۲ = ۷	۶ = ۴ + ۲
۴ + ___ = ___	۶ = ___ + ۳
___ + ___ = ___	___ + ___ = ___
___ + ___ = ___	___ + ___ = ___
___ + ___ = ___	
۷۱ + ۱ = ۸	۹ = ۱ + ۸
۶ + ۲ = ۸	۹ = ۲ + ۷
۱۰ + ۱۰ = ۸	۹ = ___ + ___
___ + ___ = ___	___ = ___ + ___
___ + ___ = ___	___ = ___ + ___
___ + ___ = ___	___ = ___ + ___
___ + ___ = ___	___ = ___ + ___

خاصیت صفر در جمع

۳ + ۰ = ۳

۳
+ ۰
۳

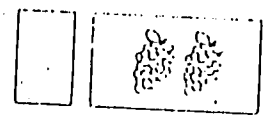


۰ + ۴ = ۴

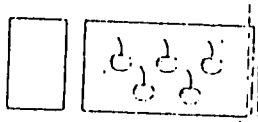
۴
+ ۰
۴

مثالها را در نظر گرفته مسئلات جمع ذیل را حل نمائید :

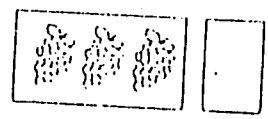
۰ + ۳ = ___



۲
+ ۰
___



۵ + ۰ = ___



۳
+ ۰
___

3. Make your own story with zero.

۴ + ۰ = ___

۷ + ۰ = ___

۰ + ۰ = ___

۶ + ۰ = ___

۰ + ۸ = ___

۱۰ + ۰ = ___

۵
+ ۵
___

۱۰
+ ۶
___

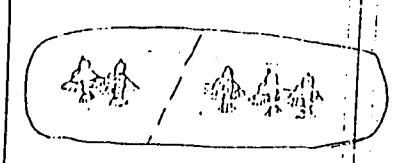
۰
+ ۹
___

۵
+ ۰
___

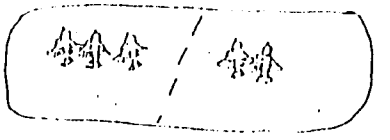
۴
+ ۹
___

۳
+ ۷
___

تبدیل اجزای جمع



۲ + ۳ = ۵



۳ + ۲ = ۵

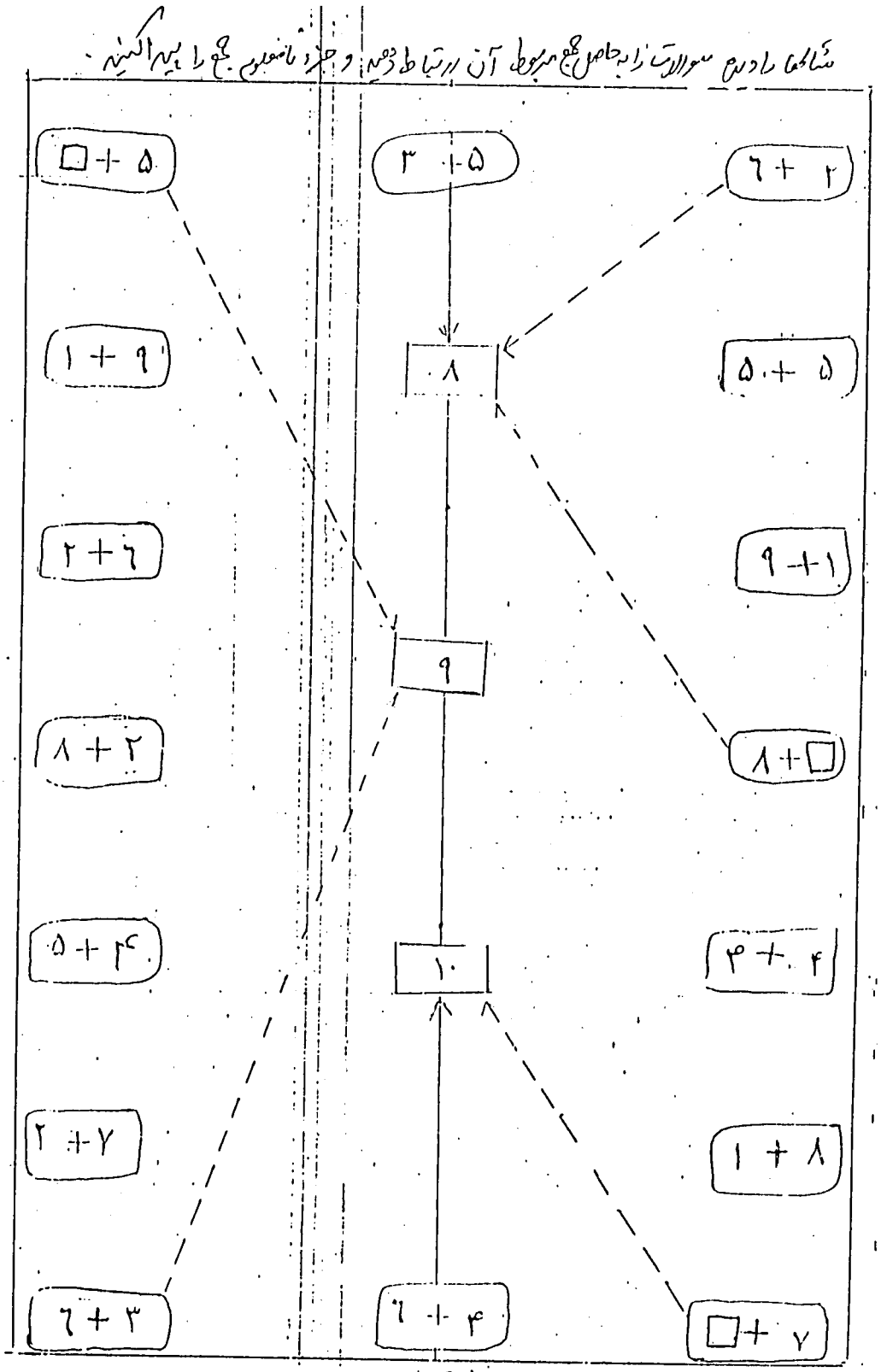
۲ + ۳ = ۳ + ۲

در سوالات ذیل از شیء استفاده نموده حاصل جمع را پیدا نموده بعداً اجزای جمع را تغییر دهید و عمل جمع را تکرار کنید.

۴ + ۳ = ۷	۳ + ۴ = ۷
۴ + ___ = ___	___ + ۴ = ۱
___ + ۵ = ___	۰ + ___ = ۵
___ + ___ = ___	۵ + ۶ = ___
___ + ___ = ___	۷ + ۵ = ___
___ + ___ = ___	۶ + ۰ = ___
___ + ___ = ___	۴ + ۸ = ___
___ + ___ = ___	۳ + ۹ = ___

۲۸۶

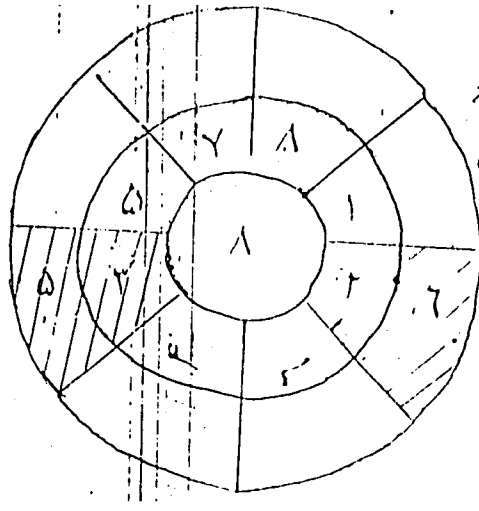
شکلهای رادیم سوالات زیر را با حاصل جمع مربوط آن ارتباط دهید و جاهای خالی جمع را پیدا کنید.



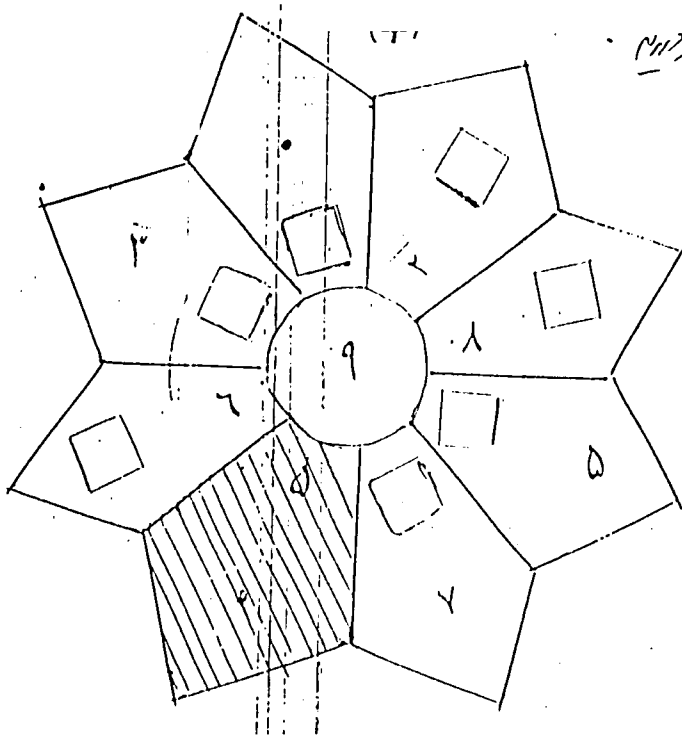
(12)

۱- قصه حضرت

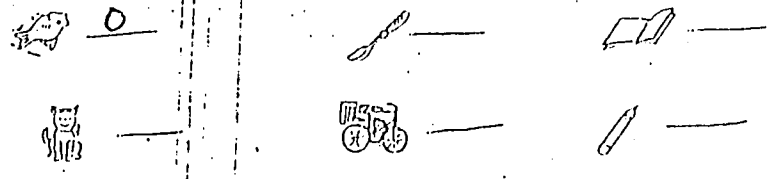
مثال حل شده را دیدیم و بعداد مناسب را در خالیگاه‌های چرخه بنویسید.



۲- مثال حل شده را دیدیم و بعداد مناسب را در خالیگاه چرخه قصه نه تحریر دهید.



به اشکال بالا دیده سوالاتی زیر را مانند مثال حل شده جدول پر کنید که کدام‌یک چند تا است.



... الگوی حل شده فوق را دیده به سوالات زیر به همین شکل جواب بدهید.

۱- اگر ۲ به قاشق‌های بالا زیاد کنیم حالا چند قاشق خواهیم داشت؟

۲- اگر ۳ به چکش‌های بالا زیاد کنیم، حالا چند چکش خواهیم داشت؟

۳- اگر ۴ به کتاب‌های بالا زیاد کنیم جمعاً چند کتاب می‌شود؟

۴- اگر ۵ به گربه‌های بالا زیاد کنیم جمعاً چند گربه می‌شود؟

۵- اگر ۶ به پاپیون‌های بالا زیاد کنیم جمعاً چند پاپیون می‌شود؟

۶- اگر ۷ به ماهی فوق زیاد کنیم جمعاً چند ماهی می‌شود؟

نکته:- سعی باید در سوالات حل شده جواب را در ذهن بگیرید.

تمرین

معلم سوالات ذیل را با آموزنگان مباحثه کنند .

سوال اول : نماز شام سه رکعت فرض ودو رکعت سنت ثبت جمله چند رکعت میشود ؟
جمعه از کدام نماز خوانده می شود ؟ اگر در کجا خوانده شود ثوابش زیاد ثبت ؟
چطور باید خوانده شود ؟

سوال دوم : اگر در یک وقت دو رکعت نماز سنت ودو رکعت نماز فرض خوانده شود جمله چند رکعت نماز میشود ؟ این نماز چه وقت خوانده میشود ؟

سوال سوم : نماز پنجگانه به ترتیب (۴ ، ۱۰ ، ۴ ، ۵ ، ۹) رکعات ثبت .
هرکدام آن نماز چه وقت ثبت ؟
در کجا خوانده میشود ؟
تعداد رکعات کدام نماز ها کم ثبت ؟
تعداد رکعات کدام نماز زیاد ثبت ؟
تعداد رکعات کدام نماز ها باهم مساوی ثبت ؟

سوال چهارم : اگر در یک شاخ درخت (۹) گنجشک نشسته باشد و (۸) گنجشک دیگر پهلویش بنشیند جمله چند گنجشک میشود ؟

سوال پنجم : اگر (۷) دانه آلوبالو در یک شاخ و (۶) دانه آلوبالو در شاخ دیگر درخت باشد جمله چند دانه آلوبالو میشود ؟

کتاب: راهنمای معلم

مقدمه:

این کتاب شامل سه نوع معلومات می باشد که عبارت اند از: معلومات پیشنهادی، معلومات طرز العمل و معلومات تشریحی.

معلمان محترم آگاه هستند که در صورت تدریس هر نوع موضوع باید سه نوع معلومات فوق را در نظر داشته باشد. اکنون تحت عنوان معلمی محترم در مورد سه نوع معلومات ضروری برای مفهوم که ذیلاً تقدیم شده است قدم در پیش گیرید.

مفهوم: عملیات چهارگانه اعداد کل

موضوع: جمع

موضوع فرعی: جمع اعداد از (۰ - ۹)

موضوع های فرعی: درنشتن مفهوم جمع

موضوع های فرعی: خاصیت های جمع

موضوع فرعی: جمع با حاصل جمع

اول: معلومات پیشنهادی: در جمع کردن اعداد از (۰ - ۹) معلمان محترم آگاه هستند که آموزش مفاهیم معلومات پیشنهادی را در مورد مفهوم تجمع باید به شاگردان خود بیاموزند.

الف:- حقایق را درک نماید که مفهوم جمع را در کجا کردن در ترکیب (لست) اشیای همجنس ساده تشکیل میدهد.

ب:- آنها خاصیت کمی تبدیلی و خاصیت حاصل جمع با اشیا، مفهوم را درک کنند.

(۱)

ج :- جهت توجه با دفعات ساختن موضوعات فوق معلم میتواند از وسایل محسوس ساده (مانند لوبیا - دانه حبوبات، سنگریزه و غیره) استفاده کند.

د :- آموزنده گان درک کنند که کار آنها چطور بین اشیا و عدد رابطه پیدا میکند.

ه :- آموزنده گان حقایق اعداد که قبلا آنها را آموخته اند بخاطر داشته باشند و بتوانند در جمع اعداد استفاده کنند.

و :- قوی عدد جمع باید بداند مسئله را درست کرده و اعداد تک رقمی را بشکل آرایش کرده که آموزنده گان عدد کوچک را با عدد کلان جمع کنند:

ز :- معیار که آموزنده گان باید در جمع معیارهای صحیح را بدانند، صحیح نوشتن علامت جمع، استعمال علامات جمع و مساوی در جمع بصورت صحیح بدانند.

ح :- معلم کوشش کند تا آموزنده گان را در رابطه جمع با خود، خانواده و محیط بیرون دلچسپی پیدا کنند.

ط :- اضافات برای معلم متوجه باید بود که آموزنده گان قبل از آمدن به مدرسه با کلمات «و» و «حاصل جمع» در مورد جمع آشنا دارند.

معلم از لغات قبلی آنها استفاده کرده لغات و عبارت های ذیل را به آنها تدریس نماید

الف: عبارت ها: = و +

ب: لغات: جمع، حاصل جمع، جمع شد، اضافه، جمع و نامعلوم

ی :- معلومات پیشنهادی جهت روشنی کردن نوع سوال است. الف: جمع معلوم باشد در جمله اول الف ضمیمه این ماخذ مراجعه شود، در جمله دوم و سوم جمع مجهول باشد.

یعنی آزمایش هنوز بالای مرز تحقیقی باقی مانده تمام وقت است.

لیکن در ممالک پیشرفته عده‌ای از موضوعات فوق آزمایش لوازم ساده، و ادویه پیشرفته باقی مانده ماشین حساب، کمپیوتر دخیل می‌باشد.

نیاز معین گردیده نمایند که آزمونندگان در استفاده از وسایل در حیات روزمره تسلط و توانایی دارند.

جهت بدست آوردن معلومات طرز العمل لطفاً به جدول (ب) ضمیمه این کتاب مراجعه کرده و جدول های مربوطه را در آن پیدا کنید.

دوم: معلومات شرطی:- در این قسمت معلم سعی نماید تا به آزمونده گان تفهیم نماید معلومات پیشنهادی و طرز العمل کدام وسایل کار را ارزیابی (ه - و) یاد گرفته اند (چطور - در کجا و چه وقت) در حیات روزمره گی نمی‌توانند از آن ها استفاده نمایند.

در کجا:- آزمونده گان میتوانند از وسایل در ترتیب خانه، مسجد و بازار در رابطه و فروش آشپزخانه کار برد.

چه وقت:- در چه وقت ضرورت میشود از وسایل استفاده کنند.

چطور:- مطابق به نیاز طوریکه الزام است.

سرفصل‌های درس ... برای اکتشاف کتاب ماخذ علمی معلم

وسیله برای فکر کردن پیرامون دانش و معلومات پیشنهادی و شرطی
که آموزنده‌گان باید آنرا بیاموزند و از آن جهت آنرا باید تدریس کرد ؛

پلان واحد درسی برای کسب و اتمام دانش و معلومات پیشنهادی با رعایت اینکه چه باید تدریس شود ، چطور آنرا تدریس نمود چیز‌ها را باید آموخت ؟ / کدام چیز‌ها را باید تدریس کرد ؟					دانش و معلومات بترفی
لست مفهوم بوضوح و موضوع‌های فرعی که باید آموخت ترتیب نمائید ؟	دانش و مهارتهای بخصوص که در بارهٔ هر موضوع و موضوع فرعی باید تدریس شوند کدام آند ؟	مفهوم را چطور بصورت مستقیم یا غیر مستقیم تجزیه کرد ؟	چطور شاگردان را در باهمی ساختن مفهوم کمک کرد ؟	چگونه آموزنده‌گان را در تنظیم معلومات برای مفهوم کمک کرد ؟	چطور آموزنده‌گان را در انتخاب معلومات و دانش کمک کرد ؟	چطور ، چه وقت و در کجا معلومات پیشنهادی و مهارتها در حیات روزمرهٔ آموزنده‌گان تطبیق خواهد شد ؟
مفهوم : عکاسی یا چیزی شبیه آن موضوع : جمع موضوع‌های فرعی : جمع اعداد کسری (۵ — ۹) خاصیت اعداد کسری حقایق ریاضی جمع جزء نامعلوم جمع	دانستن مفهوم جمع خاصیت سه‌می جمع خاصیت صفر در جمع	مستقیم • اجسام عینی • مدول اشیاء • نقشه و سیر • اعداد غیر مستقیم • خواندن کتاب • دیدن فلم ؟ ی — — ریاضی در صورت امکان	معلم گوشش کند موضوع را طور سوال به آموزنده‌گان مطرح کند مثلاً : اگر یک قلم پنسل دارم و برادرم دو قلم پنسل میدهد داد حالا چند پنسل دارم	معلم تسطیح کنندهٔ عملی باشد که از کتاب رهنمای معلم تهیه شده با آموزنده‌گان مباحثه کند	معلم گوشش کند تجارب ایجاد کند که همه اکثر حواس پنجگانه بکار برود	آموزنده‌گان از مفهوم جمع در وقت ضرورت در ملیه خانه ، مکتب ، بازار ، کشتزار و در خرید و فروش مواد در بازار استفاده کند

وسایل فکر کردن برای اکتشاف کتاب ماخذ علمی معلم که از کتاب بنیاد دوم مربوط موسسهٔ ای - ای - سی - دی اخذ و توسط دالتر . دی . مشتی و عزیزی ترجمه شده است .

مدول آموزش و تمرین برای آشنائی کتاب ماخذ علمی معلم

وسیله برای آموزش و تمرین برای [illegible] و شروع آموزندگان باید آنرا بیاموزند و بداند درباره آنچه که باید تدریس کرد

چطور، چه وقت و در کجا معلومات طرز التعلیمی در حیات روزمره آموزندگان تطبیق میگردد ...	پلان واحد درسی برای کسب و اتمام معلومات طرز التعلیمی با ارتباط آنچه تدریس میشود، چطور باید آموزانده تدریس شود.		
	چطور آموزندگان در اثر خود ساختن مهارتها و طرز العملها کمک شوند؟	چطور آموزندگان در شناختن مهارتها و طرز العملها کمک شوند؟	کدام مهارتها و طرز العملها در رابطه با محتوم انتخاب شده موضوع و موضوع های فرعی مربوط تدریس باید شود؟
آموزنده چنان مهارت ها را در وقت حل سوالات در مکتب خانه و یا در بکار برد بتواند مهارت ها قدم به قدم مراحل سوالات ها در حیات روزمره بکار ببرد.	معلم سعی کند تا آموزندگان ستراتیژی فکر کردن انفرادی : دونیزی و مباحثه فنی را (T.P.S) را در مورد ... خاصیت های تبدیلی وصفر و جزء نامعلوم بکار برد. مهارت های جدید مستوق اول را مستوق و تمرین کند. معلم اشتباهات محتوی آموزندگان را صحیح نماید.	اصل شی و یا مودل تهیه شده را دوباره بررسی کنند که آیا جوابگوی مفهوم ... خاصیت های ... میتواند یا خیر؟ اگر نباشد مواد دیگر انتخاب کنند معلم کمک خواهد کرد تا آموزنده ... سوالات ماشد: درسوال 2+6 اگر حرف 2 بمعنی 7 باشد چه خواهد شد و اگر جای 2 و 6 باهم عوض شود چه خواهد شد جواب دهند	بسعی کنند تا اصل شی یا مودل تهیه شده را توضیح دهند که مفهوم ... را واضح سازد طرز العمل ... کردن مثلاً: عدد کوچک بر عدد بزرگ قدم به قدم زیاد شود و حاصل ... در دفتر نوشته شود
			مهارت ها در رابطه با ... خواندن و نوشتن ... خاصیت تبدیلی خاصیت صفر جزء نامعلوم ... در مهارت های ذیل را تکمیل شود خواندن، نوشتن، درک کردن عمل کردن، تحلیل کردن ترکیب کردن و ارزیابی کردن

وسایل فوکوس کردن برای آشنائی کتاب ماخذ علمی معلم که از کتاب بعد دوم مربوط مرحله ای - تی - سی - دی اخذ و توسط دانتر دی - شتی و شرزی تحریر شده است

ماخذ؛

۱- چارلس دی۔ اگستن تدریس ریاضی مکاتب ابتدائی سال 1992

2- کریک شان و شفیلد تدریس ریاضی به اطفال مکاتب ابتدائی سال 1988

3- دونالد ف۔ دی و جی ای کوف میں ریاضی ابتدائی برای معلمان سال 1976

4- انجمن ملی معلمان ریاضی معیارها برای تدریس ریاضی سال 1976

5- سلور برایت وگین کشف ریاضی دنیای شما سال 1980

6- محترم شاهمحمد، قادری عبدالوحید دری دریاضی برای صنف اول سال 1992

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Mathematics

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Mr. A. K. Azizi	Mr. Mohammed Ishaq

Mathematics
Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**2:**	**Whole Number Operations**
Topic	**2.1:**	**Addition (0-49)**
SubTopic	**2.1.5:**	**Column & Horizontal Addition (1 & 2) and (2 & 2) digit without regrouping**
SubTopic	**2.1.9:**	**Mental Addition**
SubTopic	**2.1.11**	**Assessment**

Index:

2-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

2-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

2-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

2-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

2-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

OVERVIEW: 4 MAT Form O

Subject: Mathematics **Grade Level:** One

Concept: Whole Number Operation **Topic:** Addition of whole Numbers from (0-50) Without carrying

Complete overview contents as a guide before creating the 4 MAT lesson plan.

Overview content: Aims, Goals as Intended outcome.

Understanding the concept of whole Number addition from (0-50). In addition of Numbers - one digit with two digits, two digits with two digits, without carrying and order property with reading and writing statements and their application in their daily life. Use this form to make index of items in each category. After creating 4 MAT lesson plan.

Brief Objective Index:

Quadrants	Segments	Brief out come
Q1-R-M	A	The learners connect their previous information about adding Numbers (0-9) without regrouping.
Q1-L-M	B	The learners examine adding whole Numbers (0-9) which are without regrouping from (0-9).
Q2-R-M	C	The learners analyze experiment of whole Numbers (0-9) without regrouping.
Q2-L-M	D	The learners define adding one digit Number with two digits form (0-9) and changing property of zero.
Q3-L-M	E	The learners exercise zero property with the concept of whole number.
Q3-R-M	F	The learners add own experience in order to add numbers (0-50) and zero properties.
Q4-L-M	G	The learners complete adding whole numbers by using examples without regrouping numbers.
Q4-R-M	H	Learners apply information (0-50) in their daily life.

