Republic of Kenya

LOW COST TEACHING AND LEARNING MATERIALS

TEACHER'S MANUAL

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UNIT 1

CHILDREN'S DEVELOPMENT AND LEARNING STYLES'

UNIT 1, *Table of Contents*

UNIT 1 INTRODUCTION

Hello teacher, welcome to unit 1 of this training manual on low cost teaching and learning materials. In this unit, we are going to discuss how children develop and their various learning styles. We will also consider some principles of how they learn. This will help us in planning for the activities we can undertake in class and the teaching and learning resources that we might require.

The unit is divided into four sections. These sections are:

- principles of development,
- developmental differences of children,
- how children learn and
- multiple intelligences of children.

By the end of this unit you should be able to:

(1) discuss some principles on how children develop,
(2) list developmental capacities of children aged between the years 3-8,
(3) describe the various learning styles of children and
(4) identify appropriate teaching and learning materials that support learning.

We will begin by looking at the principles of development. We hope you will find this unit interesting and useful in your teaching.

UNIT 1 Section 1

Principles of development

A. Introduction

What do you understand by the term 'principle'?

Comment
You may have thought of a principle as one or more ideas that explain how and why something happens. They provide the basis upon which a certain practice is founded.

During your college days, you might have learnt about theorists, such as Piaget, Erikson, and Maslow. Perhaps you also came across others such as Vygotsky and Bruner. Each of these persons contributed important ideas that tell us how children develop. They gave us **principles** of children's development and learning.

What do we understand by 'principles of child development'?

Comment
Principles of child development and learning are general statements that were arrived at after a lot of research on children by psychologists. These principles act as a guide or basis that a teacher puts into consideration while preparing to teach in the classroom. The teacher takes into consideration the developmental level and the learning needs of the children. Each of these psychologists contributed greatly to our understanding of children.

B. Reviewing child development theories and principles

What do you remember about theories of Piaget?

Comment
Piaget tells us that children construct their knowledge of the environment through active participation. He says that children of different ages have cognitive abilities that vary quite a lot, and that children need to interact with concrete objects in order to learn effectively. This helps us in our preparation for teaching and

enables us to diverse suitable methods and at the same time avail as many real objects as possible to cater for individual differences.

What can you remember about Erikson's ideas on children's learning?

Comment

You might have remembered that Erikson thought that children have various social crises at various ages and require assistance to resolve issues facing them or they would have difficulties at subsequent stages. Young children need to be encouraged to be independent learners. If they feel that they are unable to do something, they require understanding and recognition by you as a teacher so that they develop a positive self-image. If this is not done, they may develop negative self-concept, shame and doubt in their own abilities and this affects them in a way that they may not realise their full potentials.

What about Maslow's contribution to the child's learning?

Comment

Maslow came up with the **hierarchy of needs** that should be addressed or taken into consideration if children were going to benefit from the instructions provided in the school. He shows us clearly that certain physical needs of the children must be met before they are able to meet social and prestige needs. Unless children's physical needs for food and water and their need for security and protection from abuse are met, they are unable to concentrate and learn.

.

Now let us look at Vygotsky and Bruner together .

Comment

Lev Vygotsky's theory of social construction shows us that we learn from each other. Children learn through social relationships and can do more with the guidance of a teacher than on their own. Bruner's theory on the other hand, shows that children are more capable than we think. They can learn and demonstrate that they have learned if we give them tasks and information based on their developmental levels. Now let us look at some principles of development.

What important principles of development and learning do you think we need to put in practice?

Comment

You may have come up with interesting ideas. Compare them with the following:

i) that children learn best when their physical needs are met and when they feel safe and secure.

Developmentally Appropriate Practices, which are sometimes called DAP, respect children's biological needs and security needs. For example, children should not just sit and attend to paperwork or listen to a teacher teaching for long periods of time. DAP calls for active play and periods of quiet and relaxing activities. They also require an environment that is safe and secure where they feel accepted by everyone.

(ii) that children construct knowledge.

Knowledge is constructed as a result of dynamic interactions between the individual and the physical and social environment in physical and social environment. In a sense the child develops new knowledge through active experimentation.