Activity Index:

Quadrants	Segments	Summary of Activities
Q1-R-M	A	The teacher creates experiment to encourage the learners.
Q1-L-M	B	The teacher divides the classroom to groups in order to work together in activity.
Q2-R-M	C	Recognition of ones and tens by using concrete examples.
Q2-L-M	D	The teacher uses concrete question in order to teach adding numbers (0-50).
Q3-L-M	E	The learners solve aquired concept.
Q3-R-M	F	The learners add own experience dealing with adding numbers.
Q4-L-M	G	The questions are risen by the learners, is answered by the teacher and learners.
Q4-R-M	H	The learners apply addition operation in their daily life.

Teaching Method -Strategy, Technique

Quadrants	Segments	Method	Strategy	Technique
Q1-R-M	A	Discussion	Questioning	Manipulating
Q1-L-M	B	//	Group work	Practicing
Q2-R-M	C	Information	Questioning	Bridging
Q2-L-M	D	//	Physical model	Physical-model
Q3-L-M	E	Coaching	Exprimention	Questioning
Q3-R-M	F	//	Analyzing	//
Q4-L-M	G	Self-development	Combination	Questioning
Q4-R-M	H	//	Think-pair-shar	//

Material Index:

Quadrants	Segments	Materials
Q1-R-M	A	Leaves, pens, Pictures, Physical Models
Q1-L-M	B	Environmental materials, graveles-Pens, pictures.
Q2-R-M	C	Environmental materials wooden stick, leaves pen gravels picture.
Q2-L-M	D	Environmental materials graveles, bundles, sticks, physical models.
Q3-L-M	E	Environmental materials eraser, chalk, graveles, bages, etc.
Q3-R-M	F	Environmental materials eraser, chalk, graveles, bages, etc.
Q4-L-M	G	Environmental materials eraser, chalk, graveles, bages, etc.
Q4-R-M	H	Environmental materials eraser, chalk, graveles, bages, etc.

Index of Strategies and Techniques of Evaluation:

Quadrants	Segments	Evaluation
Q1-R-M	A	Have the Learners recognized ones and tens?
Q1-L-M	B	Can the learners connect bundels with numbers or not?
Q2-R-M	C	Have the learners recognized Ones and Tens or not?
Q2-L-M	D	The learners are evaluated whether they can add One digit number with two digits-without regrouping.
Q3-L-M	E	The teacher evaluates the learners by observation, quiz, questioning and answering.
Q3-R-M	F	The teachers must evaluate learners, by asking, questions and practical work.
Q4-L-M	G	The teacher evaluates learners activity and correct mistakes whenever is necessary is required.
Q4-R-M	H	The teachers evaluates whether the learners can apply addition of whole numbers in their daily life.


لا إله إلا الله محمد رسول الله

Handout 10: :10 هندوت قابل توزیع

Concept Unit: مفهوم درس عملیات چهارگانه اعداد کل

Topic/Subtopic Index: فهرست الفبائی عنوان/عنوان فرعی

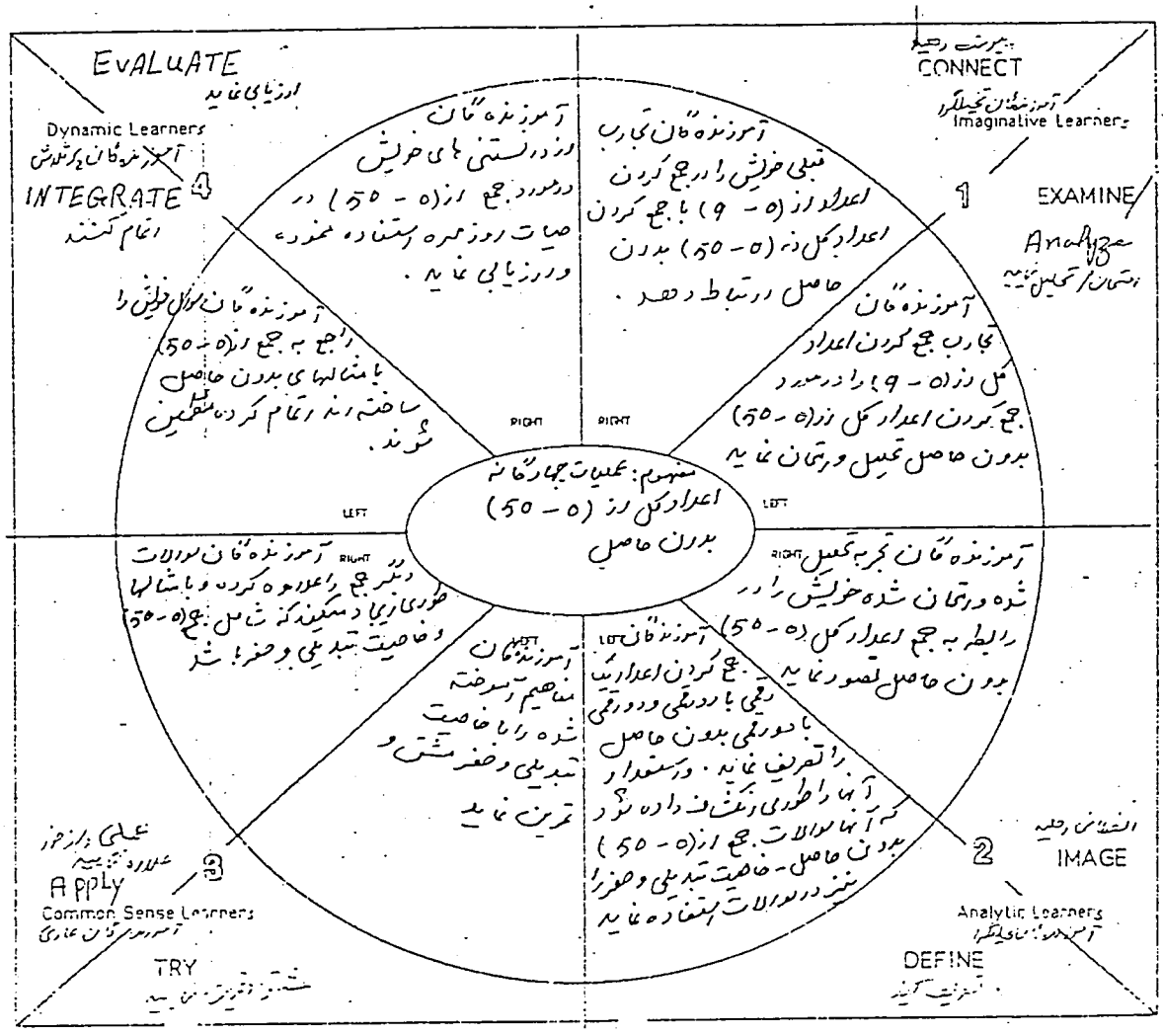
جمع اعداد کل از (۵ - ۵۰) بدون حاصل

Date: 15-6-93 تاریخ

Author/Authors: مؤلف/مؤلفان

محمد سخی (محمودی)

مدت زمان تدریس: یک هفته



آموزنده تحلیلگرا: فرم الف فرصت

مقصود: ریاضی صنف: اول

مفهوم: عملیات جمع اعداد کل مرتبط صدگان: جمع عنوان فرعی: جمع اعداد کل از (۵ - ۵۵)

ربع اول: [تصرف عینی درک میکنند: از طریق مشاهده انتخابی عمل میکنند] آخرین جای برای آموزنده تحلیلگرا تجربه را به خود به انجام میرسانند. به معنی شخصی علاقمند بیشند - معلم دلیلی را ایجاد میکنند به سوال آموزنده چرا من این را باید یاد بگیرم؟ ... جواب میدهد

نقش معلم: تشویق کننده: مشورت و همکاری جهت تشویق. ارتباط با آموزنده برای تحلیل، آشکار، تشریک مساعی برای یکدیگر معلم مشترکاً

ربع اول ... مورد است:

نتیجه مطلوب: آموزنده گان تجارب قبلی خویش را در جمع اعداد کل از (۵ - ۵۵) را مورد مشاهده با جمع اعداد (۵ - ۵۵) ارتباط دهند.

فعالیت: ① معلم در دو چوک را به آموزنده گان نشان داده می پرسد این چیست؟ چند عدد در هر چوک میباشد؟ عدد بزرگتر به ۹ و ۱۰ یکدام در یا خیر؟ چند دانه در هر چوک میشود؟ اگر ده چوک را یکجا کنیم چه نام یاد کنیم؟ (پنجاه)

② عدد ۳۵ را بالای تخته نوشته و از آموزنده گان پرسد این عدد ۳۵ چند میشود؟ رقم (۵) چند ارزش دارد؟ (۳۰) چند ارزش دارد؟ (۵) در کجا قرار دارد؟

③ در عدد (۳۵) چند ده است؟ چند یک است؟ ترتیب دهید و بصورت مختصر چند شمال گردد. البته با مثال

④ معلم مثال های کتاب درسی را بالای آموزنده گان گذاشته و بعد از هدایت دهد که آموزنده گان صفحه را صورت تکمیل نمایند.

مهارت های فن تدریس، استراتیجی ها و تکنیک ها: متعدد: مباحثه

استراتیجی: سوال کردن

تکنیک: عمل بازدی مواد درسی کار کردن

مواد مورد استعمال یا ابکار شده: مواد ساده محیطی مانند: چوبکی، سنگچل

ارزیابی: آیا آموزنده گان یکها و دهها را شناخته میتوانند یا خیر؟

آموزنده تخیلگرا: مدرسه (ب)، فرودست:

مضمون: ریاضی صنف: اول

مفهوم: عملیات چهارگانه اعداد کامل، موضوع: عنوان: جمع عنوان فرعی: جمع اعداد کامل از (۵ ـ ۵۰ تا)

ربع اول [بصورت عینی درک میکنند: از طریق مشاهده انعکاسی عمل میکنند] را اینجا جای برای آموزندگان تخیلگرا تجربه خود ارتباط میدهد به معنی شخصی علاقمند هستند معلم یک دلیل را ایجاد میکنند جهت سوال «چرا» من اینرا باید بیاموزم برای آموزندگان ارائه میگردد.

نقش معلم: تشویق کننده میشود. مواد مورد استعمال: تمثیل جهت تشویق کردن. اولیا، نظریات برای تحلیل ابتکار شریک ساختن. ایجاد یک تجربه. فعالیت معلم بیشتر است

ربع اول مود چپ

نتیجه مطلوب: آموزندگان فعالیتهای یاد شده قبلی را از (۵ ـ ۵۰) را تحلیل و ربط آن نموده بصورت مستقیم مورد استفاده قرار دهد.

فعالیت: معلم آموزندگان را به گروپهای (6) نفری تقسیم نموده سوالات مانند 2+1 را به هر گروپ داده تا از خط یکها و ده کها را بینید اگر ده و بصورت کتبی اعداد که نها را خوانده بتوانند متوجه در سوال: /// ||||| ||||| ||||| ||||| بشکل ۲ و صورتها (۳) ده و (۳) یک نشان میدهد و ۴۳ حلقه توسط تیر ... با جمع و تفریق نماید

معلم نظارت و کمک دری نماید و نتیجه کار گروپها را هر آموزنده گان با دوی گرفته کمک نماید.

بعداً سوالات 2+ را هر یک آموزنده گان کار نماید.

میتودهای فن تدریس، استراتیژی ها و تکنیک ها:

میتود: مباحثه

استراتیژی: گروپی تکنیک: عمل کرد کار گروپی

مواد مورد استعمال یا ایجاد شده: مواد ساده محیطی مانند: پنسل، قلم، چوبها، تصاویر وغیره

ارزیابی: آیا آموزنده گان اعداد را با پنسل ها ارتباط و مطابقت داده میتوانند یا خیر

آموزنده گرامی: فرم سه جزئی فوق است

مضمون: ریاضی صنف: اول

مفهوم عملیات جمع: جمع اعداد کل از (۵ - ۵۰)

مفهوم: عملیات جمع، جمع اعداد کل موضوع: عنوان: جمع عنوان فرعی: جمع اعداد کل از (۵ - ۵۰)

ربع دوم [تجرد] درک میکنید عملیات ارتماشی شده منعکس میشازد. و احسن چای بروی آموزگان تحلیلگرا حقایق را مانند متخصصین مشاهده و آنرا عمل میتابند. آنرا برای شان تدریس میکنند

جواب به سوال چه؟ نقش معلم: معلومات دهنده. متود مورد استعمال: معلومات تنظیم مفهوم

انعکاسات را با مفاهیم یکجای میتابند: فعالیت معلم بیشتر است تجربه ایجاد شده را تحلیل میتابند

.....

ربع دوم - مورد است

نتیجه مطلوب: آموزنده گان تجربه تمیل شده و توان ندی خود را در اجمع اعداد کل از (۵ - ۵۰) بدون حاصل را منعکس سازد

.....

فعالیت: معلم پیشنهاد از مثالهای ۳ کتاب درسی شاگرد والات ذیل را جمع سازد

۱- گهردریس عدد ۴۶ را بالای تخته نوشته کند و بگوید که رقم ۶ چند واحد و رقم ۴ چند را نشان میدهد و آنها را در جدول یکها و دهها نشان دهید.

۲- دادو اگر در خانه یکها رقم ۵ و در خانه دهها رقم ۳ بنویسد حالا عدد آنرا بشمار جدول رقم بنویسید

به همین طرز چند سوال مجموعی آموزنده گان مارخوده صنف تهیه دریس خود آنها کار کنند

درحالت لزوم از آموزنده گان کارخانه تمی مدهد

.....

متودهای فن تدریس: تجربی ها و تکنیک ها: متود: معلومات

استعدادیکی: سوال کردن

تکنیک: اتصال

مواد مورد استعمال یا ایجاد شده: مواد ساده محیطی مانند: چوب یکه - برگهای

ملم؟ - حنکچل - تخته و غیره

.....

ارزیابی آیا آموزنده گان یکها و دهها را شناخته اند یا خیر

.....

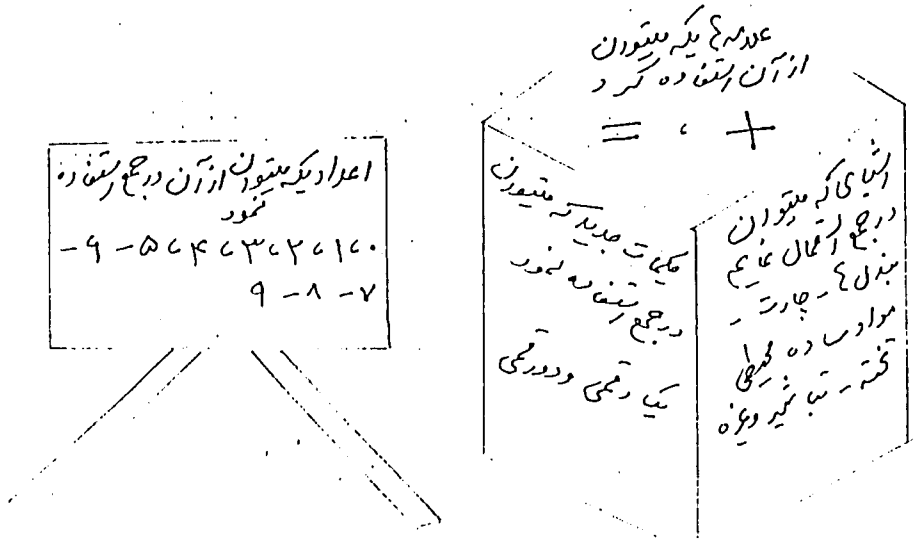
تنظیم کننده قبلی جهت شناخت لغات ریاضی در جمع

معلم تنظیم کننده قبلی ذیل را بالای تخته فلانلی نصب و محتویات آنرا که عبارت از: ۱- تعدادی اشیاء، کلمات، علامه‌ها، و اعدادی که از آن در جمع استفاده میشود. ۲) با آموزنده گان مباحثه و مذاکره نماید و معلم با آموزنده گان کمک نماید تا آنها بتوانند بخاطر بسپارند که چطور کلمات و سمبول‌های عددی جمع کردن اعداد یک رقمی با دو رقمی و دو رقمی با دو رقمی یکی بعد دیگر میرود و بالاخره آنها با یکدیگر چطور ارتباط دارند؟

ترتیب کننده قبلی به آموزنده گان کمک نماید تا آنها یک، دو، سه، ... تشخیص نمودن و معلم هر بخش تنظیم کننده قبلی را جدا جدا به آموزنده گان بحث کند و واضح نماید.

معلم آموزنده گان را کمک نماید تا آنها با استفاده از طوطی دماغی (مشق) در مورد کلمات و اعداد و سمبول‌ها فکر کنند.

والسلام



آموزنده‌ی تحلیلگرا: [illegible]

مضمون: ریاضی صنف: اول

موضوع: عملیات جمع و تفریق اعداد کل از (0 - 50) عنوان فرعی: جمع اعداد کل از (0 - 50)

درس دوم: بصورت مجرد درک میکنند عملیه را توسط شاخص معرفی شده متوجه میشوند. در آخرین جمله برای آموزنده‌گان تحلیلگرا حقایق را مانند مشخصات شاخص معرفی شده و آنرا عمل میتاینند. آنرا برای ایشان تدریس میکنند. جواب به سوال (چه؟)، نفس معلم: معلومات دهنده، متود مورد استعمال: معلومات نظیم مفهوم، انکشافات را باهم ربط میتاینند: تجربه ایجاد شده را تحلیل میتاینند

درس دوم - مورد چهارم

نتیجه مطلوب: آموزنده‌گان باید: ① درستی مفهوم جمع اعداد یک رقمی با دو رقمی و دو رقمی با دو رقمی بدون حاصل را توضیح و جمع کرده بتوانند ② جمع متوالی و خاصیت صفر را در جمع اعداد (0 - 50) را بدانند ③ سوالات فوق را در حیات روزمره (مثلاً وقت عدد کی) استعمال نمایند

فعالیت: معلم سوال 21 + 2 را روی تخته نوشته و از آموزنده‌گان میپرسد ① کی گفته میتوانید که عدد (21) چند رقمی است؟ عدد (2) چند رقمی است؟ از دو عدد چند رقمی یا چند رقمی جمع میشود؟ معلم متوجه میشود سوال ها ی مانند خوش یا از کجا سوال 22 + 12 = 34 معلم جهت آموزنده‌گان توضیح میدهد ② چند عدد را میتوانید که در سوالات مانند 25 + 13 = 38 و 27 + 12 = 39 را رد و آموزنده‌گان میپرسد ③ این دو سوال در چه فرق دارد ④ چند رقمی با چند رقمی جمع میشود؟ در قسمت سوالات 12 + 22 و 22 + 12 آموزنده‌گان تشریح کرده و ⑤ معلم صفحه کتاب را دوبار در آموزنده‌گان میدهد

متودهای فن تدریس، استراتیجی ها و تکنیک ها: متود: معلوماتی

استراتیجی: سوال و جواب ی فرعی

تکنیک: عمل کردن توسط سوال و جواب ی فرعی

مواد مورد استعمال یا ابتکار شده: مواد محیطی مانند: سنگچل، چوب، بلکبورد، بند و استعمال سوال های فرعی و غیره

ارزیابی: ارزیابی شود که آیا آموزنده‌گان جمع اعداد یک رقمی با دو رقمی و دو رقمی با دو رقمی بدون حاصل (صفر - 50) و خاصیت تبدیلی و صفر را درست میتوانند یا خیر؟

آموزنده گان عادی: دوره هفتم

مضمون: ریاضی صنف: اول

موضوع: عملیات جمع و تفریق اعداد کسری مخرج مشترک عنوان: جمع عنوان فرعی: جمع اعداد کسری از (۵-۵۰)

اهداف سوم [معتبر مجرد درک میشوند: عملیه را از طریق تجارب عملی اجرا مینمایند. آموزنده گان عادی. ایشان مشق میکنند و بخود ارتباط میدهند. به تجارب عملی توجه مینمایند. برای شان موقع داده میشود تا مفهوم را بیاموزند. جواب به سوال " این مفهوم چطور کار میکند؟ " نقش معلم - رهنمائی و فراهم آوری تشریحات. مینود مورد استعمال (فراهم آوری شرایط ، ذکر و مفاهیم داده شده (تاکید روی فاکتور عملی) را کار ببرد. شاگرد ، بیشتر مثال میکشند

ربع سوم مورچپ

نتیجه مطلوب: به آموزنده گان موقع داده شود تا عملیات جمع اعداد کسری از (۵-۵۰) بدون حاصل حاصیت صورت و تبدیلی را مشق و تمرین نمایند

ملاحظات: معلم قدرت مشق و تمرین جمع اعداد یکدرقمی با دو رقمی و دو رقمی با دو رقمی بدون حاصل چنین فعالیتها را انجام دهد

(1) جمله سوال $\frac{3}{5} + \frac{1}{5}$ و معادل $\frac{4}{5}$ که جمع میشود؟

(2) $\frac{2}{12} + \frac{7}{12}$ چه قسم و $\frac{1}{4} + \frac{2}{4}$ چگونه سوال کرده میتوانیم؟ فرق هم مخرج و فرق داده

(3) معلم مثال حل شده $\frac{2}{5} + \frac{4}{5}$ بالای تخته مینویسد یکی از آموزنده گان حل مینماید. بعد آموزنده گان جدول تکمیل مانند ۳۰، ۳۷، ۳۹، ۲۹ را با تغییر دادن مثال مرتب کنند و متوجه شوند که چطور به تغییر بعد سر کرد چطور صحیح آن تدریس است که چطور آن را پیروی بکنند.

معلم به آموزنده گان فرصت میدهد تا به سوالات ۵ الی ۱۰ کتاب درسی را حل و تمرین نمایند و معلم از کار آموزنده گان مراقبت نماید. در صورت لزوم با آنها کمک نماید. و در صورت بعد دوم به آنها رهنمائی بدهد

منبعد های تدریس: آسانجی ها و تکنیک ها: منبعد: فراهم آوری شرایط برای آموزنده گان

تشویق: مشق و تمرین

تکنیک: سوال کردن

مواد مورد استعمال با انجام دادن مواد ساده محلی مانند: تخته تباشیر

چوبکها - سنجاق و غیره

ارزیابی: معلم توسط سوال هدف - رفتار صنفی - و کردار و چطور کار آموزنده گان را بررسی مینماید

آموزنده گان عادی دوره سوم و دوم دوست

مضمون: ریاضی صنف: اول

مفهوم عملیات جمع گانه اعداد کلی مروجه عنوان: جمع عنوان فرعی: جمع اعداد کلی از (۵-۵۰)
رابع سوم المجموعه مجرد در میسینه: عملیه را از طریق مثال معده متعلق بیاموزد و به آسانی جمع
برای آموزنده گان عادی تمرین مشق و تجوید ارتباط میدهند. متکی به تجربه عملی پیشانه. بگذارید
که آنرا انجام دهند. جواب به سوال: (این چطور کار میکنند؟) نقش معلم: راهنمائی و یا
خود هم آموزش میدهد. مواد مورد استعمال: خود معلم آموزش میدهد. از خود چیزی علاوه میکنند
شاگردان بیشتر فعال اند.

رابع سوم — مواد درسی

نتیجه مطلب: آموزنده گان باید مفهوم جمع اعداد کلی از (۵-۵۰) بدون حاصل
را کمیتی و قرین خرده را تندرز و هیت معنی درک کرده و در را طرح با آن قدرت
تصور نمایی از خود ساخته باشد.

فعالیت: آموزنده گان متعدد به کمک معلم سوالات جمع اعداد یک رقمی و دو رقمی بدون حاصل را حل
و تمرین میکنند. مثلاً یکی از متعلمین به رفیق همدرس خود چنین سوال میکند.
① — وگر شما بالای تخته ۴۲ + را بنویسید و بگوئید که رقم ۳ و ۹ چه است و رقم ۴ چه است
و کدام با کدام جمع میشود تصحیح نماید. ② محمود از شما چنین سوال میکند که ۴۲ + را
در حاصل جمع کدام رقم قید میباید و یا چرا؟ معلم متعلم را آموزنده گان کمک نماید تا بتوانند سوالات
مانند صفحه را چنین حل نماید: مثلاً ۳۵ + را بالای تخته نوشته رقم یکی را آموزنده گان حل نماید
و در دو لحظه تخته جدید آن را بنویسد و حل سوال را با آن مرتبط و مرتبط بدهد
سوالات باقی مانده صفحه کتاب را نخست شاگردان حل شده تا توسط آموزنده گان حل سوال شود

متود ها و فن تدریس، استراتیژی ها و تکنیک ها: متود: فراگیر انفرادی پیمانه برای آموزنده گان
پسکولوژیکی: تحلیل و تجزیه
تکنیک: سوال کردن

مواد مورد استعمال یا ابزار: مواد ساده محیطی مانند: تخته سیاه
چوب دستی — جزوه — جنتکل و غیره

ارزیابی: معلم باید توسط سوال و جواب ارزیابی عملی آموزنده گان را
ارزیابی نماید.

آموزندگان پیرتلاش فرم‌ساز فرم‌ست

مضمون: ریاضی صنف: اول

مفهوم: عملیات جمع با کاربرد اعداد در زندگی موضوع: عنوان فرعی: جمع اعداد کمتر از (۵-۵۰)

ربع چهارم: تصور عینی در سلسله از طریق تجربه فعال عمل را متعلق بیشتر زد. در آخرین جای برای آموزندگان پیرتلاش. تأثیر به انجام یک عمل یا یک چیز در تدریس. مفهوم را خود تدریس و با دیگران درمیان میگذارد. سئوالات را جواب میدهند. مفهوم چه شد؟ میتوانند و یا از این مفهوم چیزی خنثی میتوانند؟ نقش معلم: ارزیابی کننده و یا رهنمائی کننده. میتواند (انگشت فروبرد) مفهوم را خودشان تعیین میکنند مفید بودن چیست و کجا میتوانند از آن استفاده کنند. در آموزش آینده بیشتر تشویق و تجاوب را انجام میکنند تا گروهان بیشتر فعال باشند

ربع چهارم — مورد چهارم

نتیجه مطلوب: آموزنده گان سوالهای که راجع به جمع خودش خواسته اند آنها را از خودش خواسته و انجام بدهد و محاسبه میکنند که آیا جمع اعداد یک رقمی مرا تا دو رقمی و دو رقمی را با دو رقمی آیا موفق شده اند یا خیر؟

فعالیت: مراحلی که توسط آموزنده گان تهیه شده آنرا ترکیب و به معلم خود ارایه گفته میتوانند

مرحله: ① اگر شما محدود سوال میکنید که (۱۶) عدد سیب بودیم و (۱۱) عدد سیب گاهی دیگر داریم چند سیب داریم؟

آموزنده گان سوالات خودش را توسط استدلال کلامی ذهنی و اعداد آنرا حل نماید. به همین ترتیب یک آموزنده دیگر آموزنده دیگر سوالات کتاب سوالی کتاب حل نماید. مشورت میکنند از آموزنده گان قضیه شده (۱۱) را حاضر شده که کتاب را بررسی نموده و آنرا به حل صفحات خود فرم ساز بفرستد حل نماید

معلم کار آنها را بررسی نموده و تشویق و تمرین نماید.

میتودهای فن تدریس، تکنیک ها و تکنیک ها: مباحثه، روشن خودی

استدلالی: ترکیب

تکنیک: سوال و جواب

مواد مورد استعمال یا ابتکار شده: مواد درسی (وسیلی): تخته، گچ، کتابها

تمام ع — فرمی

ارزیابی: معلم فعالیت های آموزنده گان را بررسی کرده و همکاری نماید و در موقعیت لازم اصلاح نماید.

آموزندگان پیرتلاش فرم شماره (۲) فهرست

مقدمه: ریاضی صنف: اول

مفهوم: عملیات جمع و تفریق اعداد کمتر از ۱۰ عنوان درس: جمع عنوان فرعی: جمع اعداد کمتر از (۵ - ۵۰)

رابع ۴ رام التصویر عینی درک میکنند: از طریق تجربه فعال عمل میکنند با آسیرین جاگزین

آموزندگان پیرتلاش. در اجرای عمل دیا در انجام یک چیز توجه میدارند. بخود و تدریس نموده و یا دیگران آنرا تفهیم میسازند. جواب سوالات ((مفهوم چه شد میتوانید؟)) ((یا از این درس چه چیز فهمیدم؟))

نقش معلم: ارزیابی کننده و اصلاح کننده. میتود: ((استقرای خودی)) تشویق خودکار اهمیت مفهومیت مفاهیم تحلیل و تشکیل پایه های آموزش بینشی آینده را تهیه اب گذاری میکنند. آموزندگان نهایت فعال بوده خودشان انجام عمل میتوانند یا دیگران تفهیم میتوانند که آنها چه میکنند

رابع چهارم - مهارت

نتیجه مطلب: آموزندگان از درستی های خویش در مورد جمع اعداد کمتر از (۵ - ۵۰) واقعیات روزمره آگاه شده که مقدمه کار آنها است در آموزش عمل منهدم کنندگان را نیز تهدید تدریجی میکند

مدایت: درین قسمت معلم از ستراتیجی T.P.S «تفکر یک نفر - دو نفر - چهار نفر» استفاده کند متوجه باشد که سوال ۲۵ + ۱۲ حل نمایند

① اگر آنها به طور زیر فکر میکنند؟ ② آنها بر خلاف چه طور فکر کنند

سوال ۲۵ + ۱۲ حل نمایند یا پرسیده از بندگان حل نمایند

حل اولیت جمع کردن را مکلدوم طرائقه فوق آموزنده گان خود میدهد

(اصل شی - تعداد دیر - سول - تمدول عددی)

جمع اعداد آموخته شده را در واقعیات روزمره (خانه - مکتب - بازار) تطبیق و تشدید نمایند

دقایق ۸ که به درسی آموزندگان را هر روز آغاز میکند

مهارت های فن تدریس: ستراتیجی ها و تکنیک ها: متود: تفکر خودی

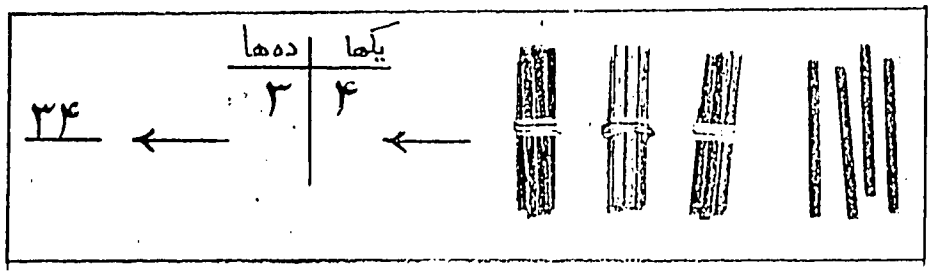
ستراتیجی: (T.P.S) - فکر کردن خودی - دو نفری - تمام صنف

تکنیک: سوال و جواب

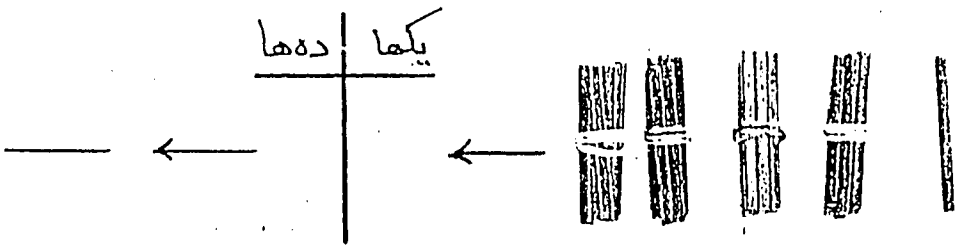
مواد مورد استعمال یا ایجاد شده: مواد ساده محیطی: مانند تخته سیاه

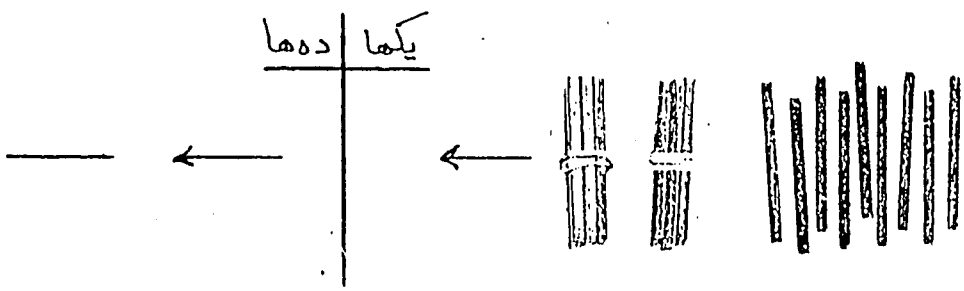
چوبکها - حاصل و جمع نمودن

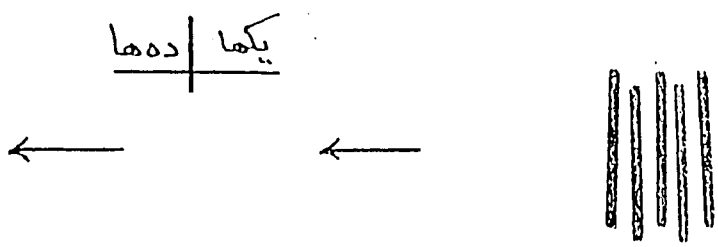
ارزیابی معلم باید ارزیابی نماید که آیا آموزندگان جمع اعداد کمتر از (۵ - ۵۰) را در حیات روزمره شان تطبیق نموده و در حس حرکتی نمایند و یا خیر؟



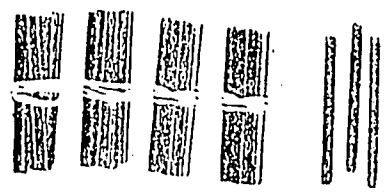
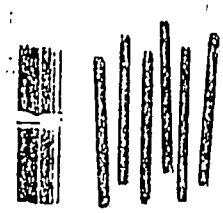
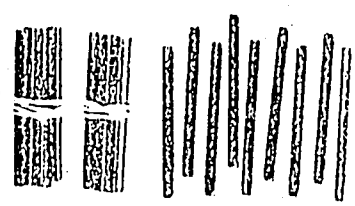
مثال فوق را دیده سوالهای ذیل را مانند آن تکمیل کنید.

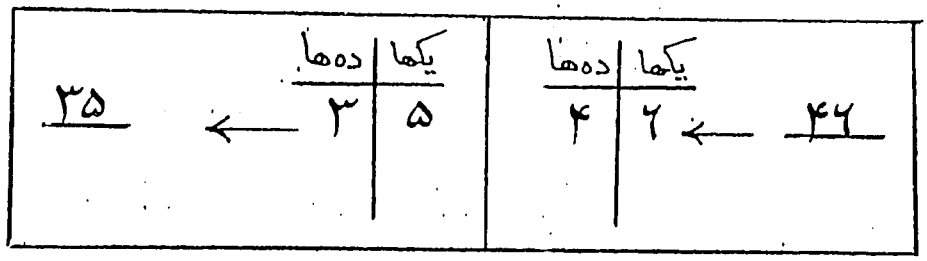




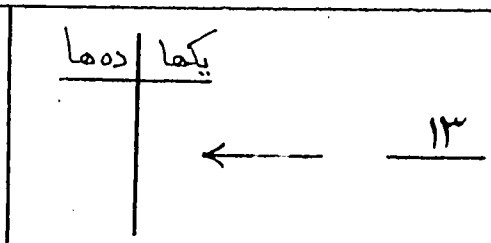


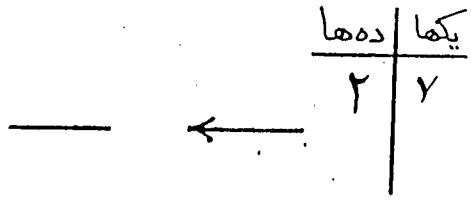
مثال حل شده را دیده سوالهای دیگر را تکمیل کنید.

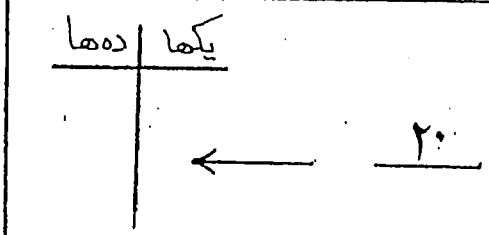
۱ده و ۶ یک		۴۳
۳ده و ۵ یک		۱۶
۲ده و ۹ یک		۳۵
۴ده و ۳ یک		۲۹

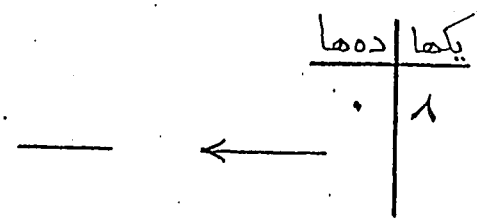


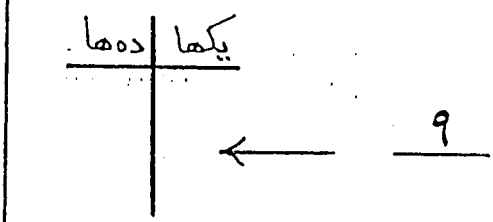
مثالهای فوق را دیده و سوال‌های ذیل را مانند آنها تکمیل کنید.

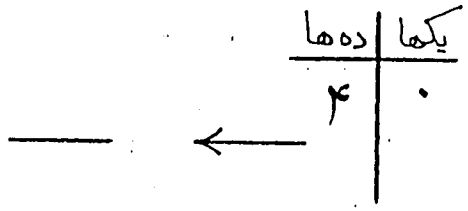


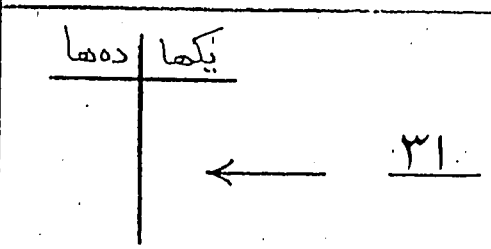


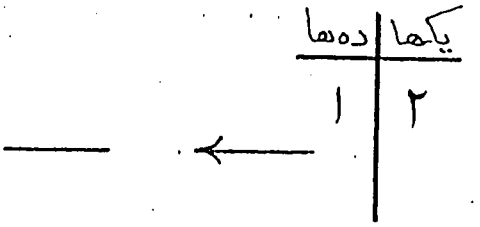


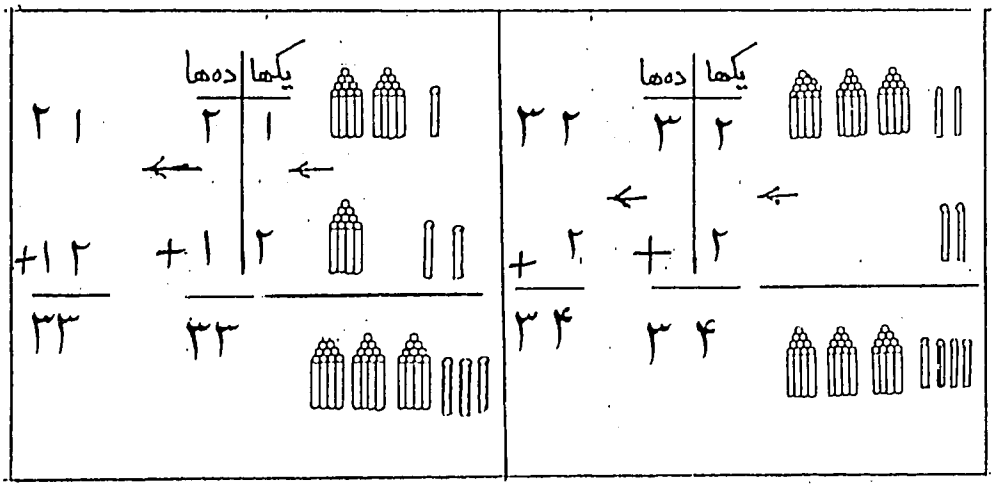












$$\begin{array}{r} ۳۵ \\ +\ \ ۲ \\ \hline \end{array}$$

$$\begin{array}{r} ۴۰ \\ +\ ۲۵ \\ \hline \end{array}$$

$$\begin{array}{r} ۲۷ \\ +\ \ ۰ \\ \hline \end{array}$$

$$\begin{array}{r} ۱۶ \\ +\ ۱۳ \\ \hline \end{array}$$

$$\begin{array}{r} ۱۲ \\ +\ \ ۲ \\ \hline \end{array}$$

$$\begin{array}{r} ۳۱ \\ +\ ۲۸ \\ \hline \end{array}$$

$$\begin{array}{r} ۴۳ \\ +\ ۲۴ \\ \hline \end{array}$$

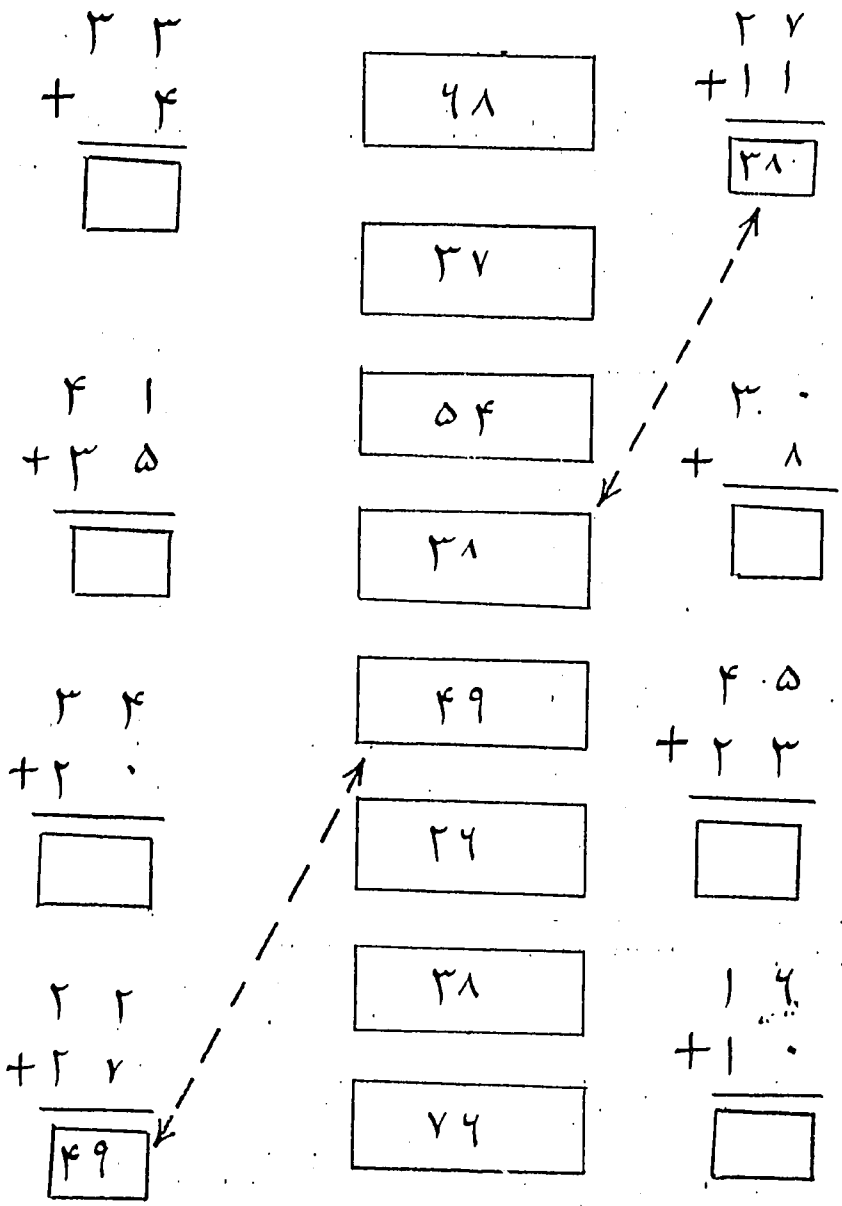
$$\begin{array}{r} ۲۲ \\ +\ \ ۴ \\ \hline \end{array}$$

۳۱ + ۷ ۲۸ ((۳۸)) ۳۹	۲۴ +۱۵ ۴۹ ((۳۹)) ۲۹

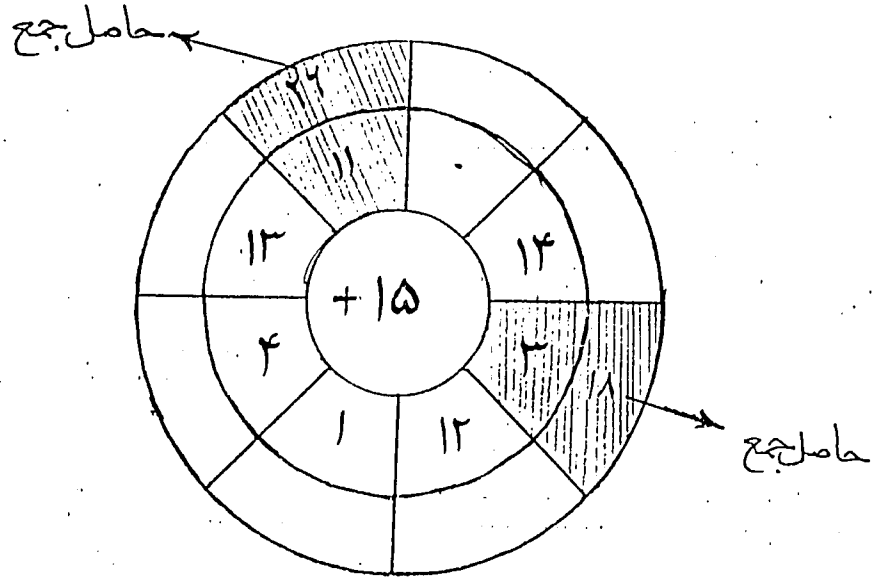
مثال‌های فوق را دیده، جواب صحیح هر سوال ذیل را دایره بکشید.

۴۱ + ۵ ۴۶ ۳۶ ۴۷	۳۳ +۲۱ ۶۴ ۵۵ ۵۴
۳۰ + ۹ ۲۹ ۳۹ ۳۸	۲۳ +۱۳ ۳۵ ۳۷ ۳۶
۲۷ + ۰ ۳۷ ۲۷ ۴۷	۴۷ +۲۱ ۶۹ ۷۹ ۶۸

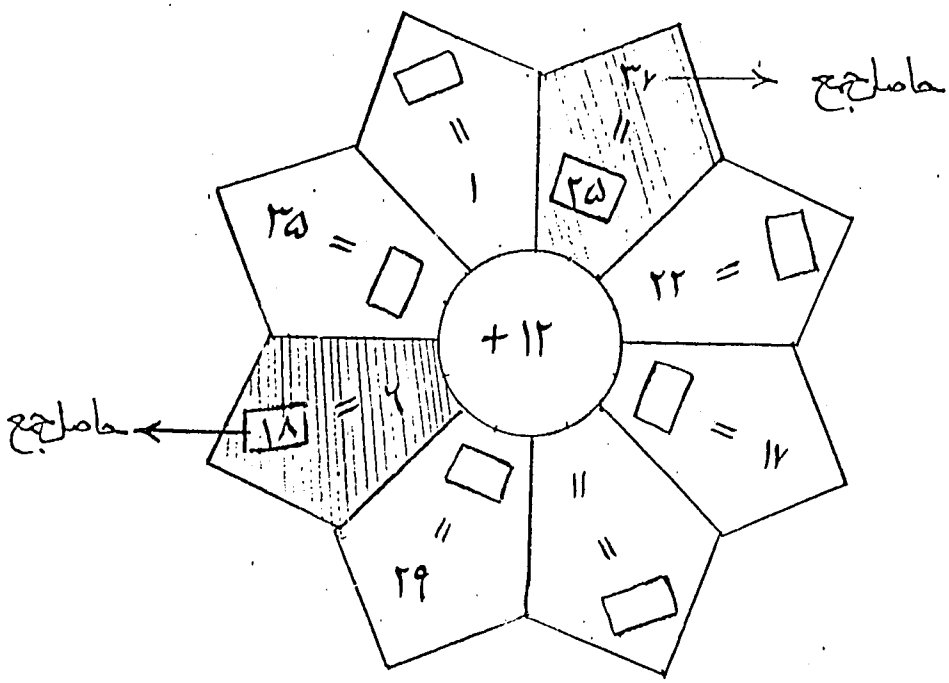
مثالهای حل شده را دیده حاصل جمع سوالها را از ستون وسطی پیدا نموده آنها را در جاهای مربوطه آن بنویسید.



مثالهای حل شده را دیده حاصل جمع های دیگر را در جاهای مناسب بنویسید.



مثالهای حل شده را دیده اعداد مناسب را در جاهای خالی بنویسید.



سوال های ذیل را حل نمایید .

۱- عبدالرشید به بازار رفت (۲۴) افغانی را یکدانه قلم پنسل و (۱۵) افغانی را یکدانه پنسل پاک خرید بگویید که عبدالرشید چند افغانی داشت ؟

۲- نماز پیشین چند رکعت است ؟ نماز شام چند رکعت است ؟ مجموع آنها چند رکعت نماز میشود ؟

۳- محمد ادریس (۳۵) افغانی یکدانه مسواک و (۴۰) افغانی را یکدانه شانه خرید بگویید که محمد ادریس چند افغانی را مصرف کرده است ؟

۴- برای محمد یونس (۳۱) دانه چارمغز پدرش و (۲۷) دانه چارمغز کاکایش داد بگویید که حالا محمد یونس چند دانه چارمغز دارد ؟

۵- شاگردان خود شان یک یک سوال جمع را ترتیب نموده حل نمایند .

۶- به هریک از سول های ذیل یک قصه بسازید .

۲۵	۳۱	۴۰	۱۶
+۳۴	+۱۷	+۱۰	+۲

مقدمه :-

در این کتاب شامل سه نوع معلومات میباشد که عبارت از

۱- معلومات پیشنهادی

۲- معلومات طرز العملی

۳- معلومات شرطی

معلمان گرامی آگاه باشند که در وقت تدریس هر نوع موضوع باید معلومات سه گانه فوق را در نظر داشته باشد .

اکنون میخواهم برای معلمان محترم در مورد سه نوع معلومات فوق یک مفهوم که ذیلاً تهیه شده ارائه نمایم .

مفهوم :- عملیات چهار گانه اعداد کل

موضوع :- جمع

موضوع فرعی :- جمع اعداد کل از (صفر - ۵۰) بدون حاصل

I :- معلومات پیشنهادی :-

معلمان گرامی آگاه باشند که آموزنده گان معلومات پیشنهادی ذیل را در مورد مفهوم ذهنی ساخته بیاموزند .

الف :- حقایق را کشف نماید که یکها و دهها را توسط اشیای محیطی و مبدل ها ساده نموده تشکیل نماید .

ب :- آنها جمع اعداد یک رقمی ○ با دو رقمی و دو رقمی را با دو رقمی بدون حاصل را فهمیده و درک نمایند .

ج :- جهت وضاحت موضوعات فوق معلم از مواد محیطی شاگرد « چوبکها - قلم ها - سنگچل بندل ها و غیره » استفاده کند .

د :- آموزنده گان درک کنند که آنها چطور بین بندل های اشیا و یکها و ده ها رابطه پیدا نمایند .

ه :- آموزنده گان حقایق اعداد که قبلاً آنها آموخته اند بحیث دانش قبلی میتوانند در جمع اعداد یک رقمی و دو رقمی استفاده کنند .

و :- قواعد جمع را باید بداند مشلاً در جمع کردن اعداد یک رقمی با دو رقمی و دو رقمی با دو رقمی کوشش گردد که یکها ○ با یکها و ده ها را با ده ها جمع کنند .

ز :- معیارها :-

آموزنده گان صحیح خواندن ، صحیح نوشتن جمله ، جمع و استعمال یکها و ده ها بصورت صحیح بدانند .

ح :- معلم کوشش نماید تا آموزنده گان رابطه جمع را با خود مضمون و مضامین دیگر مثلاً در مضمون ساینس یک رشته چند تکنیک دارد و یا در نباتات یک رشته چند شاخه دارد ارتباط داده بتوانند .

ط :- لغات ریاضی :- معلم متوجه باشد که آموزنده گان کلمات یکها و دهها در مورد جمع در درسهای قبلی آموخته اند از آن استفاده نموده ، در جمع کردن اعداد استفاده نماید .

ی :- معلومات پیشنهادی جهت بنوی سوال های جدول لغات که ضمیمه این ماخذ میباشد معلم صاحب با آن دقت نموده آنها را مطالعه کنند .

II :- معلومات طرز العملی :-

هدف از این معلومات برای موضوع انتخاب شده رعایت است که معلومات پیشنهادی فوق را که در مورد جمع انتخاب نمودیم، چطور آن را عملی سازیم.

برای این منظور معلم به نکات ذیل متوجه نماید تا آموزنده گان آن طرز العمل را در جمع کردن اعداد کمتر از (صفر - ۵۰) بدون حاصل اجرا کرده بتوانند.

الف :- پیمانها :-

در مدارس و مکاتب ما جمع را بصورت یک پیمان قبول شده از راست به چپ «اول یکها با یکها و بعد ده ها با ده ها» جمع میکنند مثلاً $\frac{13}{11}+$ قبول نموده اند.

بستاردن میتوانند سوال های جمع فوق را از چپ به راست «اول ده ها با ده ها جمع نموده حاصل آنرا از ذهن نگهدارشته میشود و حاصل آنرا با یکها جمع میشود» نیز جمع نماید. بخاطریکه در حاصل جمع کردن تغییر رخ نمی دهد.

ب :- معیارها :-

آموزنده گان باید سوالهای جمع مانند $31+27=$ ، $27+31=$ قسم افقی و ستونی جمع نموده بتوانند.

ج :- مهارتها :-

آموزنده گان باید مهارتهای خواندن - نوشتن - درک کردن - تطبیق کردن تکمیل کردن - ترکیب نمودن و ارزیابی کردن را در جمع اعداد یک رقمی با یک رقمی و دو رقمی با دو رقمی جمع کرده بیاموزند.

د :- گرایش و تسلسل ها :-

در تعلیم و تربیت فعلی ما گرایش به وجود نیامده و معلمان گرامی تنها از مواد محیطی شده از قبیل « چوبکها - سنگچل - بندل ها و غیره » استفاده می نمایند .

لیکن در ممالک پیشرفته علاوه از موضوعات « وسایل محیطی » سامان آلات پیشرفته مانند ماشین حساب ، کمپیوتر و غیره میتباشد .

بناءً معلمان کوشش نمایند که آموزنده گان را در استفاده از عمل جمع یک رقمی و دو رقمی در حیات روزمره تشویق و رهنمایی کنند .

III :- معلومات شرطی :-

درین قسمت معلم صاحب سعی نماید تا به آموزنده گان تفهیم نماید که معلومات پیشنهادی و طرز العملی که در جمع اعداد یک رقمی و دو رقمی از (صفر - ۵۰) یاد گرفته اند « چطور ، در کجا ، چه وقت » در حیات روزمره شان میتوانند آنها را استفاده نمایند . شاگرد

در کجا :- آموزنده گان میتوانند جمع اعداد یک رقمی و دو رقمی را در مدرسه ، خانه ، مسجد و بازار و غیره در خرید و فروش اشیا بکار ببرد .

چه وقت :- در وقت ضرورت میتوانند از جمع استفاده کنند

چطور :- مطابق ضرورت قسمیکه لازم است استفاده می نماید .

ومن الله توفیق

وسیله برای فکر کردن پیرامون دانش و مطلوبات پیشنهادی و تدریسی
آموزندگان باید آنرا بیاموزند و آن جهت آنرا باید تدریس کرد!

دانش و مطلوبات نظری	طلان واحد درسی برای کسب و انتقال دانش و مطلوبات پیشنهادی با پاسخ باینکه چه باید تدریس شود، چطور آنرا تدریس نمود				
	لست مفهوم یا موضوع و موضوعهای فرعی که باید آموخته ترتیب نمائید؟	دانش و مهارتهای مخصوص که در باره موضوع فرعی باید تدریس شوند کدام اند؟	مفهوم یا چشم بصورت مستقیم یا غیر مستقیم تجربه کرد؟	چطور شاگردان را در بامعنی ساختن مفهوم کمک کرد؟	چگونه آموزندگان را در تنظیم معلومات برای مفهوم کمک کرد؟	چطور آموزندگان را در انتقال دانش کمک کرد؟	چطور، چه وقت و در کجا معلومات پیشنهادی و مهارتها در حیات روزمره آموزندگان تطبیق خواهد شد؟
	مفهوم :- عملیات چهارگانه اعداد کل موضوع :- جمع اعداد (صفر-۵۰)	۱- جمع اعداد یک رقمی با دو رقمی بدون حاصل ۲- جمع اعداد دو رقمی با دو رقمی بدون حاصل بقسم عمودی و رفتی الف: خاصیت تبدیلی ب: خاصیت صفر	مستقیم :- مدیل های فزیکی و ذهنی بندلهای ده دانه یی غیر مستقیم :- توضیحات شفاهی - فلم "توش" کردن - خورنقی	ث کردن به تجربه قبلی شان در مورد چه میدانند با مفهوم فعلی ارتباط بدهد معلم تحمیل رابطه را نبرده و آنرا در جمع اعداد یک رقمی با دو رقمی و دو رقمی را با دو رقمی استعمال نماید.	طرح سوالات راجع به جمع کردن اعداد یک رقمی با دو رقمی و دو رقمی با دو رقمی و قیمت گذاری اعداد و توضیحات شفاهی دیگر	معلم از تصویر دماغی استفاده نماید و حالا میداند که جمع اعداد یکها با یکها و دهها با دهها جمع میگردد.	معلم برای رفع نیاز مندی در خانه - مدرسه - بازار جمع کردن را شناخته - رهنمائی و پول را در وقت ضرورت بدست آوردن موقع دهد.

وسایل فکر کردن برای انتخاب کتاب ماخذ علمی معلم که از کتاب بعد دوم مربوط موسسه ای - ای - سی - دی اخذ و توسط دالتر. دی - شتی. وعزیزی تدوین یافته است.

مدول آموزش و تمرین برای استفاده از کتاب ساخت علمی معلم

وسیله برای [illegible] طراز العملی [illegible]

آموزشگاهی باید انرا بیاموزد و بکار آنچه که باید بتدریج کرد

کدام مهارتها را باید آموخت ؟ / کدام چیزها را باید تدریج کرد	چطور آموزندگان باید تدریج شوند	چطور آموزندگان مهارتهای طراز العملی را یاد گیرند ؟	چطور آموزندگان در کارخود ساختن مهارتهای طراز العملی کمک شوند ؟	چطور، چه وقت و در کجا معلومات طراز العملی و مهارتها در حیات و روزمره آموزندگان فعلیت پیدا کند
مهارتها :- خواندن - نوشتن - درک کردن - تطبیق کردن - تحلیل کردن - ترتیب - ارزیابی	کوشش نماید که اصل شی و یا مدول آزمایشی « بندل » های داده شده را بیابد که تمرکز تهیه گردیده توضیح شود که جمع کردن یکها را با یکها و ده ها را با ده ها و واضح سازد.	راجع به سوال های مختلف جمع یک ها و دهها آموزندگان تراکتا بندل ها و اشیای حقیقی - سمبول های عددی بسته نشان کرده شوند ۲ + ۲ = ۴ ← ۱۲ + ۳ ۲۲ + ۲۲ = ۴۴ ← ۲۰۲ + ۳	معلم معین نماید تا آموزندگان استعداد تجسمی فکر کردن راجع به ارزیابی و مباحثه صنفی (T.P.S.) را در مورد جمع یکها و دهها بکار برد مهارتها را در شاهای مختلف مشق و تمرین کند. معلم به صنف کمک کرده در صنف اجرای وظیفه نماید.	آموزنده گان مهارتها را در وقت جمع نمودن سوالات در صنف - خانه - محیط و غیره بکار برده بتوانند و در حیات روزمره خود قدم به قدم بکار برده بتوانند.

وسایل ذکر کردن برای امکان کتاب ساخت علمی معلم که از کتاب بعد دوم مربوط سیریز ای - این - سی - دی اخذ و توسط دالتر د. ا. - شتی و عزیزی تعدیل شده است.

376

ماخذ ها

۱- پارلس دی- اگستن تدریس ریاضی بکلاسهای ابتدائی سال 1992

2- کریک شان و شفیلد تدریس ریاضی باطفال در کلاسهای ابتدائی، سال 1988

3- دونالد ف- دی و جی ای کوف سین ریاضی ابتدائی برای معلمان سال 1976

4- انجمن ملی معلمان ریاضی معیارها برای تدریس ریاضی سال 1976

5- سلور بریت وگان کشف ریاضی دنیای نشی سال 1980

6- محترم شاه محمد، قادری عبدالواحد دری دریاضی برای صنف اول سال 1992

The Empowering System;
Total Education Systems Development

Trainers Manual

UNO/ESSP TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

SCIENCE SECTION
SAMPLE LESSON UNITS PRODUCED

During The Group Product Workshop: Part I- 24 April - 20 May 1993
Part II- 22 May - 10 June1993

Specialist Facilitator	Master Teacher Trainers (Training Facilitators)
Dr. Bakhtari	Mr. Gulam Nabi Mr. Agha Gul Mr. Zundai Hafizi

Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	6 :	Land
Topic	6.1:	Land Forms
SubTopic	6.1.1:	Mountains
SubTopic	6.1.2:	Hills
SubTopic	6.1.3:	Plains
SubTopic	6.1.4:	Deserts

AND

During The Individual Product Workshop: Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Prof. Nedai with Prof. Najmi and Dr. Bakhtari	Mr. Nasratullah

Concept Scope and Sequence - Classes 1-3

Class 1

Concept	6:	Land
Topic	6.4:	Kinds of Soil
SubTopic	6.4.1:	Clay
SubTopic	6.4.2:	Black Soil
SubTopic	6.4.3:	Sand
SubTopic	6.4.4:	Soil Erosion

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science
Earth Science Group

Group Product Workshop: Part I- 24 April - 20 May 1993
Part II- 22 May - 10 June1993

Specialist Facilitator	Master Teacher Trainers (Training Facilitators)
Dr. Bakhtari	Mr. Gulam Nabi Mr. Agha Gul Mr. Zundai Hafizi
	Mr. Mohd Yunus^^ [^^Part Time]

Concept Scope and Sequence -- Classes 1-3

Class 1

Concept	**6 :**	**Land**
Topic	**6.1:**	**Land Forms**
SubTopic	**6.1.1:**	**Mountains**
SubTopic	**6.1.2:**	**Hills**
SubTopic	**6.1.3:**	**Plains**
SubTopic	**6.1.4:**	**Deserts**

Index:

6-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

6-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

6-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

6-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

6-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

OVERVIEW: 4 MAT Form O

Subject: Science Grade Level: One

Concept: 6 Land Topic: 6.1 Land Forms

Overview Contents:

Aim, Goal, Outcome:
Learners will be able to identify and define the land forms. They will learn its use and benefits.

Brief Objective Index:

Q.1-RM:
Teacher connects learners prior knowledge regarding; mountains, hills, plains and deserts to their new experience.

Q.1-LM:
Teacher helps the learners to analyze and reflect on their experiences regarding the forms of land as mountains, hills,plains and deserts.

Q.2-RM:
Teacher helps the students to integrate and organize their knowledge in reference to land forms.

Q.2-LM:
Learners develop concept skills to identify, compare, contrast and define the forms of the land and its use.

Q.3-LM:
Learners will be able to practice and make models of the land form.

Q.3-RM:
Learners understand that land forms can be used as pasture, mine deposits and forests and resorts for some animals.

Q.4-LM:
Learners understand the importance of the land forms in their daily life and evaluate its advantages.

Q.4-RM:
Learners will integrate and apply their new knowledge concerning the land forms at home, village, city and province.

Activities Index:

Q.1-RM:
1. A short story about land
2. Hanging a chart in reference to land forms on the chalk board.

3. Learners think about it.
4. Teacher ask the following questions.
   -What is the mountain form in this chart?
   -What is the hill form in this chart?
   -What is the desert form in this chart?
5. How many of you know the mountain?
6. Who has visited the mountain?
7. What is the difference between the mountain and the hill?
8. What you have learned so far about mountains, hills, plains and desert?

Q.1-LM:

1. Teacher divide the whole class to groups.
2. Teacher tells each group: Think about land and discuss its forms.
3. After several minutes teacher asks about land forms.
4. When students discuss and analyze the forms of the land, teachers introduces the concept of the land.

Q.2-RM:

1. Teacher for the completion of students information, take them to the field trip.
2. Teacher deliver information to the students about the mountains, hills, plains and desert.
3. When they return, teacher write students information on the blackboard.
4. If possible, students with the help of the teacher make the models of the mountains, hills, plains and desert in the class-room.

Q.2-LM:

1. A short story
2. Hanging prepared chart on the blackboard.
3. Students contrast and compare the figures on the chart and think about it.
4. Students are divided into different groups.
5. Each group think, share and pair their experiences.
6. Each group reflect on the present information.
7. Teacher reads student's text.
8. Teachers take students to the field trip.
9. Students obtain information about the forms and structure of the mountains, hills, plains and desert.
10. Students tryout about the concept.
11. After practice add some information about the concept, teacher writes down students' reflective observation.
12. Students learn about the use and advantages of the concept.
13. Students apply evaluate and integrate the information in their real life regarding the concept.

Q.3-LM:

1. Teacher makes several groups.
2. In advance teacher prepares some samples of the concept and related topics.
3. Students with the help of the teacher make models of the mountain, hills, plains and desert.
4. Speaker of the each group explains to the classroom about their models.

Q.3-RM:

1. Each group tells the students that how mountains' rocks are used for the buildings.
2. Each group tells the students that there are various plants, mines, forests and animals in the mountains.
3. Each group explains that hills are made of soil and sand and contains pastures, trees etc.
4. Hills are used for dry farming.
5. Each group explains that deserts and plains are made of sand and soil too, and plains are suitable for agriculture, gardens and parks.

6. Each group tells the students that deserts can come under cultivation which has economical importance.

Q.4-LM:
1. Teacher helps the students to discuss in groups and in general the benefits and use of the land forms.
2. Teacher divides the blackboard into 4 parts.
3. Under the each segment of the blackboard write the name of mountain, hill, plain and desert.
4. Teacher gets the information regarding the usefulness, economical importance under each column.
5. Teacher tries the participation of all students in this question - answering session.

Q.4-RM:
1. Students make 4 groups.
2. Each group is assigned to discuss the ways to take benefits of mountains, hills, plains and desert.
3. Each group explains their outcome to the rest of the classroom.
4. Students collectively discuss, understand and learn the economical importance, usefulness and advantages of the above mentioned concept at their home, village, country and province.

Pedagogical Methods, Strategies, Techniques Index

Q.1-RM:
1. Use of K-W-L strategy
2. Showing chart
3. TPS strategy
4. Question and answer strategy

Q.1-LM:
1. Group work
2. Discussion
3. TPS Strategy

Q.2-RM:
1. Questions and answers
2. Field trip
3. Discussion

Q.2-LM:
1. K-W-L strategy
2. TPS Strategy
3. Field trip.
4. Brain storming
5. Mini lecture
6. Showing chart
7. Group work
8. Practice
9. Questions and answers

Q.3-LM:
1. Practical work
2. Questions and answers
3. Discussion

4. Explanation

Q.3-RM:
1. Discussion
2. TPS Strategy
3. Explanation

Q.4-LM:
1. Group work
2. TPS Strategy

Q.4-RM:
1. Group work
2. Questions and answers
3. Explanation
4. Discussion

Materials Index:

Q.1-RM:
1. Chalk board
2. Chalk
3. Eraser
4. Chart

Q.1-LM:
1. Chalk board
2. Chalk
3. Eraser
4. Students' text

Q.2-RM:
1. Soil
2. Sand
3. Rocks

Q.2-LM:
1. Students' text
2. Chalk board
3. Chalk
4. Eraser
5. Chart
6. Rocks
7. Soil
8. Sand

Q.3-LM:
1. Chalk board
2. Chalk
3. Eraser
4. Sand
5. Rocks
6. Soil

Q.3-RM:

1. Charts

Q.4-LM:
1. Chalk board
2. Chalk
3. Eraser
4. Students' text
5. Sand
6. Soil
7. Rocks

Q.4-RM:
1. Pencil
2. Paper
3. Chalk board
4. Chalk
5. Eraser
6. Students' text

Evaluation & Assessment Strategies and Techniques Index:

Q.1-RM:
1. When students answer, they are evaluated.

Q.1-LM:
1. When students discuss and answer the question, they are assessed.

Q.2-RM:
1. During field trip teacher evaluate students observation and their answers and questions.

Q.2-LM:
1. During chart discussion
2. Questions and answers

Q.3-LM:
1. When students make models and practice their experience.
2. Questions and answers
3. Explanation

Q.3-RM:
1. Evaluate students discussion
2. Questions and answers
3. Explanation

Q.4-LM:
1. Questions and answers
2. Discussion

Q.4-RM:
1. Explanation
2. Discussion
3. Questions and answers

(۵)

فرق تابل توزیع ۸۰۹ نظر اجمالی: فرهنگ جعفری، فهرست

مضمون مقاله نویس صنف اهوال

مفهوم و جم عنوان ۱۰۶، دخلی یعنی فهرستی عنوانین نثر و نظم یعنی (اداریہ
قبل از ایجاد پلان درسی فہرست محتویات نظر اجمالی را بگیرید یک رسمی تکمیل

فہرست نظر اجمالی از چیدار ف. مقصد عمدہ ملنجیت نتایج مطلوب نیست
هدف: تا کدام اندازہ چیزی دخلی نسبی (غیر نوعی نیست) اولویتی تعلق نسبی پیدا
نسبی پوشش اندھا هم خیلی پر خیل بدنه عمده نوعی نیست پشتیبانی و کمکی

بعد از ایجاد پلان درسی فہرست اینها فهرست را بکار برید تا آنکه در طبقه بندی فهرست
فعالیت را انجام دهید.

فہرست مختصر نتایج مطلوب

(۱) اداره کل (۲) دخلی سی (۳) دستی (۴) عمومی (۵) عمومی

فہرست فعالیتها

(۱) کتب خول پیروی کار (۲) تمرین خول (۳) دخیل خان خیر ترجمه علامه خول
(۴) دخارت نصب خول (۵) دسیلان تو تکلیف خول (۶) رسمول صیدول
(۷) تیر علمی (۸) عمل رشته داره خول (۹) تسم خول (۱۰) رتاب توکل
(۱۱) دخارت پیدا دهنی خمر خول (۱۲) کیدی خول (۱۳) تیروی کار
(۱۴) ---

فہرست متبودها سپید انگوریکی، شتر اتیکی ها و تکنیک ها

(۱) بیت خول (۲) برهه احتیاط (۳) دخانی طوطی (۴) سوال و اداره
(۵) تیر قلمی (۶) علی کار (۷) متبودل (۸) فکر خول (۹) تیروی کار (۱۰) بگیرت (۱۱) ۲۰۳۰ شترانیکی
(۱۲) تعلیت فہرست منابع و مواد ایجاد شده یا انتخاب شده مورد استعمال

(۱) بنا (۲) تیر (۳) تخته پاک (۴) تیری (۵) پنسل (۶) خاوره
(۷) چارت (۸) شنگی (۹) مایع (۱۰) کتاب

فہرست متداوم شتر اتیکی ها و تکنیک های ارزیابی

(۱) دخارت (۲) سوال و اداره (۳) رسمول (۴) مت تصدیق کردن

Handout 10 : ہینڈ آؤٹ نمبر 10

Concept Unit: تصوراتی اکائی

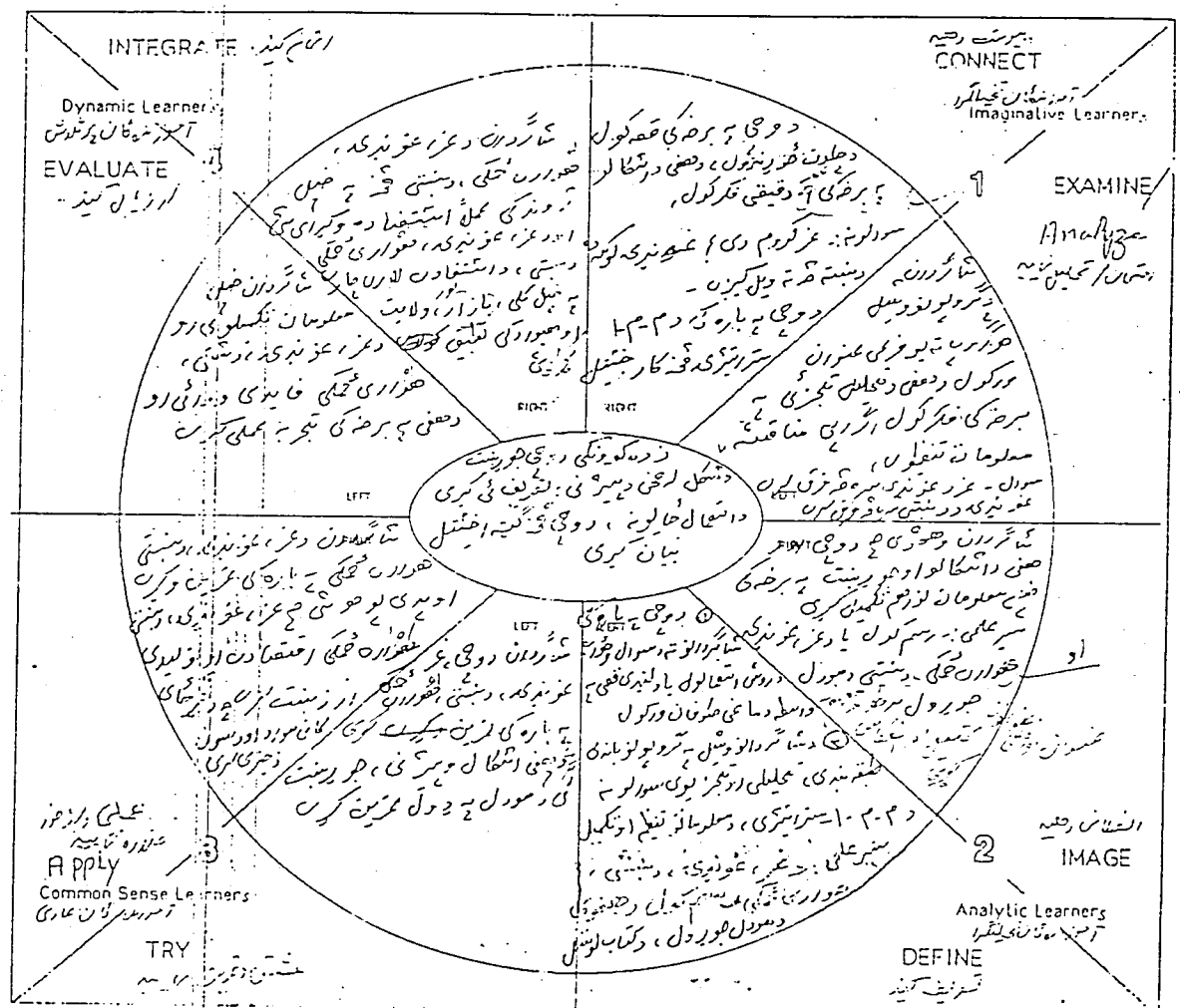
Topic/Subtopic Index: فہرست / اجمالی عنوان / ذیلی عنوان

- وچہ -۹
- ۱۰۱۰۶ دوچی بمعنی
- ۱۰۱۰۶ اوارہ خُکہ
- ۲۰۱۰۶ دسنتہ
- ۳۰۱۰۶ غر
- ۴۰۱۰۶ عونیکہ

Date: 93-6-10 تاریخ

Author/Authors: مرتب / مرتبین

اعجاز گل (اعظمی)، گل نبی
خُندک (حقیقی) محمد یونس (سرفراز)



WITH BRIEF OUTCOMES STATEMENT

HANDOUT

ورق تایل توانایی ..... آموزنده: یحیا نظرا ... مورخه الف فوریه ...

مضمون: ساینس ... صنف: اول

موضوع: عضو حرکت ... تاریخ 6 - 10 - 1396 ... غزنی، اداره محلی اوذ بشتی

روز اول: [...] آسانترین جای برای آموزنده، نیلگرا

تجربه را به خود به انجام میرساند به معنی شخصی ... دلیلی را ایجاد میکند به سوال آموزنده

" چرا من این را باید بیاموزم؟ " جواب میدهد

نقش معلم: تشویق کننده، مشورت دهنده، تسهیل کننده، ... فعالیت

روز اول ... مورد استفاده:

هدف: توانایی با نقشه: بشقاب تکی، دفتر، کولر، تخته، چوبی، معلمه، دفتر، غزنی، اداره محلی

وسیله: چهل دقیقه، دو روز، معلمه، تشریح، ارتباط، تکنولوژی

فعالیت: بشقاب تکی، دو چوبی، پرخوری، لوبه، کیشه، کوپری ۲ - بشقاب تکی، چارت

کوپری، لوبه ۳ - دو چارت، سرخه کی، دهن، دفتر، لوبه، تخته، دفتر، کولر

وخت، کوپری ۴ - دو چارت، چهکمه، تخته، کولر، تخته، لامتری، بشقاب کوپری

من ۱ - پرخوری چارت، کی، دغره، شکل، کولم، پودی، من ۱ - دو بشقاب، شکل، کولم، پودی،

من ۱ - دغزنی، بشقاب، کولم، پودی، ۱۵ - خوشه، برابر، پیشی، ۱۶ - چاغ، پودی، دی

۱۷ - خوشک، غره، تللی، دی، ۱۸ - غزا، غزنی، خوشه، فرق، شره، لری، ۱۹ - دغره،

غزنی، اداره محلی، او بشقاب، پاره، کی، سرخه، شی، زده، کره

مواد و های آن بدان، آموزش ها و تکنیک ها: د K-W-L ستراتیژی.

د چارت بشقاب، تفکر، سهم گیری، مشوره، ... سوال، او جواب

مواد مورد استفاده یا ایجاد شده: تخته، تخته پاک، آب شیر

دغره، غزنی، بشقاب، او اداره محلی، بشقاب، چارت، لرجی

ارزیابی: بشقاب تکی، چند، دو، کولر، تکی، د سوال، او جواب، ارزیابی کری.

HANDOUT

B

درس تال آزرابع ——— آموزنده تجربه‌گرا: درسه (ب)، قوه حمت

مضمون: ساینس صنف: اول

موضوع: کاغذ چې عنوان: 1-6 غذا، علوبندي، او ازي حکلی او د بینتی

بخش اول [رهبریت عینی درک میکنند: از طریق مشاهده انعکاسی عمل کنند] را تمرین جای برای آموزندگان تجربه‌گرا. تجربه کردن ارتباط میدهد به معنی شخصی. مواد تهیه شده مثال با مهارت یک سوال را ایجاد میکنند چرا سوال «چرا من» زیرا باید بیاموزم برای آموزندگان ارائه مطالب. نقش معلم: تشویق کننده میشود مورد استعمال: تحلیل جهت تشویق کردن، اظهار نظریات برای تحلیل ابتکار، تشریک مساعی. ایجاد یک تجربه. فعالیت معلم بیشتر است

بخش اول مورد چهارم:

هدف درسی به انه باشد: شاگردان وروسته له تحلیل څخه باید غذایي بندي، اوازي حکلی او د بینتی وپېژني، او هم دې لوه مثلی حې لور رقمي مفهوم لوله رایل شره څه لګه پیروزنم لري.

فعالیت: ۱- ښوونکی ځینې زده کوونکي پر ګروپونو ویشي ۲- ښوونکی هر ګروپ ته وایي: چې د وچې په هکله فکر او بحث وکړي ۳- ښوونکی ورته وایي چې له خپلو ډلو څخه د وچې او هغوی د ... په برخه کې له زده کوونکو څخه سوال وکړي ۴- ښوونکی ورته د شاګردانو د بحث او تحلیل څخه د وچې مفهوم ځینو زده کوونکو ته ورزده کړي

میتود/ تدریس: ګروپي کار، مباحثه او مناقشه، سهم ګیري، تمرکز هم فکري،

مواد مورد استعمال یا ایجاد شده: تخته، تخته پاک، تباشیر، کتاب

ارزیابي: ښوونکی ځینې زده کوونکو ته سوالونه ورکوي او د مباحثې په وخت کې ارزیابي کوي

درس قابل آموزش ـــــ آموزنده: نخاوگرا / موضوع: فورست

مقطع درس: سالیس ـــ صنف: اول

مفاهیم و واژه ـــ عنوان: 1.6 عنوان، عنوان بندی، اوازی، حلقی او دنبتی

رابع دوم [illegible] آنرا مطابق شاگردان بگذارد. راجستر [illegible] برای آموزگاران بگذارد

مفاهیم را مانند نمونه معین نماید و آنرا امثال بنماید. آنرا برای شاگردان بدهید

جواب به سوال چه؟ زنش معلم: معلومات دهنده. متود مورد استعمال: مساوات بنظم نهم

انگشت را با مقایسه بگذارید بنماید: قابلیت معلم بهتر است تجربه اکتساب را تکمیل بنماید

رابع دوم ـــ مورد است

هدف نزدیکه با زنده: بنبوزنگی زده کونکوشره مرسته کری ترخم صفری خیل

معلومات تحلیل او تجزیه کری او دعه معلومات دوچی او وصفی

د اشکالو پر پرخه کی تکمیل او تنظیم کری.

فعالیت ۱: بنبوزنگی زده کونکو د معلوماتو تکمیل د پاره صفری علمی سیرته بیانی

۲: بنبوزنگی زده کونکو د عنوانونو، عنوندی، اوازی حلقی او دنبتی په باره

کی معلومات ورکری

۳: کار چی زده کوونکی د علمی سیرخه لوکلی ته راحی بنبوزنگی د صفری معلوماتو لوری

د پای پنځ لیکی سترګو زده کونکی دوچی د اشکالو پر مخ عموم بشپړوی.

۴: همدا ثان د امکان په صورت کی زده کونکی د بنبوزنگی پر مرسته شره د عنوانونو، اوازی حلقی او دنبتی متودانو پر لوکلی کی صورت کری

متود های تدریس، آسانتیا ها و تکنیک ها:

سوال او جواب، علمی سیر او مباحثه

مواد مورد استعمال: ایکاروشه، کتاب، کاغذ، تخته، تخنیک پاک، نبات سیر، خاوره شگر

از چیزی:

ارزیابی بنبوزنگی د علمی سیر له اګر چیدو وروسته زده کوونکو خخه د صفری

د منشا دهری پر مخ بیلو لو پوښتنو کری او خواب ورکری.

HANDOUT

D

درس: تأثیر آب و هوا ——— آموزنده: تحلیلگر / آموزنده: فرهاد

موضوع: ساینس صنف: اول

مفهوم: چه چیز عنوان: غذا — غذا و تندرستی - اداره کمک اودنتی

رابع دوم: بصورت گروپ کمک کننده عملیه را توسط شاگردان معرفی کنید. آنرا در جنرل ارزیابی کنید. آموزنده گان تحلیلگر / متعلمان را تشویق کنید تا سوالات شان را باهم پاسخ دهند. آنرا اعمال نمایند. آنرا برای ارزیابی تدریس بسنجید. جواب سوالات را بدهید. نقش تعلم: مدیریت صنف. تکرار و مرور استعمال: معلومات تعلیم شده، سوالات شان را باهم پاسخ دهند: تجربه ایجاد شده را تحلیل نمایند

رابع دوم ... مرور چیدن

مهارت تدریسی یا نحوه:

زده کورنکی دوچی چوریست دنهیه متنوع شکل اولو او چارلولو

حیاتی بیان او تشخیص کری - اودوالی چی غ - غوندی

اواری عملی - دستی لولیله شده خصلتو پیدا کری او هم دوالی چی

کوم شیان حصلته پیدا کیدی او هم دهغو استفادی او استعمال خالونه وپیژنی.

فعالیت: ۱: سکروم اچول ۲: دوچی په باب اوه لنډه قصه ۳: دنهیه خولو

چارلو او تخته استفاده ۴: خو دقیقی خوند کورنکو ترکیبو چارت د شکلونو د شناسایی

لپاره وخت ترکول ۵: زده کورنکی په گروپ گروپ ډلو ۶: په

گروپی کار باندی بحث کول ۷: زده کړه متنوع شکلونه ماتو په هکله

دزده کورنکو عکس العمل حاصل کول ۸: په اوږدو دقیقو لرحتال ۹: زده کورنکی

شیرعلی ته بهول ۱۰: دوچی د چال او چریدنت په هکله معلومات چاپیریال ۱۱: د خپلو په

هکله لږ څه معلومات ۱۲: لږ څه معلومات خپلو په اهمیت باندی چې څومره ښه غم کول ۱۳: د خپلو

چې څنګه از استعمال باندی پرهیدل ۱۴: په روښنی زړه ورتیا کی تطبیق او ورځنی استفاده کول

مهارتهای نو: ارزیابی، آسانتیا ها و تکنیک ها:

۱۲.W سنبرا پیژندنه، سهم گیری، سیر عملی، دماغی طوفان، نمایش، لکچر

عملی گروپی، عملی کار او سوال او جواب

مواد مورد استعمال یا ایجاد شده

تخته پاک، تبا شیر، چارلو نه، سوچ تیلی په، او دباد، شیری، خادری

او تشکی

ارزیابی سیدونکی سوال او جواب په اول درس د تقدیم متنوع شکلونه ماتو غیر متناسل په چارت

کی د عزت، غوندی، اواری عملی، دستی، ارزیابی کوی

E HANDOUT

درس: ناول تورگنیف ——— آموزندگان عادی: دوره متوسطه، دوره سوم

مضمون: سیاسیات صنف: اول

تعداد درس: 6 وقت ——— تعداد آموزندگان: 1-6 نفر، عمر: نوجوانی، اوای تحکمی او دستی

[illegible] آموزندگان عادی، ایشان را مشق میکنند و خود از ارتباط میدهند، به جواب عملی توجه میدهند. برای شان موقع داده میشود تا مفهوم را بیاموزند. جواب به سوال را از این مفهوم جویا کار میکنند، تشخیص علم، رهنمای و فراهم آوری تسهیلات: میتوود سوال و استدلال (فراهم آوری تشویق)، دموود مفاهیم داده شده (تاکید، شناخت علمی) را ایجاد میکند. شاگردان پیشنهاد

مرحله سوم ——— مورد ——

هدف تولیدی یا نتیجه:

متباگردان باید دهنده، غرضی، دستی او حواری تحکمی و پیشنی او

و عدالتی تا رده کی عمل کار کردی.

فعالیت: ① معلم ونکی چیل زده کرنکی به گروپ تقسیم بندی دستی.

② معلم ونکی حوکمی از تحکمی دزده کرد کوز به مرحله حصه خواد او نمونی چی

دوچی او دهنی د اشکال به باره کی ضروری معلومات کوی.

③ معلم ونکی دزده کو ونکو د هر گروپ سره مرسته کوی چی دغه غوښتنی

د دستی او اوای تحکمی جلا لوستو به لاس لګی جوړه کړی

④ هر گروپ لومړنی څو شاګردان د خپلو مدالونو به برخه کی توضیحات درکوی

متود های فعال تدریس، کار با گروپ ها و تکنیک ها: عملی کار، سوال او جواب، مباحثه

توضیحات

مواد مورد استعمال یا ایجاد شده: تخته، کاغذ، کلک، گچه، تخته پاک

تباکو، شیشه، دستی، پیشنی او حاوری

ارزیابی: معلم ونکی کله چی د متباگردان فعالیت د لومړنی د جوړولو

به برخه کی د دستی او تحکمی متباینات کله چی څو څو سوال او جواب

او توضیحات درکوی ارزیابی کوی.

342

G1 HANDOUT

درس تال آزمایش ———— آموزندگان پیرتلاش فورم [illegible] فورست:

مضمون: ساینس صنف: اول

مفهوم: ۶ و ۲ [illegible] عنوان 6-1 د ښوونځي [illegible] ملکي ادارې

مرحله: [illegible] از طریق تجربه اول عمل را استحصال [illegible] [illegible] جهانی برای آموزندگان پیرتلاش. مثال به انجام یک عمل یا کار بجز در تدریس. مفهوم را خود تدریس و با دیگران در میان میگذارند. سؤالات را جواب میدهند. مفهوم جدیدتر [illegible] و یا از این مفهوم جهت [illegible] میکنند. نقش معلم: ارزیابی کننده و یا رهنمایی کننده میشود (انکشاف مفهوم) مفهوم را خودشان تشخیص کنند [illegible] فعالیت و کیفیت تشکل سوال و جواب در آموزش [illegible] تمرین و تجارب را انجام میدهند شاگردان بیشتر فعال اند

مرحله چهارم — مورد ج

هدف ترکیبی یا نتیجه:

زده کوونکي پوهیږي [illegible] زده کړل ښوونځي [illegible] ترویج کړي

استفاده کوي او د عمومي [illegible] ساتنه کوي.

فعالیت ① زده کوونکي د ښوونکي په مرسته د کور، ښوونځي او ادارو د [illegible] د مدیریت او استعمال په باره کې [illegible] او [illegible] کوي. ② ښوونکي [illegible] په [illegible] ③ په [illegible] د کور، ښوونځي، د ښوونځي او ادارو [illegible] ④ ښوونکي د زده کوونکو [illegible] کوي چې [illegible] (د کور، ښوونځي او ادارو [illegible]) [illegible] ⑤ ښوونکي [illegible] کوي چې [illegible]

زده کوونکي په [illegible]

[illegible] د [illegible] کار [illegible] کړي

[illegible] د [illegible] سره [illegible]

[illegible] ښوونکي [illegible] زده کوونکو [illegible] د کور، ښوونځي او ادارو [illegible] په باره کې [illegible] کوي [illegible] چې زده کوونکي په [illegible] کوي [illegible] په [illegible]

344

HANDOUT

H

ورق پلان تدریس ______ آموزنده‌گان بهتر از من فرا میگیرند ح درست

مضمون: مسلکی صنف: اول

موضوع: 6 ریچ عنوان لست 6 - 1 غوړ، غوړنیول، ساتنې اوزاري جکي

ربع چهارم (آزمون عینی) درک میکنند: از طریق تجربه فعال عمل میکنند تا "آموختن" بهترین جای برای آموزنده‌گان بهتر از من. در اجرای عمل و یا در انجام یک چیز توجه شدید دارند، آنچه تدریس نموده و یاد گرفته‌اند آنرا عملی میسازند. جواب سوالات "مفهوم چه شده میتوانند؟" و یا "از این مفهوم چه ساخته میتوانم؟" نقش معلم: ارزیابی کننده و ارزیابی کننده ... میشود. (اصلاح خودی) آموزش خودی را جهت تقویت مفاهیم تکامل کنند. با بهای آموزش شباشی آمده را [illegible] گذاری میکنند. آموزنده‌گان نهایت فعال بوده خودشان انجام عمل نشان میدهند و یا دیگران تعلیم میدهند که آنها چه میکنند

ربع چهارم - سوال زرگ.

۸۵ فیصد از آنها باید:

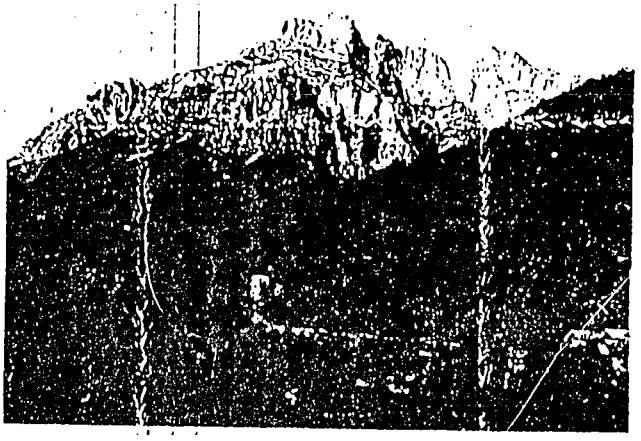
زده کوونکي د غوړ، غوړنیول او ساتنې اوزاري جکي د عملي شتون دی په اړوند ځانګړې پوهه: او د کتاب اختصاصي عملي اوزاري، چې پلي د پنځو ورځو کورس کلي او لارښوونې او ورکشاپ کې تطبیق کړي.

فعالیت: ① ښوونکی لومړی زده کوونکي په څلورو ګروپونو ووېشي ② هره زده کوونکي ګروپ د [illegible] الف اختصاصي [illegible] غوړ، غوړنیول او ساتنې اوزاري جکي د استعمال لپاره د [illegible] ورکوي ③ هر ګروپ د عملي تګلاره [illegible] موضوع په برخه کې [illegible] توضیحات ورکوي. ④ زده کوونکي د [illegible] ګروپ د غوړ، غوړنیول او ساتنې اوزاري جکي په باره کې د [illegible] د [illegible] او [illegible] په برخه کې [illegible] کلي او لارښوونې او ورکشاپ کې [illegible] کوي.

آموزش‌های [illegible] استراتیژی‌ها و تخنیک‌ها: عملي کار، سوال او ځواب، توضیحات، مباحثه

مواد درسي: [illegible] ۸ قلم، کاغذ، تخته، تخته پاک، [illegible] د پینسل شاید

ارزیابي: ښوونکی زده کوونکي د غوړ، غوړنیول او ساتنې اوزاري جکي د [illegible] او [illegible] په باره کې [illegible] مباحثه او سوال ځواب کړي ښوونکی [illegible] ارزیابي کړي. [illegible] ان‌شاءالله [illegible]



شکل (۱)

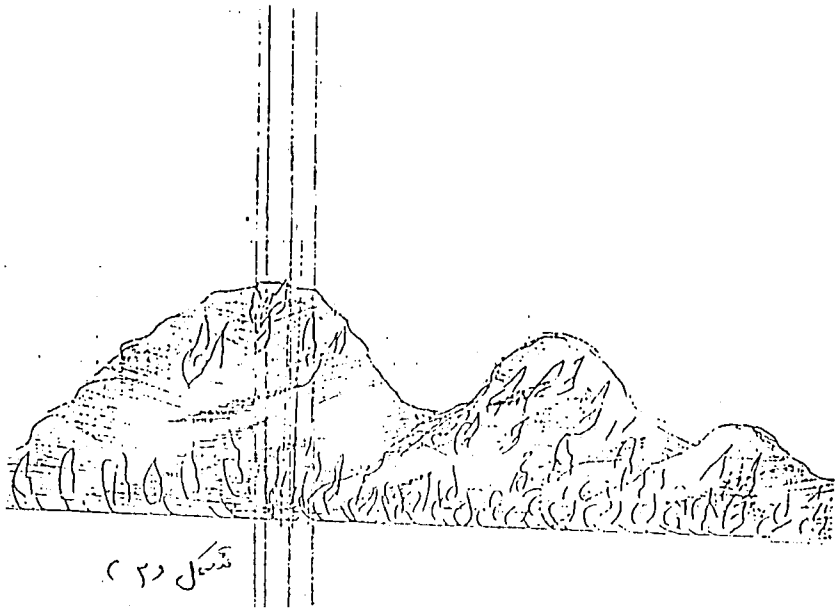
۱- غزونه:

غزونه دیر لوړ دی

غزونه دیر اوږد والی لری

غزونه د تیاګ څخه څو چنده لوړ دی

غزونه څنګلونه او واوړی لری



شکل (۲)

۲- غونډی:

غونډی د غرونو څخه وړی دی.

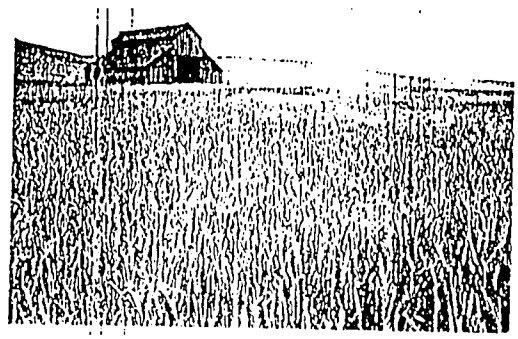
غونډی د شنو او خاورو څخه جوړی شوی دی

په پسرلی کې پر غونډیو ګلان او واښه

شنه کیږی

پر ځینو غونډیو لامی ګول کیږی کله

غنم، اوربشی، حنایی، او هندوانی



شکل (۳۰)

۳- اواری حصلی:

پراوارو حملو کښت اوکار کیږی

پراوارو حملو دانی او غلی ټول کیږی

کله غنم، جوار، پای، میوای، ګلان

او نباتات

۴- د ښاښتی :

ډیاتره د ښاښتی اوبه نه لری
د ښاښتی د شنو څڼو د ژړی شویدی
په پسرلی کی د ښاښتی ګران ،
واښه ، اوبدنی لری .

نام نویسنده : آقای گل دانشمن، گل نبی، خندی حفیظی) و کندپوش، کرزاد صنف :

مضمون : سالینس

بخش : زمین شناسی

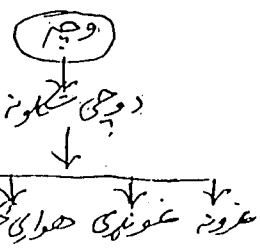
مفهوم : خشکه

عنوان : اشکال زمین

تاریخ شروع: 93/5/29

تاریخ ختم : 93/6/15

اصطلاحات علمی



قشر: پوټکی
طبقه: برخه

عضوي مل
وچني لرې شيان

لړۍ: سلسله

کره څخه خبر شوو به ویلو چې د اولږا وچی څخه چې شوبیل او وچې په شا وخوا کې هوا موجوده ده چې د څخې 71٪ او به او 29٪ وچه تشکیلوی د څخې قشر د تبصرو څخه جوړ شوی دی او په زیاترو برخو کې دغه پاڼې د خاورو لپاره پټې ښوی دي. غرونه د تبصرو څخه جوړ شوي دي او غرونه ډیر اوږد والی او لوړوالی لري.

د وچې څیني لوړې برخې هوارې دي چې زیاتره حیوانات پکې ژوند کوي. دا برخه د دوه ډوله ډیرو په نامه یادیږي. هوارنګ وچې څیني لوړې برخې لږ لوړې دي چې د غرونو په نامه یادیږي. هوارې برخې د خاورو لپاره ښه وي او طبقو څخه تشکیل شوي چې د هغې په سطحه باندې د ښه اولوني شنه ګیږي ګډوڼي نه لري زمونږ د ګرافیک حیوانات د ښه نشتوالي له امله برخې غرونه تشکیلوي. د څخې بل شکل عبارت دی له دښتو څخه چې د برلږ باران پکې اوري او د یوه برخه ډیر یې ګډ برونکي د وچې د پاسنۍ پاڼې سره یې د ښه اولوني پکې نشته ډیر دي. مګر د وخت په تیریدو سره د وچیږي. څرنګه چې انسانان د څخې برخې ژوندي کوي او د خپلې تولیدي اړتیا دي، د هغوی لکه: پوښاکي، د څخې څخه پوره کوي. لږ داوبو د زیرمو ایښودلو، کانالونو په واسطه د څخې د وچې برخې شراولو لاندې راوستلای شو، او هغه کانالونه چې شراوسه پورې ترې استفاده نه شوې. که په عصري وسایلو باندې برخې هغوی کار وشي نو ډیر ښکلي اوسیمې برخې تللای هیواد څښتنان به شو، او د نړۍ دې برخې تللو هیوادونه په لړۍ کې به وسلمیرل شوي.

د وچې تعریف:-

د څخې د هغې برخې څخه عبارت دي چې انسانان، حیوانات او نباتات پکې ژوند کوي.

نام نویسنده : آغاجانی «افشین» نسل بن ، محمدی حنیفی و محمد لیوسن سرفراز صنف :

موضوع : سنگ‌ها

بخش : زمین شناسی

مفهوم : خشکه

عنوان : اشکال زمین

تاریخ شروع: 93/5/22

تاریخ ختم : 93/6/10

معلومات (طرز العمل) اصطلاحات علمی

پس از بررسی مرحله‌ی سنجش و ارزیابی خشکه در کتاب‌های پایه‌ی پنجم دبستان اولاندی قدم‌های اجرایی

۱ در دی موضوع مختلف اشکال چه پاسخ‌ها را تواند بن دهقانی تصویر و نمره‌ی شریفی جلسه ته دهقان سر را دیری

۲ کلمه چه جلسه ته داخل شو سلام اجوی ما چه‌وان لیوسن ، نظافت ایران ها فرش دکوری کما رایدان و شیرینی ارزیابی

۳ سعم ها جلسه لیوسنه کوی چه مورد اوتاس چه خشکی بن نمونه کود؟

۴ خشکه دهقانی خه چوره شویده؟ ۵ چه لاچه بن نمونه خشکه نشو نمونه کوی؟

۶ پیری عبارت بن دهقانی شکل بینی؟ ۷ چه تاسی بن حرکت عرضه ته تعلیمی دی؟

۸ - ایا غرفه‌ی خشکه چه جلسه واضح دی؟ ۹ غرفه‌ی خه چوره شویدی؟

۱۰ - چه غرفه بن گوم شیان لیدل کیبری؟ ۱۱ تاسی چه غرفه بن گوم کان لیدلی؟

۱۲ - تاسی پیری کلمات بن خه‌ی دینی؟ ۱۳ تاسی غونده‌ی پیشنی؟

۱۴ غونده‌ن اطه‌ی نه‌ی چوره شویده؟ ۱۵ غونده‌ن او غرفه فرق لری؟

۱۶ چه غونده بن خه‌ی پیدا کیبری؟ ۱۷ - دخشکی دشت برخه چه غنم او جوار بن کرل کیبری؟ خه بوای ده؟ ۱۸ ایا چه لوله جواره خشکه بن کرنه کیبری؟

۱۹ - چه دبسته بن گوم وخت نباتات شسته کیبری؟

۲۰ - دی ایا ن چه دبستی تر اولو لازمی راشی خه باید وکرو؟

۲۱ - سیر علمی ! شنوونکی شاگرد انو ته دسیر علمی وعده مرکوی چه غره غونده ، دبسته ، هواری خشکه و پیشنی او د جغرافی د شخصیتو او جوره بسته چه باره بن همین معلومات زیات کری .

سنجش و ارزیابی : دکتاب اداره

علمی شیر ! علمی کرخیلان

نام نویسنده : اغاجل (افضلی) گل نبی چندری (حفیظی) و محمد یونس سرفراز

صنف :

مضمون : سالنس

بخش : زمین شناسی

مفهوم : خشک

عنوان : اشکال زمین

تاریخ شروع: 93/5/22

تاریخ ختم : 93/6/10

معلومات (شرطی)

اصطلاحات علمی

۱: څه ډول استفاده کیږی ؟

زمونږ هیواد لږ غرنی هیواد دی چې ډیر واد اکثره غرونه مرتبه څنګلونو پوښل ستونیدی چې لږ ډیری څنګلونو څخه داور د بلولو اد کوبلو د پوښتولو، د دروازو کرکیبو جوړه ولو او همدارنګه له پښتی، جلغوزو، چارمغزو څخه ډیر واد د میوو داړ تیاو د پوره کولو لپاره او ډیر واد د قتصادی بڼې د لګولو د کورولو د تهداب په خاطر استفاده کیدای شي.

اقتصادی بڼه: د خښتو جوړولو

۲: څرنګوالی ؟

زمونږ ډیر واد اکثره غرونه د زمې د موسم کې په واد رو پوښل ستونی چې داوري داولو د ذخیرې حیثیت لري چې د پسرلی په موسم کې واوري اوبه کیږي اود لږ اربو څخه ګټې اخیستل کیږی . د پسرلی په موسم کې د باران الونو داوریدو په وخت، د غرونو، غونډیو، دښتو او هوارو ځمکو نباتاتو ساتنه کیږی . دې د چاپیریال د سمبسورتیا اوساتلو اکثره ضرورتونو د رفع کولو په خاطر او څخه استفاده کیږی.

څرنګوالی: اوبه د رکول یا اوبه کول موسم: وخت

۳: په کوم ځای کې ؟

د غرو، غونډیو، دښتو او هوارو ځمکو څخه د زمې د مختلفو برخو کې د ښه اد اسوده تر وند په خاطر استفاده کیږی . د مثال په توګه د غرونو څخه د کانونو د ایستلو، له غونډیو څخه د للمیو د کرلو او همدارنګه د واد و د لاستې د اور لو په خاطر د ولینې د قتصادی بڼې د لګولو په خاطر کار اخیستل کیږی .

سمبسورتیا ساتلی نباید وا

مواد قابل تدریس نیز ـــــــ مودل آموزشی و تدریسی برای اکتشاف کتاب ماخذ علمی متعلم

ویشنه برای فکر کردن پیرامون مصلوصات پیشنهاد و شرطی
که آموزنده گان باید آنرا بیاموزند و از آن جهت درباره آنچه که باید تدریس کرد

مفهوم یا خوانشها و خوانشهای فرعی که باید آموخت ترتیب و لزت کنیز؟	مصلوماتی که مخصوص که درباره خوانش و خوان گرفته باید شود تا آموخته گردد کدام اند؟	مفهوم را چطور باید بصورت مستقیم یا غیر مستقیم تجربه کرد؟	چطور آموزنده گان را در باطنی ساختن مفهوم باید کمک کرد؟	چگونه آموزنده گان را در تنظیم معلومات برای مفهوم باید کمک کرد؟	چطور آموزنده گان را در بازدهی و تخته معلومات باید کمک کرد؟	چطور بچه وقت و در کجا معلومات پیشنهادی را معارفتها در حیات روزمره آموزنده گان تطبیق میکردد.
مفهوم مرحله بستدن دوحه‌ی بنیه الف: نحر ب: نحوندی ج: دشتی د: هوادگی.	هسته مواد مرحله‌ی نحر و نحوندی نحوندی و اوهوادگی که اوه دشتی و رسم و نگار پکار شنیده میشود. الله - پشتل - نامنه - شنگه - خاری اوه نیز	ـ گردانده حه دوحه‌ی بنیه ـ بازه‌ی پوشتی لیلی نحر - نحوندی - دشتی اوهوادگی حرکتگه دی ـ گردانده حه طوفان دمای حرکتول لری مرحله دوحه مفهوم پرتاب ۳-۲-۱- متراتیزی پرتاب ها ۳-۲-۱- متراتیزی پوالطه کوشک دشتی خطی زد - لولی دشته پوالطه مفهوم پیتراتولو بازه - ۳-۲-۱- متراتیزی پوالطه کوشک دشتی	ـ گردانده حه دوحه‌ی بنیه ـ بازه‌ی پوشتی لیلی نحر - نحوندی - دشتی اوهوادگی حرکتگه دی ـ گردانده حه طوفان دمای حرکتول لری مرحله دوحه مفهوم پرتاب ۳-۲-۱- متراتیزی پرتاب ها ۳-۲-۱- متراتیزی پوالطه کوشک دشتی خطی زد - لولی دشته پوالطه مفهوم پیتراتولو بازه - ۳-۲-۱- متراتیزی پوالطه کوشک دشتی	(۱) دوحه‌ی بنیه ـ تا بیرا (۲) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۳) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۴) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۵) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۶) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۷) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۸) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۹) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۱۰) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۱۱) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۱۲) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۱۳) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار (۱۴) بازه‌ی پوشتی حرکتگه‌ای مواد اوه نحوندی هوادار	ـ گردانده حه دوحه‌ی بنیه ـ بازه‌ی پوشتی لیلی نحر - نحوندی - دشتی اوهوادگی حرکتگه دی ـ گردانده حه طوفان دمای حرکتول لری مرحله دوحه مفهوم پرتاب ۳-۲-۱- متراتیزی پرتاب ها ۳-۲-۱- متراتیزی پوالطه کوشک دشتی خطی زد - لولی دشته پوالطه مفهوم پیتراتولو بازه - ۳-۲-۱- متراتیزی پوالطه کوشک دشتی	ـ گردانده حه دوحه‌ی بنیه ـ بازه‌ی پوشتی لیلی نحر - نحوندی - دشتی اوهوادگی حرکتگه دی ـ گردانده حه طوفان دمای حرکتول لری مرحله دوحه مفهوم پرتاب ۳-۲-۱- متراتیزی پرتاب ها ۳-۲-۱- متراتیزی پوالطه کوشک دشتی خطی زد - لولی دشته پوالطه مفهوم پیتراتولو بازه - ۳-۲-۱- متراتیزی پوالطه کوشک دشتی

دسامبر فقه شده برای اکتشاف کتاب ماخذ علمی متعلم که از کتاب بتد دوم مرحله متوسط ای - ای - سی - دی اخذ و توسط دانتر دی - شتی
ونه ای تدوین شده است.

مواد قابل توزیع شماره ۲

نمونه آموزش و تمرین برای آشنائی کتاب ماخذ علمی معلم

بخشی زب،

وسیله برای عملی کردن پیشنهادات طرز العملی و شرطی که آموزندگان باید آنرا بیاموزند و بنا بر آنچه که باید تدریس کرد

کدام چیزها را باید آموخت؟	کدام چیزها را باید تدریس کرد؟	چطور آموزندگان باید شوند تا بتوانند از وسایل مودل فزیکی و ذهنی کمک شوند در بکار بردن و کاربرد مفهوم، عنوانها و عنوانهای فرعی کمک شوند؟	چطور آموزندگان در تشکیل مهارتهای طرز العملها کمک شوند؟	چطور آموزندگان در آخر ساختن مهارتهای طرز العملها کمک شوند؟	چطور، چه وقت و در کجا معلومات طرز العملی و مهارتها در حیات روزمره آموزندگان تطبیق میگردد.
کدام مهارتها طرز العملها در رابطه به مفهوم انتخاب شده و عنوانها و عنوانهای فرعی مربوط به آن باید تدریس شود؟	چطور آموزندگان در رابطه به مفهوم، عنوانها و عنوانهای فرعی کمک شوند؟	چطور آموزندگان در تشکیل مهارتهای طرز العملها کمک شوند؟	چطور آموزندگان در آخر ساختن مهارتهای طرز العملها کمک شوند؟	چطور، چه وقت و در کجا معلومات طرز العملی و مهارتها در حیات روزمره آموزندگان تطبیق میگردد.	
زده کوونکی د غږ، غوندې اوچتوالی څخه د استعمال معقولې لارې ورده کړي.	غږ، غوندې، هجوارې څانګې دښتې وړېښتې اوږدې استعمال څارنه ته انګېزه ورکړي	ممکنه شبا هات ؟ مهارتونو او طرز العملونو کې مدد کې. زده کوونکی د موضوع ؟ هغه لارې چې ؟ د موضوع اړوند سوالونه څواب کولو مودلونو څخه کار اخیستل.	د مفهوم ؟ برخه کې زده کوونکو ته فکر، مشوره ورکول تمرین ورکول د غږ، غوندې هجوارې څانګې اوږدې مودلونو تمرین ورکول	د غږ، غوندې هجوارې څانګې اوږدې څخه استفاده ؟ کور او مکتب کې. ۱ غږ، غوندې، هجوارې څانګې اوږدې ته ؟ مناسب وخت ټاکل ۲ د والدینو او د مکتب د اداری ؟ اجازه علمی سیر ته ټاکل ۳ امنی مقررات	

وسایل عملی کردن برای آشنائی کتاب ماخذ علمی معلم که از کتاب بعد دوم مربوط موسسه ای - ای - سی - دی اخذ و توسط دکتر دی - مشتی و عزیزی تحلیل شده است.

The Empowering System;
Total Education Systems Development

Trainers Manual

UNO/ESSP TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

LIST OF LESSON UNITS PRODUCED BY
MATHEMATICS AND SCIENCE SPECIALIST FACILITAORS WITH
MASTER TEACHER TRAINERS
DURING

The Group Product Workshop: Part I - 24 April - 20 May 1993
Part II - 22 May - 10 June1993

AND

The Individual Product Workshop: Part III - 12 June - 30 June 1993

Folder Cover Sheet -- Draft**

UNIVERSITY OF NEBRASKA AT OMAHA
EDUCATION SECTOR SUPPORT PROJECT
TESD TRANSFER WORKSHOP
PESHAWAR, PAKISTAN
24 APRIL 1993 - 30 JUNE 1993

Science

*Individual Product Workshop: Part I- 24 April - 20 May 1993
Part II - 22 May - 10 June1993

*Part III - 12 June - 30 June 1993

Specialist Facilitator	Master Teacher Trainer (Training Facilitator)
Prof. Nedai with Prof Najmi and Dr. Bakhtari	Mr. Nasratullah

Concept Scope and Sequence - Classes 1-3

Class 1

Concept	6:	**Land**
Topic	6.4:	**Kinds of Soil**
SubTopic	6.4.1:	**Clay**
SubTopic	6.4.2:	**Black Soil**
SubTopic	6.4.3:	**Sand**
SubTopic	6.4.4:	**Soil Erosion**

Index:

6-Ind 1 Concept Unit Index : Form O -- Overview Statement With Index of Lesson Outcomes, Activities, And Pedagogical And Assessment Strategies Used For Each Segment Of The 4MAT Lesson Cycle.

6-Ind 2 4MAT Lesson Outcomes Cycle With Brief Concept Overview Statement

6-Ind 3 Teachers Guide For Each Segment Of The 4MAT Lesson Cycle -- Form A to H Plan Of Teaching/Learning And Assessment Activities For Concept, Named Above

6-Ind 4 Student Text For All Segments Of 4MAT Cycle For Concept, Named Above.

6-Ind 5 Teacher's Academic Resource Book Section For Concept, Named Above.

**To be submitted to Dr. Boardman, Prof. Azimi for Approval and forwarding to ECA for their review, recommendations and approval.

OVRRVIRW: 4 MAT Form O

Subject: Science Grade Level: One

Concept: 6 Land Topic: 6.4 Soil (Kinds)

Overview Contents:

Aim, Goal, Outcome:
Learners will be able to identify, classify and define kinds of soils, their physical composition, color, softness, roughness and luster. Learners will understand soils better use and advantages of soils.

Brief Objectives Index:

Q.1:
Learners learn the names of soils and their kinds. They identify their physical composition, color, softness, roughness and luster.

Q.2:
Learners will explain, what are the suitable soils for agriculture. They will categorize, define and ways of their protection.

Q.3:
Learners will understand the characteristics and properties of different kinds of soils. They will learn about humus and saline soils.

Q.4:
Learners will learn the usefulness of soils, the use of chemical and animal fertilizers for poor soils and its advantages for the family, village, county and society.

Activities Index:

Q.1
Learners connect their prior knowledge to their new experience. Brain storming, hanging chart, showing different kinds of soils, supervision and guidance of learners by the teacher, questioning and answering, individual and group discussion, field trip, bringing various samples of soils to the classroom by the students, writing the names of the soils on the blackboard.

Q.2
Drawing five colum table on the blackboard and writing the names of the five kinds of soil in each column, characteristics of soils, arranging and reflection on the learners information. Identifying and defining, naming, describing each kind of soil by the students reading, students' textbook, practicing and adding some thing to their defined givens, usefulness and ways of soil use. Application and the use of soil for different kinds of plants.

Q.3:
Examining and using other samples of soil and extending suitable guidance to the learners, writing the main characteristics of soils on the blackboard, demonstrating two experiments about soil and erosion. For further examination students bring in to the classroom humus and saline soil for individual and group practice.

Q.4:
In making soil suitable for agriculture for obtaining good profit from the soil, its use for different purposes. What kinds of soils are used for plantation, its fertility and protection.

Pedagogical Methods, Strategies, Techniques Index:

Q.1:
Brain storming, K-W-L, TPS strategies, discussion, observation.

Q.2:
Discussion, cooperation and reflecting on an experience.

Q.3:
Individual and group working technique, practice, TPS strategy and discussion.

Q.4:
Questioning and answering method, TPS.

Materials Index:

Q.1:
Chart of soils, soil samples, blackboard, eraser, chalk.

Q.2:
Water, plates, Iron Wool, Various large mouth bottles, sieve, students' text, spoon.

Q.3:
Normal soils samples and samples of saline and humus soils.

Q.4:
Blackboard, chalk and eraser.

Evaluation & Assessment Strategies and Techniques Index:

Q.1:
When students use TPS strategy and during field trip, when they bring in soil samples, observation, naming soils.

Q.2:
When students identify soils characteristics, discussion, examining and practicing soil physical composition.

Q.3:
When students examine different kinds of soils, during class debate on other samples of soil and their names.

Q.4:
When they performing TPS strategy.

فرم تایل توزیع ۸۰۹ نظر اجمالی: فرم جمعی: درست

مفهوم: سازمین اول

مفهوم: خاک عنوان ۱۴۰۹ انواع خاک، خاک رسی، خاک لمیاد و خاک

قبل از ایجاد پلان درسی فورمت محتویات نظر اجمالی را انتخاب نمایید تا تکمیل گردد

مقدمات نظر اجمالی اهداف مفاهیم ملفوظ

تاکردن هر سند انواع خاک ها از لحاظ رنگ، بوی، دانه بندی، جلا، تشخیص تصنیف

تعریف و طریقه کار پر استعمال خاک ها و خصوصیت آن ها بیاموزید

بعد از ایجاد پلان درسی فورمت این فورمه را بکار ببرید تا بتوانید هر طوری که میخواهید گروپ فهرست

فهرست محتویات را تهیه نمایید

محتویات را تهیه نمایید Q1 شناختن نام های خاک Q بر اساس ساختمان ترکیبی، رنگ، بوی، دانه بندی، خصوصیات

Q انواع آنها Q تشخیص نمایند

Q2 خاک ها را مناسب بررسی فورمات کوچک آنها را تصنیف، تعریف و طرق حفظت آنها را بیاموزند

Q3 فرق های مشخصات انواع خاک را بیاموزند، خاک ها چون سیمان، ریت و غیره را بشناسند

Q4 فرق خاک با چیت، دستکش و چیزهای مربوط خاک را از ضعیف و از خصوصیت خاک با بوی فاسل

فهرست فعالیتها

آموزش تشریح، معلومات و احوال بررسی، گرفتن عاقرب، ترتیب و تنظیم صفت و نمود و بررسی

Q1 (A1 D) برای تهیه معلومات قبلی با شاگردان، بازدید معلم، انواع خاک را توسط شاگردان

نظارت و مراقبت، هدایت لازم، سوال و جواب، بررسی نمونه ها، نمونه های خاک، سیر علمی

آوردن نمونه های خاک به صنف توسط شاگردان، نشان دادن خاک ها توسط معلم

Q2 تنظیم اسناد و اشکال مربوطه توسط شاگردان، تشخیص، تعریف خاک ها، مقایسه خاک ها

تمرین و مشق، تعلیق و وسائل مورد ضرورت برای انواع مختلف خاک ها

Q3 تمرین و مشق، نمونه های خاک را توسط شاگردان، بررسی و مقایسه خاک ها، تشخیص

شاگردان انواع خاک ها را بیاورند، خاک های مختلف را بررسی کنند، خاک های خوب و بد را

فهرست منابع و مواد ایجاد شده یا انتخاب شده مورد استعمال

Q1 } معلمان و مامای، نمونه های مختلف خاک، تخته، تباشیر، پاک کن

Q2 } آب، بستاب، سیم فولادی، انواع خاک ها، نمونه های خاک، مقوا، کاغذ

Q3 } آبدون، انواع خاک ها، نمونه های خاک، مقوا، کاغذ

Q4 } تخته، تباشیر، پاک کن

فهرست متداوم ستراتیجی ها و تخنیک های ارزیابی

Q1 } شاگردان در مورد مفهوم خاک، مشورت، مشاهده، بحث، نمونه های خاک را توسط شاگردان جمع آوری می نمایند، شناخت نمونه خاک را توسط شاگردان، نام خاک را

Q2 } شاگردان خاک ها را توسط شاگردان مشخص می نمایند، نمونه های خاک را توسط شاگردان

Q3 } شاگردان خاک ها را توسط شاگردان، تعریف می نمایند، خاک ها را توسط شاگردان

Q4 } شاگردان خاک ها را توسط شاگردان، مشورت، مشاهده، بحث، نمونه های خاک را توسط شاگردان

Handout 10: :10 هندوت دهم

Concept Unit: مفهوم واحد خشکه - ۶

۴.۶ انواع خاک

Topic/Subtopic Index: فهرست المثالی عنوان / عنوان فرعی

۳.۴.۶ خاک رنگی

۱.۴.۶ خاک زرد

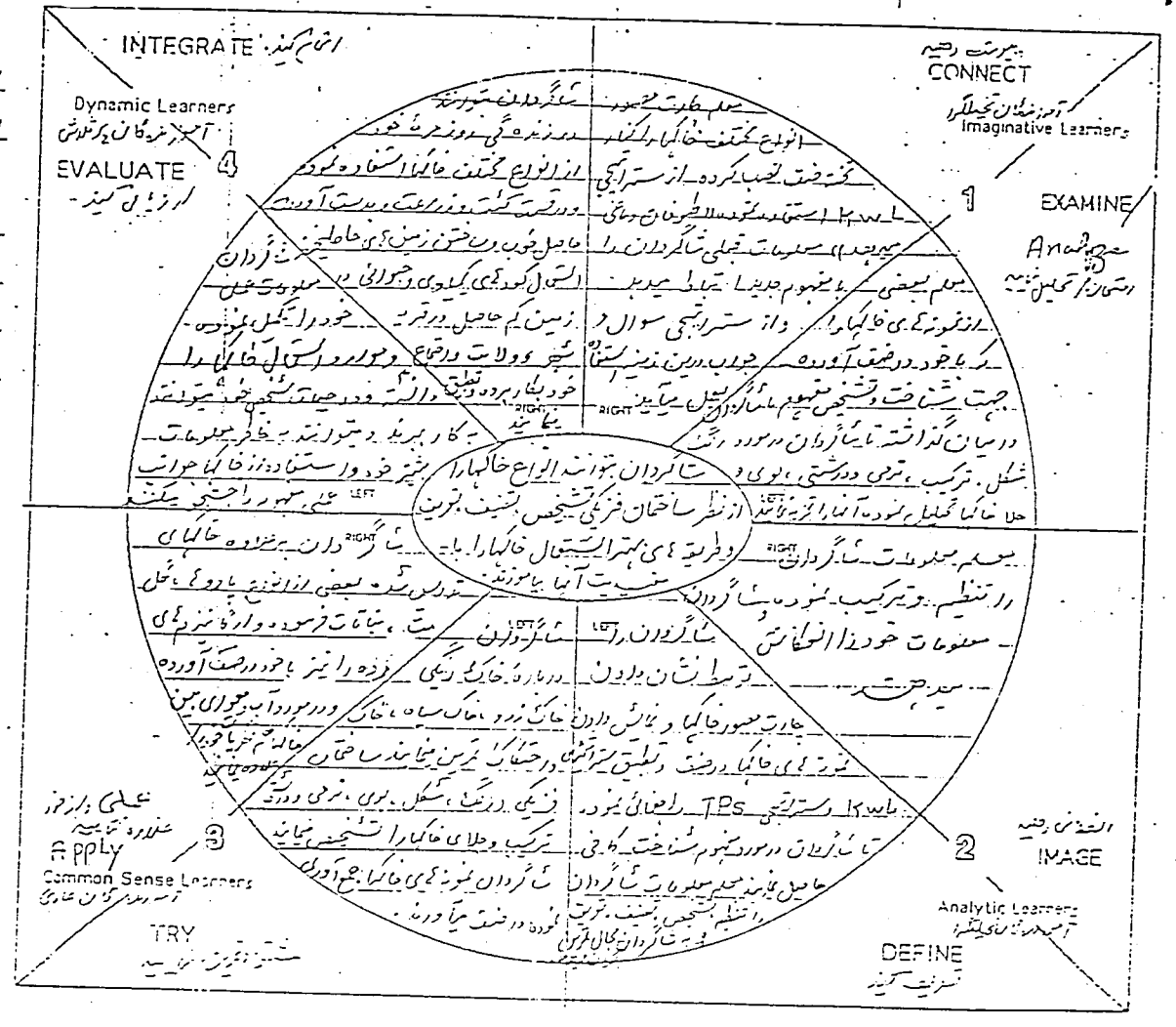
۲.۴.۶ خاک سیاه

۴.۴.۶ خاک و اختفاک

Date: تاریخ 1993 / 6 / 29

Author/Authors: مولف / مولفین

نصرت الله ، شیرباد



A

آموزنده‌ٔ تخیلگرا: فرم شماره الف فرمت

مقصد: ساسان صنف: اول

موضوع: خشک عنوان: ۴۰۱ انواع خاک‌ها ۱ «خاک رسی، خاک زرد، خاک سیاه، خاک واحه‌ای»

درس اول: [تصورات عینی درک میکنند؛ از طریق مشاهده و انعکاسی عمل میکنند] بهترین جای برای آموزنده‌ٔ تخیلگرا تجربه را به خود به انجام میرساند. به معنی شخصی علاقمند بیشتر. معلم دلیلی را ایجاد میکند به سئوال آموزنده چرا من این را باید یاموزم؟ جواب میدهد

نقش معلم: تشویق کننده: مشورت، مورد استعمال جهت تشریح. ابتکار، تشریک عی برای تخیل، ابتکار و تشریک عی برای یکدیگر. معلم تشریک است

درس اول ... مورد است:

نتیجه مطلوب: شاگردان باید نام ۵ نوع از انواع مختلف خاک‌ها را بدانند و آنها را از روی رنگ، ساختمان، فرق آن از خاک‌های دیگر و فواید آن تشخیص نمایند.

معلومات قبلی که شاگردان باید مفهوم درس

فعالیت: تعلیم، تسهیل، سنجش و ارزیابی، گرفتن حاضری، ترتیب و تنظیم صنف و وارد شدن

① تسهیل مربط ساختن معلومات قبلی شاگردان با کار جدید. شاگردان را از خصوصیات و فایده‌های خاک

② تقسیم کار شاگردان جهت آوردن انواع خاک‌ها از کنار تخته تاشیل میدهد.

③ با در نظر داشت سنجش پیشرفت کار شاگردان TPS و سوال و جواب از شاگردان پرسیده میشود که انواع خاک‌ها چند تا بود. بعداً دوستان در اطراف خاک‌ها صحبت نموده و نتیجه گیری کرده و صحبت کنند.

مشوره‌های فن تدریس، استراتیژی‌ها و تکنیک‌ها: دیدن نمونه‌های خاک، شاگردان فکر، مشوره، صحبت، نتیجه گیری، گروپ کار، مشورت مفهوم مورد نظر

کار عملی - کیت.

مواد مورد استعمال یا ایجاد شدن:

① جهت تصدیق انواع خاک‌ها ② جهت پیدا کردن انواع خاک‌ها.

ارزیابی:

تکنیک شاگردان در مورد مفهوم فکر، گفتگو و نتیجه گیری صحبت می‌نمایند

ارزیابی میشوند.

6-Ind 3 L. Guide that Lesson Outcome Cycle
Form A-H - ped Plan

B

آموزنده تخیلگرا: دوره (ب)، قوت

مقدمه: سلیس صنف: اول

مفهوم: خاک موضوع درس ۴، ۵، ۶ انواع خاک (۱-۲-۳-۴)

ربع اول [بصیرت عینی درک میکنند: از طریق مشاهده و انعکاسی عمل میکنند] آماده کردن جای برای آموزندگان تخیلگرا. تجربه بخود، ارتباط امید معد به معنی شخصی عمل تشنه بصورت یک اصل ایجاد میکنند جواب سوال «چرا من اینرا باید بیاموزم» برای آموزندگان ارائه میگردد.

نقش معلم: تشویق کننده بمنظور مورد استعمال: تشکیل جهت تشویق کردن اظهار نظرات برای تحلیل، استفاده شریک مشاهی. ایجاد یک تجربه. فعالیت معلم بیشتر است

ربع اول مورد چهب

نتیجه مطلوب: جا گردان، به انواع مختلف خاک ها ○ مثل خاک رگی، خاک زرد خاک سیاه، خاک دانه دار، خاک سنگلاخ و خاک سخت و خاک نرم و خاک مرطوب و خواص آن تشخیص و تحلیل شده

فعالیت: سوال و جواب: ① روی زمین ○ چی چی پوشانیده، راست ؟ ② خاک یکنواخت رنگ و دانه دار چه ؟ ③ آیا خاک رگی با خاک زرد و سیاه فرق دارد یا چه ؟ ④ آیا خاک را از روی ساختمان فزیکی از هم فرق داده میتوانید ؟ ⑤ معلم جا گردان ○ به سید علی میدهد تا گردون انواع مختلف خاک ○ با خود در صنف بیاورند ⑥ معلم راجع به انواع خاک ○ روی کته میدهد جا گردان تجزیه ○ از گردون تجزیه ○ تشخیص ○ تحلیل و تجزیه می شود

منبع های آموزشی، آموزشی ها و تکنیک ها:

① سوال و جواب ② ستدرد بیسی ③ ستدرد بیسی G.P.S. مناقشه گرمین ○ و ○ جوده گردون

مواد مورد استعمال یا ایجاد شده

تخته سیاه، کته، رنگ ها، مارکر، کته های خاک ○ ○ ○ و غیره

ارزیابی

معلم جا گردان خود ○ در اثنای سید علی و فیض به صنف گوته های خاک را ○ جا کرده و ببیند که هر نوع خاک را در گوته های درست جا میکنند و تکه جا گردان بروی گوته های خاک نامها وضع می نماید و ارزیابی میکنند

آموزنده: تحایلگرا | موضوع: فرم ثبت

مقطع: ساپین | صنف: اول

تعداد: ۶ | خاک | موضوع: ۴۰۶ انواع خاک | ۱-۲-۳-۴

انواع دوم [illegible] درک میکنند عملیه [illegible] ساخته شده میتوانند. بهترین جای برای آموزش تحایلگرا حقایق را مانند متخصصین مشاهده و آنرا عمل میتوانند. آنرا برای شان تدریس میکنند

جواب به سوال چه؟ نقش معلم: معلومات دهنده. منبع مواد استعمال: معلم | تنظیم مفهوم: انگشت را با مفهیم یکجای میتوانند: فعالیت معلم بعد از تجربه انجام شده، تحلیل میتوانند

.....

انواع دوم - مواد است

نتیجه مطلوب: با گردن باید برانند که خاکهای گوناگون (خاکستری رنگ، خاک زرد خاک سیاه، خاکهای خاکی چه رنگ است؟ کدام انواع دانه ها در هر چیز است؟ و چه نوع خاک برای چه قسم زراعت مناسب است و مشخصات هر کدام را تشخیص داده میتوانند

فعالیت: ① رسم جدول پنج قسمتی و روی تخته رسم کنند.
② نام ها از انواع خاک ها در هر ستون تحریر کنند.
③ معلم به کمک محصل در تفتیش هر نوع خاک از نظر رنگ - ساختمان و [illegible] مشخصات آنرا تحریر کنند

مواد و وسایل آموزشی، تکنیک ها:
T-P-S و [illegible]

مواد مورد استعمال یا ایجاد شده
① چوب تعویض کن ② لوحه های مختلف خاک ③ کتاب درسی تهیه کنند

ارزیابی
با گردن بدون تفتیش مشخصات خاک ها [illegible] تعیین میشوند

D

آموزنده تحلیلگرا: آموزنده ... فهمت

مضمون: ... صنف: اول

مفهوم: ۶. خشک موضوع درس ۶: انواع خاک (۱-۲-۳-۴)

رابع دوم: بصورت مجرد درک میکنند عملیه را توسط شاخص معده متعلق میشود. آخرین جایزه آموزنده‌گان تحلیلگرا حقائق را مانند متخصص شاخص معده و آنرا عمل میتوانند. آنرا برای پیشان تدریس میکنند. جواب به سوال (چه؟)؛ نفس سلم: معلومات دهنده: میتود مورد استعمال: معلومات منظم مفهوم، ارتباطات را باهم بیان میتوانند: تجربه ایجاد شده را تحلیل میتوانند

.....

رابع دوم به مود چپ

نتیجه مطلوب: ... گردن با ید انواع مختلف خاکها ... پیشنهاد. آنها ... تصنیف و توصیف کاند ... نمونه‌های خاک ... بیاموزند ... خاکها ... نظر ساختمان و بافت ... ترکیب ... درجه و درشتی و ارزش آن تشخیص کاند. مواد مورد استفاده انواع خاکها ... پیدایش و بافت خاکها ... مختلف پیرامون فاکتورهای ... قریه ... سوالی ... دلیت تفهیم کاند و طرق محافظت انواع خوب خاکها ... بیاموزند.

فعالیت

... دادن ... طوفان دماغی ... گردن ... یکی دادن ... نمونه‌ای خاکها ... گردن ... سوال و جواب ... منظم معلومات و ارتباطات حلقوی ... گردن ... تشخیص تصنیف ... مقدار ... و تشریح ... خواندن ... کتاب ... تمرین ... وجود آوردن علاقه ... دادن ... توسط ... گردن ... سهیم ... دادن ... استفاده ... از خاکها ... تطبیق ... استفاده ... از خاکها ... انواع مختلف نباتات.

میتودهای تدریس، استراتیجی ها و تکنیک ها:

... ستراتیجی سوال و جواب ... ستراتیجی ... ستراتیجی ... TPS ... طوفان دماغی و همکاری با ... گردن.

مواد مورد استعمال یا ایجاد شده: آب، شیشاب، لیس فولادی، چاریت حصه خاکی ... تیشه، ... دانه، بوتل پلاستیکی، نمونه‌ها، کتاب درسی، گردن ... ملزوم (بیلچه) لترتری انواع خاکها.

ارزیابی ... گردن: در ... نهایی ... گرفتن انواع خاک و ... ارزیابی ... گردن ... گردن ... دوره‌ای ... جایه ... گردن دوره‌ای میشوند ... گردن در ... نهایی ... گردن نمونه‌های خاک ارزیابی میشوند. ... گردن در ... نهایی شفاهی و تحریری ارزیابی میشوند

E

آموزنده گان عادی: دوره سه هفته

مقدمه: ۵ دقیقه صنف: ۱ ساعت

مفهوم: خاک موضوع درس ۴، ۵، ۶ (انواع خاک‌ها) (۱-۲-۳-۴)

الف سوم [معلمت مجرد درک میکنند: علمیه از طریق تجارب عملی اجرا مینماید. آخرین جای برای آموزنده گان عادی. ایشان مشق میکنند و کوراتباط امید هستند. به تجارب عملی توجه مینماید. برای شان موقع داده میشود تا مفهوم را بیاموزند. جواب به سوال " این مفهوم چطور کار میکند؟ نقش معلم - رهنمائی و فراهم آوری شرایط. مشوره مورد استعمال (فراهم آوری شرایط) درمورد مفاهیم داده شده (تاکید روی فاکتور علمی) را ایجاد میکند. شاگردان بیشتر مثال میزنند

ربع سوم مورد چپ

نتیجه مطلوب:

شاگردان باید علل انواع خاک‌ها بدانند و به خواص و خصوصیات هر خاک پی ببرند.

فعالیت

① سعید علمی ② تمرین کردن بادوی نمونه‌های خاک‌ها

③ گیک و ورچوئی صنف ۶ شاگردان در راستای کار و تمرین

④ توزیع نمونه‌ها عده عده صنف روی تخته توسط معلم

⑤ با خود داشتن مواد ماشه آب، پشتاب، لیسه توزین و... کار با علل اجسام در وقت تمرین شاگردان

⑥ با خود داشتن دوده بوتل سیمی، بلکه از غربال و نمونه‌های خاک در کار با علل اجسام در وقت تمرین شاگردان

⑦ نمونه‌های انواع خاک‌ها توسط دست کار شاگردان در وقت تمرین شاگردان

مشوره‌های فن تدریس، استراتیجی‌ها و تکنیک‌ها:

① کار گروپی و انفرادی ② کار محوره و سهمگیری ③ کار عملی شاگردان

مواد مورد استعمال یا ایجاد شده

نمونه انواع خاک‌ها ۶ صنف آوردن و علل بادی آن تمرین و کار بردن

تخته، تباشیر و غیره

ارزیابی وقتیکه شاگردان به شکل گروپی یا انفرادی تمرین می‌کنند

معلم کار شان را ارزیابی می‌کند

آموزندگان عادی دوره اول و ۱۱ فوریت

مقدمه: ساعتی صنف: اول

موضوع: خیلی موضوع خودن - ۴۰۹ (انواع خاک (۱-۲-۳-۴)

رابع سوم: مجرد در میسینه: عملیه را از طریق مت دهد شغلش بیشتر ده - احسن جان

برای آموزندگان عادی تمرین مک و بعد از انجا داده میشه. متکی به تجربه عملی بیشتر. بگذارید که آنها انجام دهند. جواب به سوال: (این چطور کار میکنند؟) نقش معلم: راهنمایی و خرد هم آوری شیوه است. میتود و مورد استعمال: خرد هم آوری شیوه است. از خود چیز غلاوه کنند شاگردان بیشتر فعال اند.

رابع سوم - مورد بحث

نتیجه مطلب:

شاگردان باید انواع خاک را بدانند و طریق استفاده از خاک

و رابطه بین موجودات و انواع خاکهای دیگر با خاک شوره خاک مشخص

و مناسبات آن شوره و میزان آب و هوا در داخل خاک را مشاهده

فعالیت

شاگردان انواع خاکهای دیگر مانند خاک شوره و خاک بیشتر به صنف آورده

و در مورد آن بحث کنند

شاگردان بصورت انفرادی و گروپی در فعالیت ها اشتراک میکنند

ستودهای فن تدریس، استراتیژی ها و تکنیک ها:

۱- کار گروپی ۲- دور انفرادی ۳- سوال و تمرین ۴- سمعی و بصری

مواد مورد استعمال یا ایجاب شده

نمونه خاکهای شوره از ولسوالی

زبان

شاگردان خاکهای خارج صنف را نام ببرند و طبق بندی

همانند معلم شاگردان خود را زبان بیاورند.

آموزندگان بهتر تلاش نمودند فرم (ب) بپوشند

مضمون: علوم صنف: ۴

مفهوم: ۱. خاک عرض: ۱۴۰۲/۰۲/۰۴ تاریخ: ۱-۲-۳-۴

روش چهارم: معلم عینی را مشاهده کرده از طریق تجربه فعال عمل را منعکس میسازد. راهنمایی جهت برای آموزندگان بهتر تلاش. تا حل به انجام یک عمل یا یک چیز را تدریس. مفهوم را بخود تدریس و با دیگران در میان میگذارد. شاگردان را جواب میدهند. مفهوم چه شده میتوانند و یا از این مفهوم چیزها فهمیده میتوانند؟. نقش معلم: ارزیابی کننده و یا راهنمایی کننده. میتواند (نکات ضروری) مفهوم را خودش تحلیل میکنند مفید بهتر و بحث تنگ اول تهیه در آموزش آینده بیشتر. تحلیل و تجزیه را انجام میکنند شاگردان بهتر فعال باشد

روش چهارم – مورد چهارم

نتیجه مطلب: خاک دارای مواد غذایی است و باید زنده باشد

زنده بودن خاک: از تنفس کردن آن چیزها خاک و خاک خاصیت دارد

فعالیت: معلم صاحب نام خاک‌هایی که برای زراعت بهتر میشود و میدانست

به روی تخته مینویسد

معلم لغت گردن چیزها که خاک را در کشت و کار بهتر میسازد

چه فایده دارد و چه قسم باید خاک بهتر شود برای کشت نباتات

از کدام نوع خاک باید استفاده کنند

مهارت‌های فن تدریس، آموزشی ها و تکنیک ها:

سوال و جواب، تفکر، مشوره و همکاری و مباحثه

مواد مورد استعمال یا ابکار شده

تخته سیاه

ارزیابی

در وقت فکر کردن مورد همکاری و مباحثه معلم شاگردان همدیگر را

ارزیابی میکنند

آموزندگان پیرتلاش فرم شماره (۱ ج) مورخ

مقدمه: ۲ ساعت صنف: اول

مفهوم: ۶ ساعت موضوع درس: ۱، ۲، ۳، ۴ (انواع خاک در ۱-۲-۳-۴)

رابع ۴ رم الصورت عینی درک میکنند: از طریق تجربه فعال عمل میکنند با آسیب جاری برای آموزندگان پیرتلاش. در اجرای عمل و یا در انجام یک چیز توجه میدارند. بخود و تدریس کرده و یاد دیگران آنرا سهم میسازند. جواب سوالات ۱۱ مفهوم چه شد؟ میتوانید؟ ۱۱ یا از این مفهوم چه چیز فهمیدم؟ ۱۱ نقش معلم: ارزیابی کننده و اصلاح کننده. میشود: (اختراع خودی) (تلفیق خودی) اجهت مفیدیت مفاهیم تحلیل و تنگ با پایه های آموزش شاگردی آینده را تبدیل گذاری میکنند. آموزندگان نهایت فعال بوده خودشان انجام عمل میدهند و یا دیگران تفهیم میدهند که آنها چه میکنند

رابع چهارم - مهارت

نتیجه مطلوب: ① با گردن باید طرق استعمال کودای کیمیاوی و عضوی را در بهتر ساختن خاک بدانند و کار برد تجربه ی قطعات خاک را بیاموزند ② با گردن طرق استفاده از خاک را در زندگی تحلیل نموده و سوالی تفهیم کنند

فعالیت

① با گردن در گروپ ها طرق استفاده از خاک بحث میکنند

② طریقه جدا کردن خاک را برای کشت با هم بحث و مشوره میکنند

③ با تمام اعضای صنف بحث میکنند

④ طرق استفاده از خصوصیت های گانه قطعات از خاک را مشخص کشت و کار را با هم بحث و مشوره می نمایند

⑤ تصمیم به کیک با گردن میگیرند بعد از ۱۵ روز کیک قطعات و جاذبه خاک را بروی تخته مینویسند

مشوره های فن تدریس، آسانیها و تکنیک ها:

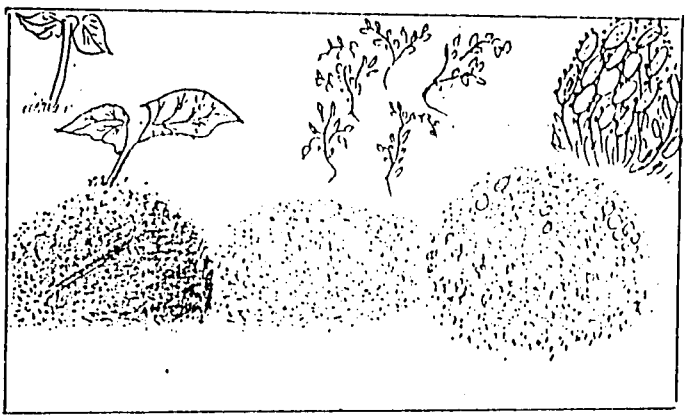
کار گروپی - مشوره - سهمگیری و مشوره با تمام اعضای صنف - مباحثه

مواد مشوره استعمال یا ایجاد شده

تخته - چاک - تخته چاک

ارزیابی: با گردن در وقت بحث مشوره و سهمگیری شان طرف سنجش

نوشته ها میگردد



انواع خاک

حصهٔ زیادِ خشکهٔ ما توسط خاک پوشیده شده است .

خاکها انواع زیاد دارد .

خاکها دارای رنگ ، جلا ، نرمی و درشتی مختلف میباشد .

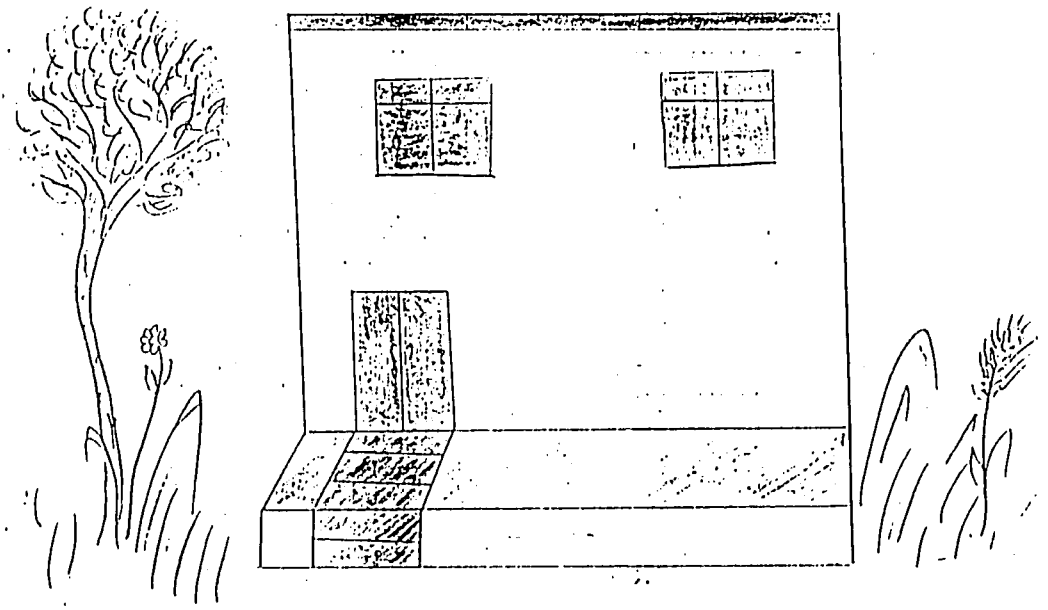
سه نوع خاک وجود دارد خاک ریگی ، خاک زرد و خاک سیاه .

شکل ۳۰

در خاکها حیوانات مرده وجود دارد

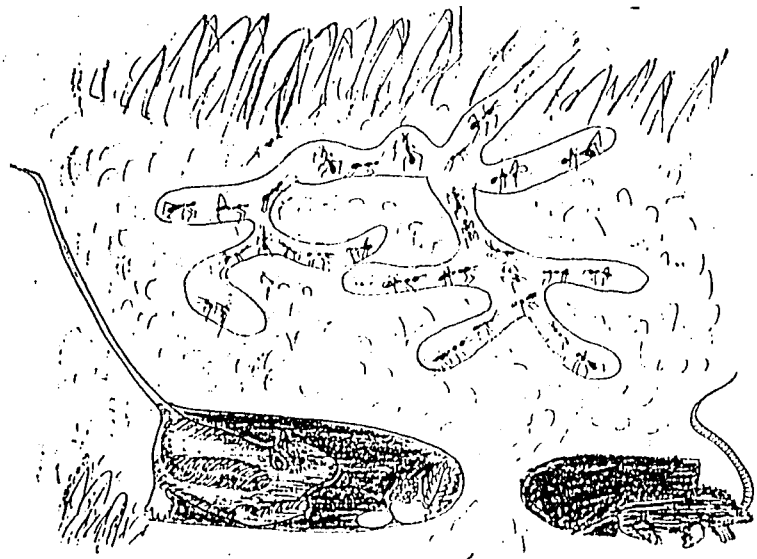
در خاکها نباتات فرسوده دیده میشود

در خاکها آب و هوا دیده میشود



انسانها خاکها را برای ساختن خانه استعمال میکنند.

انسانها خاکها را برای کشت و زراعت استعمال میکنند.



شکل ۴۰

حیوانات و نباتات به خاک ضرورت دارند .

حیوانات در بین خاکها خانه های زیرزمینی میسازند .

حیوانات بعضی اشیارا در زیرزمین گور میکنند .

صنف : اول

تاریخ شروع: ۱۳۷۲/۶/۱۲

تاریخ ختم : ۱۳۷۲/۶/۲۹

نام نویسنده : نصرت الله "شیریار"

مضمون : سانیش

بخش : زمین شناسی

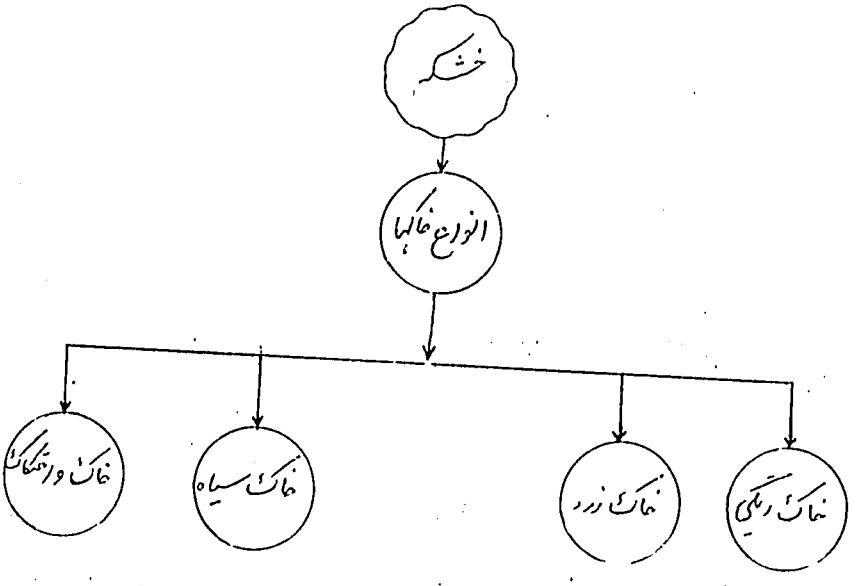
مفهوم : ۶ خشکه

عنوان : ۴۰۶ انواع خاک

معلومات (پیشنهادی)

اصطلاحات علمی

بسم الله الرحمن الرحیم



خشکه :
↓
آن قسمت زمین را که آب فرا نگرفته باشد

اشکاک :
↓
خاک تخریباتی که از اثر حرارت و آب بوجود میاید

منزال ۶ :
↓
اشخاص قشنگ و دارای لباسهای فاخره و زنان محجوده همین میباشد

قشر زمین :
↓
سطح فوقانی کره زمین

اگر به زمین توجه کنیم میبینیم که قسمت فوقانی قشر زمین از ترکیب انواع مختلف خاکها در اثر عمل رنشکاک ساخته شده است قسمت زیاد خشکه را خاکهای تشکیل داده سطح زمین از خاک ها پوشیده شده است . خاک ها از ذرات سنگ ها و مواد آلی ساخته شده است . خواص و مشخصات خاکها از نگاه ذرات بزرگ ساختمان و رنگ از هم فرق دارند .

(۱)

6-Ind 5 TARB SECTION - CONCEPT

373

نام نویسنده : نصرت الله

مضمون : سالنامه

بخش : زمین شناسی

مفهوم : خاک

عنوان : ۴۰۶ انواع خاک

صنف : اول

تاریخ شروع: ۱۳۷۶/۶/۱۲

تاریخ ختم : / /

معلومات (پیشنهادی)

اصطلاحات علمی

ارگانیزم جسم زنده

هیومس خاکهای سیاه که جهت تولید و نگاهداری زراعت بکار برده میشود

بصفت خاکها در ترکیب خود بکمقدار آب وجود دارد این خاکها حاوی نباتات فرسوده و ارگانیزم های مرده نیز میباشد.

زمین لرزه خاک های مختلف ترکیب گردیده است. نباتات مختلف از لحاظ نوعیت خاکها رشد و نمو میکنند. بعضی نموی این نباتات ارتباط مستقیم با نوعیت خاک دارد.

خاکهای رنگین : نوع خاکها در اثر فشار و اوزن توسط دست که از زمین پنجه و ظروف متعدد و سیر میزند.

خاک های زرد : در اثر فشار و اوزن توسط دست اشکال خود را حفظ کرده و این اشکال مدت باقی میماند و مقدار آن زیاد است. شکل ترک آن زیاد است. شکل ترک نباتات قابلیت نفوذ خوب آب را دارا نمیباشد.

خاک های سیاه (هیومس) در اثر فشار و اوزن توسط دست که از زمین قسمتی اشکال خود را نگهدارد اما نه چنان شکل ترک.

نام نویسنده : نصرت الله

مضمون : ساختمان

بخش : زمین شناسی

مفهوم : خاک

عنوان : ۳۰۶ انواع خاک

صنف : اول

تاریخ شروع: ۱۹۹۳/ ۹/ ۱۲

تاریخ ختم : / /

اصطلاحات علمی

معلومات (نسبت دان)

این نوع خاک که در قسمت زیرین عمق و بلندی آورده شده با مواد
از مزرعه که استفاده بعمل میآید.

خاک و احتیاط : سنگ که دارای رنگ کمی ندارد
ناپختگی، قرمزی اند عموماً حاوی آهن و بعضی عناصر
دیگر هستند.

زمانیکه نوع سنگ که مواجه با رطوبت هوا میشود تکمیل
مواد کردیت سنگ میشود و یا با عناصر دیگر ترکیب
باد و حرارت بالای زمین تاثیر وارد میکند. و این عمل
نام احتیاط کار یا دیگر نیز.

تمام نوع زمین خاکها برای نمونه نباتات خاص بهترین خاک است که
زیرا علت آنکه آب و هوا برای نباتات ضرور است —
خاک که می تواند مقدار آب را خاک نگهدارد نمیشود
خاک گلی نیز این عمل را اجازه میدهد اما به
میزان کم دارای سوراخ عمیق تر آب خاک نمی میشود
در اثر طوفان شدید، آتشفشان بالای زمین تغییرات زیادی در زمین
نیز بوجود میآید و خاکهای مختلف را بوجود میآورد

نام نویسنده : نصرت آ

مضمون : ش ن ش

بخش : زمین شناسی

مفهوم : ه . خ ک

عنوان : ۴۰۶ انواع خاک

صنف : اول

تاریخ شروع: ۱۳۹۳/ ۶/ ۱۲

تاریخ ختم : / / /

اصطلاحات علمی

معلومات (اطلاعات)

اقسام مختلف خاکها وجود دارد . خواص خاکها نیز مختلف و متنوع است
و لذا اصلاحاتی که بر آن انجام شده است متفاوت میگردد .
این خاکها تحت عامل بیولوژیک در طی مدت زمان تشکیل شده است
خاک بران چهیش در روی زمین در طول تشکیل میدان است تقریباً (300) سال
برای یک سانتی متر خاک ضرورت است که در بعضی مناطق خاک تشکیل شده
زمین در روزهای تر مکنه بعضی ارتعاشاتی که برای ساختمان . آنها به تدریج
خاکها بوجود میآیند سطح زمین رفته و به خاک تبدیل میشوند .
خاکهای که از نقاط معتدل اند مردم آن بیشتر معروف بوده
خاکهای که از نقاط آبرا موجودات به خاک انتقال دارند
و فعالیت های زراعتی آنجا بیشتر میباشد . اگر موجودات به خاک انتقال دارند
خاک بعضی زمین، آبرا مواد غذایی ... برای رشد و نمای نباتات تهیه میکنند
مواد غذایی نباتات نایتروجن ، فاسفورس . پتاسیم و کلسیم اند .
که از زمین میگیرند . سبزیجات ، میوه جات ، گل ها ، و حیوانات
و بهترین مثال در خاک میباشد . بعضی موجودات خاکها
برای ساختن خانه ای زیر زمینی و گودی کردن رشیا مورد استفاده
خویش قرار میدهند .

376

صنف : اول

تاریخ شروع: ۱۳۹۳/ ۴/ ۱۲
تاریخ ختم : ۱۳۹۳/ ۴/ ۲۹

نام نویسنده : نوت الله
مضمون : ساینس
بخش : زمین شناسی
مفهوم : خشک
عنوان : انواع خاک

معلومات (طرز التعلیمی)

اصطلاحات علمی

بسم الله الرحمن الرحیم

سلام می کنم بین درخل شدن درصنف با ش گردان سلام و احوال پرسی میکنم.
بعداً تعوذ، تسمیه، و تلاوت آیه میاکرم کنون، و در ترتیب و تنظیم صنف خود توجه
کار خانگی ش گردان میدهد. بعد از آن شروع نمودن به درس جدید چارت
مصور انواع خاک را کنار تخته صنف نصب و به ش گردان هدایت میدهد
تا چارت را به دقت ببینند و در مورد آن فکر کنند. معلم هدایت ش گردان با هم
مشوره، میدهد و شهکاری در درس میدهد. بعداً معلم یک سلسله سوالات
را که ارتباط به چارت دارد مطرح میکند.

ستدرشیی ۱۵ سوال

چی میدانم؟
چی کی دهم بدانم؟
چی آموخته ام؟

باین ترتیب معلومات قبلی ش گردان را در ارتباط درک ستدرشیی ۱۵ سوال
و ستدرشیی سوال وجواب پیدا میکنند.

ش گردان عزیز :

① درین چارت چه چیز را می بینید نام ببرید؟
② عبدالله جان : روی زمین را چه چیز پوشانیده است؟
③ عبدالله جان ! خاک ها کدام رنگ ها را دارد؟
" " شنیم را در کدام قسم خاک پیدا میکنیم؟
" " آیا در رنگ هم شنیم، جو، جدول کشت میکنیم؟
" " آیا خاک گلی رنگین با خاک زرد و سیاه فرق دارد یا خیر؟

نوت: معلم اصطلاحات علمی را روی تخته مینویسد.

نام نویسنده : مهوت آ
مضمون : ن ش ن
بخش : زمین شناسی
مفهوم : ۶. خشک
عنوان : ۴۰۶ انواع خاک

صفحه : اول
تاریخ شروع: ۱۲/ ۶ /۱۹۹۳
تاریخ ختم : / /

اصطلاحات علمی

معلومات (طرز العملی)

تصنیف
گروه بندی
طبقه بندی

اصطلاحات
عمل تجزیه‌ای
که روی عوارض آلایی
بدست میآید
لسیم فولادی
و
آهنهای لسیم
مخصوص کشت
که در دوران
پای زنگ فولادی
پیدا میشود

— — — آیا خاک با رنگ زرد چطور استفاده میکنیم ؟
— — — خاک از سن و رنگ چه اطلاعی میدهد ؟
— — — آیا خاک با آب و هوا چه ارتباطی دارد یا خیر ؟
— — — آیا رنگ خاک در چند متر فرق دارد یا خیر ؟
— — — آیا شکل و ساختمان خاک فرق دارد ؟

بعد از معلم از هر نوع خاک یک نمونه با خود در صنف آورده است
بعد از معلم از هر نوع خاک یک نمونه با خود در صنف آورده است
با دست هر یک از گروپ قسمی تجزیه میکنند تا گروپ خود خاک را توسط
دست تجزیه کنند و تفاوت بین خاک ها را بدانند . خاک را
در تیوب رنگ ، با خاک ، با زراعت و ترکیب با هم شاشه میکنند .
از گروپ خود میبینند که بعض خاک ها در اثر فشار وارده به شکل مشت
باقی میماند و بعض در اثر فشار وارده در بین پنجه ها بیرون به زمین میریزد
از گروپ ها در اثر این فعالیها خاک را تشخیص ، تصنیف ، نامگذاری ، تجزیه و تشریح
میکنند . و به اثر فشار وارده خاک گرویتی خاک را معلوم میکنند .
از گروپ مفهوم خاک و اصطلاحات را توسط تجربه ذیل به ثبوت میرسانند
مواد مورد ضرورت : لسیم فولادی بدون از دست دادن صابون که در صفحه ۱
رنگ فولادی پیدا میشود .

378

نام نویسنده : [illegible]

مضمون : [illegible]

بخش : زمین‌شناسی

مفهوم : [illegible]

عنوان : [illegible] (انواع)

صنف : اول

تاریخ شروع: ۱۳۹۴/۶/۱۲

تاریخ ختم : / /

معلومات (طرز العمل)

طرز العمل تجربه : (۱)

① یک پارچه پشم فولادی را که به اندازه‌ی یک لیمو باشد انتخاب کنید .

② پشم فولادی را با آب صاف خوب شسته و آنرا در ظرف دیگر بگذارید .

③ بعد از سه روز پشم فولادی را در ظرف دیگر نگهدارید .

④ بعد از سه روز پشم فولادی را از آب شسته شده و آنرا در بین انگشتان خود تمالید .

ملاحظه : پشم فولادی به پارچه‌ای هندوانه‌ای چه رنگ دارد ؟ مشاهده شما چه شد ؟

ضرورت استعمال دستکش را بری را داشته باشید .

نتیجه : اجزای پشم فولادی با اکسیجن هوا ترکیب شده و بصورت سرخ رنگ تبدیل گردید . چرا ؟ آیا کیفیت هوا با اجزای آهن ترکیب شد .

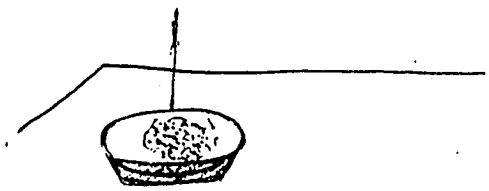
و یا پارچه پشم فولادی باعث تشکیل اکسایه آهن و یا رشته گردیده و بصورت دستکش که دارای رنگ‌های زرد و نارنجی و قرمزی زنگ مانند آهن میشود بیننده و آهن که در سطح زنگ قرار گرفته باعث زنگ آهن میشود زمانیکه پشم فولادی تشکیل بصورت سرخ رنگ میشود

لغت : به کار گردن باید چهی شود که خاک سیاه برای کشت نباتات و غیره بهترین خاک است . معلم نظر به کار گردن مهم مورد کار به کار گردن خود سعی بدارند — موجودات زنده در مورد خاک استفاده کلی برای ساختن خاک از بقایای

گوگرد و سیاه و غیره

ترسیت
یک ورق کاغذ
فلزات و زنگ
یاد میشود

آکسایه آهن
زنگ آهن



نام نویسنده : نصرت الله

مضمون : سالنامه

بخش : زمین شناسی

مفهوم : خاک

عنوان : ۴۰۶ انواع خاک .

صنف : اول

تاریخ شروع: ۱۳۴۲/ ۶ /۱۲

تاریخ ختم : / /

اصطلاحات علمی

معلومات (طرز العملی)

معلم ، گردان Q به گروپ ها تقسیم نموده ، به هر گروپ یکنوع شگر سپرده

توضیح و هدایت لازم برای شان ارائه میدارد . شاگردان Q در خانه

قبلاً در تماس داشته ، خود بیرده و شاگردان عموماً در مورد انواع خاک ها

معلومات حاصل نموده اند . شاگردان در مورد زراعت خاک ، خرابی ، رشد

نوعیت خاک و طریق استفاده از آن معلومات کافی حاصل نموده اند

شاگردان مطابق به هدایت معلم از هر نوع خاک نمونه یک نمونه Q با خود در صنف آورده

و همین هم در مورد آن بحث و مناقشه نموده اند معلم نظارت و رهنمائی نموده با

شاگردان در وقت کار شان همکاری و کمک نموده اند شاگردان در اثر تمرین

انواع خاک Q تشخیص نموده اند و هم چنان در این تجربه نیز خود هم بدان

علاوه کرده اند . شاگردان میدانند که در کدام نوع خاک کشت نموده و کدام

نوع خاک از حاصل خوب میدهد

شاگردان میدانند که کدام نوع خاک ها در کجا استعمال شده میتوانند

از آن استفاده نمایند (مخصوص) اگر از برای کشت کروف نباتات .. و غیره

همچنان طریق استفاده از خاک ها مختلف Q در زراعتی روشنی

خواص در قریه ها و غیره . کشت ، کجا و در کجا ها تطبیق نموده اند

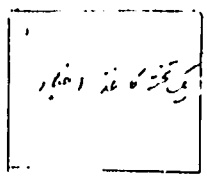
۱۵۱

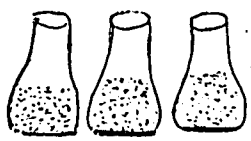
نام نویسنده : نعوت آب
مضمون : ساینس
بخش : زمین شناسی
مفهوم : خاک
عنوان : ۳۰۶ انواع خاک

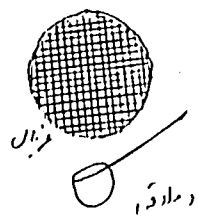
صنف : اول
تاریخ شروع: ۱۱/ ۴/ ۱۹۹۳
تاریخ ختم : / /

معلومات (محرز الحق)

اصطلاحات علمی







تجربه

مواد مورد ضرورت : ملاقه ، خاکهای آوان ، کاغذ اخبار ، کولان ، آب

روش عمل :

۱- به اول سه نوع خاک را [illegible]

۲- سایر دانه ها توسط ذره بین عدسه خاک را داخل بوتل ها [illegible]

۳- بعد از سه ساعت از تکان دادن بیرون شد .

(۱) این خاک ها برای چه نوع نباتات بیشتر مناسب است ؟

(۲) کدام این خاک ها برای ساختن خانه ای حیوانات مناسب است ؟

(۳) حیوانات از کدام این خاک ها استفاده میکنند ؟

بعد از تکان دادن توسط ذره بین خاک های آبشاران را درشت ، خاک های نرم جدا ، رنگ ، و چسپناک بودن خاک ها را با تفاوت های آن تشخیص و تفتیش نمایید .

382

نام نویسنده : نصرت الله

مضمون : مسائل

بخش : زمین شناسی

مفهوم : خاک

عنوان : ۴۰۶ انواع خاک

صنف : اول

تاریخ شروع: ۱۳۷۲/۶/۱۱

تاریخ ختم : ۱۳۷۲/۶/۲۹

اصطلاحات علمی

معلومات (مشروحی)

مواد عضوی
گیاه و ترکیب شده دارای
خاصیت زیادی رنگ بوده، تاثیر
تاثیر دهی و آب را دارد

مواد غیر عضوی
همه مواد که در
طبیعت بصورت
سنگ ها و غیره
بدست میاید

مواد غیر محلول
نامیده میشود
یا ذرات ریز
مواد که قابل
حل شدن در آب
نباشد

مواد غیر عضوی یا معدنی

۱) از خاکهای رنگین در زراعت استفاده میگردد اما مواد عضوی و غیر عضوی آن برای نمونی نباتات کمتر است .

۲) اگر به خاک زرد بعضی مواد عضوی دیگر علاوه شود بران زراعت مناسب میگردد .

۳) خاک های سیاه وقتی که بخواهیم از زمین خود کشت کنیم و بدست آوریم به کار میبریم .

۴) خاکهای شنی بعد از تشخیص انواع خوب خاک که بالا ذکر کردیم در زراعت توجه نمود و حاصل خوبی بدست آورند .

۵) خاکهای رودخانه گودالی کناره ها و صحرای نظر به نوعیت خاک آنها در زمین زراعتی استعمال نمایند .

۶) خاکهای در قریه ، شهر ، ولایت ، مکتب ، دکان و غیره در زندگی روزمره خود زیاد مورد استفاده قرار میدهیم .

مواد قابل تدریس نمره ۵ — مودل آموزشی و وسایل برای اکتشاف کتاب ساختن علمی معلم — تهیه و تحشی الف

نمونه ۱

وسیله برای فکر کردن پیراموون مطلوبات پیشنهادی
که آموزنده گان باید آنرا بیاموزند و از آن جهت درپاره آنچه که باید تدریس شود.

پلان واحد درسی برای کسب و اتمام مطلوبات پیشنهادی

مرتباط اینکه چه قابلیت تدریسی شود، چطور آنرا تدریس کنند.

مفهوم چنین است و خواهش های فردی که باید آموخت ترتیب و ارایه کنید؟	مطلوبات مجتمع که در باره خواندن و خواندن خرد باید تعهد آن آموخته کدام اند؟	مفهوم را چطور باید تصور کنیم یا چیز تجربه کرد؟	چطور آموزنده گان را باید مفهوم کمک کرد؟	چگونه آموزنده گان را در تنظیم حدیات برای مفهوم باید کمک کرد؟	چطور آموزنده گان را در تنظیم حدیات باید کمک کرد؟	چطور، چه وقت و در کجا حدیات پیشنهادی و اهداف ما در حیات روزمره آموزنده گان تطبیق میگردد.
مفهوم: خشک عنوان: انواع خاک ها شناسایی خاک خاک رسی خاک لوزه خاک سیاه خاک استخوان و استفاده از خاک ها	شناخت انواع خاک گی های مختلف خاک رنگی خاک لوزه، خاک سیاه - خاک لوم و خشکاک نظر به استعراضی گی شاگردان ۱۲ - TP ۲ ستراتیجی سوال وجواب — تشخیص تفتیش — تحلیل، تجزیه نطقه بندی - نامگذاری تعریف رشد بساختمان زراعت پیرامون اختلافات وغیره متعلقه خاک	کتاب مؤلف آن نمایش دادن خاصیت گی های مختلف انواع خاک خاک ها، آوردن نمونه گی های مختلف خاک در صنف بستر غنی شاگردان	برای گردان اول گروپ قسمت خاصیت مختلف خاک ها را بصورت فشرده و مختصر بیان دارد و بعد گردان اول گروپ اعلان نماید که همه انواع خاک ها را بستر راتیجی کار خواهیم کرد. سوال وجواب استفاده شده معلومات قبلی شاگردان تا معلوم جدید پیوسته داده و شاگردان را به فهم نزدیک نمون. ساختن جدول طوایتی به همین ترتیب معلومات اعلان	سوالات تهیه شود در مورد خصوصیات خاک ها تصور ذهنی در مورد انواع خاک ها طرح شده و بستر راتیجی شاگردان در نظر گرفته شود معلومات شاگردان در یادداشت مفهوم جدید تنظیم شده	شاگردان فرصت داده شود که در مورد خاک ها تصور ذهنی تهیه کنند در اخیر همین به فاصله خود بیان کنند شاگردان بصورت گروپی در مورد انواع خاک ها بحث و مشوره نمایند	فهم اینکه خاک ها چند نوع اند و هر نوع خاک ها دارای چه خاصیت ها میباشد و دیدن صفت و خواص آن کدام اند. فهم اینکه خاک ها کجا به کار میرود. اگر خاک ها تشخیص شود چه تاثیرات منفی در زراعت به کار میاورد و چطور رعایت حوزه تطبیق نماید تا جلوگیری کرد.

وسایل تهیه شده برای اکتشاف کتاب ساختن علمی معلم که از کتاب بتدوم مربوط موسسه ی - ای - سی - دی اخذ و توسط دانشتی وشنیزی تدوین شده است.

وسایل آموزشی و تدریس برای انسان کتاب شناخت شیمی ۳

وسایل برای فکر کردن پیرامون مطلوبیات طرز التلقی و بینشی که آموزندگان باید آنرا بیاموزند و بتوانند با آن زندگی کنند

پلان واحد درسی برای تدوین و اتمام مطلوبیات طرز التلقی

کدام چیزها را باید آموخت ؟	چیزها را باید تدریس کرد ؟	چطور آموزندگان را در تشکیل چارچوب طرز التلقی کمک شوند ؟	چطور آموزندگان در انجام ساختن مدارجها و طرز العمل کمک شوند ؟
کدام چارچوب طرز التلقی ها در رابطه به همخوانی انتخاب شده پیشنهادها و شواهدهای فیزیکی موجود توسط آموزندگان تائید میشود ؟	چطور آموزندگان را باید تدریس کرد ؟ مدول فزیکی و ذهنی کدام شوند تا اینها در تصویر کردن و کاربرد در مجموعه شواهد و شواهدهای فیزیکی کمک شوند ؟	چطور آموزندگان را در تشکیل چارچوبهای طرز التلقی کمک شوند ؟	چطور آموزندگان در انجام ساختن مدارجها و طرز العمل کمک شوند ؟
شاگردان را مطابق پیشرفتی ها K W H ، خانه توان چارت ، مصوالنواع خاک ؟ ، سوال و جواب ، خودشان کتاب توسط شاگردان ، تمرین های عملی شاگردان ، شاگردان انواع هر نوع خاک توسط دست ها بر رابطه شاگردان — تجربه در رابطه به خاک و (خصوصیات) شاگردان Q مجموعه آشنا و پیدا نمودن ایشان .	شاگردان نمونه از هر نوع خاک که شناخته میشوند . میتوانند که خاک ها از چه ها خلق شده اند چه نوع ذرات ، ترکیب و ساختمان آن شاگردان ، عملکرد خاک ها را توسط تستهای خود فشار میدهند تشخیص میدهند ، طبقه بندی و تعلیل میدهند ارزیابی های مصور خاک ها استفاده شده مشورت شاگردان فکر ، مشوره و شهرت میدهند	در مورد مجموعه شاگردان فکر مشوره ارزیابی تشکیل پیشرفته و شهرت استفاده تمرین میدهند تمرینات ارزیابی را تشکیل میدهند عملکرد خاک ها Q توسط دست شان فشار میدهند و تفاوت ها را اندازه میگیرند .	در قسمت کاربرد خاک و طرز العمل شاگردان نوع مناسب خاک برای نباتات مختلف ، چه وقت و در کجا مناسب است طرز التلقی و مهارتها ساختن مدارجها و طرز العمل کمک شوند ؟
			زمین های حاصل خیز زراعتی بوسیله اشغال کودهای کیمیاوی و حیوانی و مصالح ساختن زمین های کم حاصل ، آزمایش در محیط شهر ، وظیفه مکتب ، خانه ، زراعت و جامع خود عملکرد دوزنده تبلی دهنده و خوش

وسایل فکر کردن برای انسان کتاب ساختن علمی معلم که از کتاب بعد دوم موضوع مورد ای - اس - سی - دی اخذ و توسعه یافته - شده و عزیزی تدوین شده است .

References

Dr Hackett, Jay K. and
Dr Moyer, Richard H.
Teacher Edition, Science
in your World. Grade 1
Macmillan - McGraw/Hill
School Publishing Company,
1991, U.S.A, pp. 94-98.