Central to experimentation is making "constructive errors" that are necessary to cognitive development. Children need to form their own hypotheses and keep trying them out through cognitive actions and physical manipulations, observing what happens, comparing their findings, asking questions, and discovering answers. They adjust their model and or alter their cognitive structures to account for the new information.

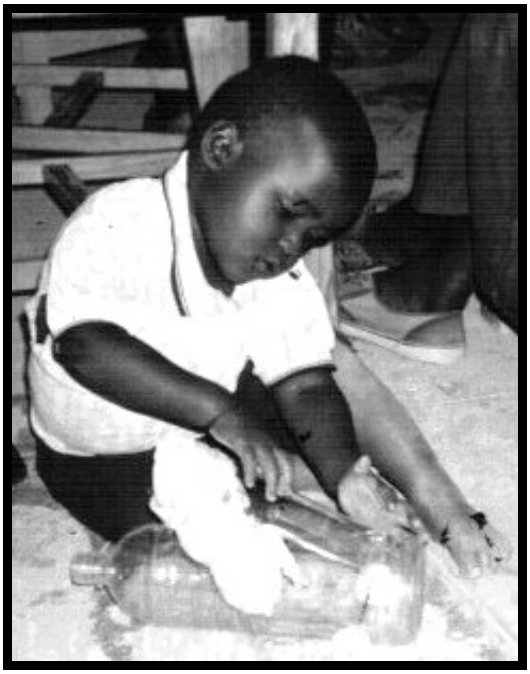

Figure 1.1 A young child actively learning

(iii) that children learn through social interaction with adults and other children.

A prime example of an important relationship is the parent-child relationship. A teacher encourages and supports this relationship. The teacher also needs to have a supportive relationship with each of the children so that they feel free to

learn. The teacher also encourages children's relationships with peers and other adults by supporting them in their efforts at socializing. The teacher also encourages the child to function independently. The teacher's role therefore is one of supporting, guiding, and facilitating development and learning.

(iv) that children learn through play.

Play provides opportunities for exploration, experimentation, and manipulation that are essential for constructing knowledge and contributes to the development of representational thought. During play, children examine and refine their learning in light of the feedback they receive from the environment and other people. It is through play that children develop their imaginations and creativity. During primary school years, children's play becomes more rule-oriented and promotes the development of autonomy and cooperation, which contributes to social, emotional, and intellectual development.

Figure 1.2 Girls playing and learning

(v) that children's interests and "need to know" motivate learning.

Children have a need to make sense out of their experiences. In a developmentally appropriate classroom, teachers identify what intrigues their children and then allows them to solve problems together. Activities that are based on children's interests provide motivation to learning. This fosters a love for learning, curiosity, attention, and self-direction.

(vi) that children's development and learning are characterized by individual differences.

A wide range of individual variation is normal and to be expected. Each human being has an individual pattern and timing of growth and development as well as individual styles of learning. Personal family experiences and cultural back-grounds also vary.

Let's do an activity to help us remember these important principles of development.

Activity 1

We want you to reflect on each of the principles above and try to link each principle with the theorist who holds that view.

Comment

Did you notice that it was Piaget who said that children are active learners and that they learn through play? He also said that children's interests motivate their learning. It was Piaget, Bruner and Vygotsky who found out in their research that children construct knowledge. Bruner and Vygotsky discovered that children learn in social relationships with teachers, members of the community and other children. Maslow emphasized that children are able to learn when their physical and safety needs are met.

C. What have we learned?

In this section we considered various developmental principles by famous theorists. These psychologists had done extensive research on children. What we have learned from these researchers is that children learn best when their physical and emotional needs are met. We also discovered that actively construct knowledge and at these ages they learn through play and social interactions. We have been told that children's interests and need to know motivate their learning, and also that although their development and learning are similar there are individual variations among children. We can use these principles to understand children. We learned that if we apply these principles we will ensure that children learn.

In the next section, we are going to discuss developmental differences in children.

Figure 1.3 Uniqueness of children seen in their faces

UNIT 1 Section 2

Developmental differences in children

A. Introduction

In this section, we are going to look at how children's capacities change from year to year. At each stage from year three and above, children become more aware of their environment as their mental capacities develop. From standard one to three, children are very different in what they are able to do.

Children's development is in three major areas. These are the intellectual, social-emotional and psychomotor. These areas are sometimes called the "domains of development."
Let us look at what each of these domains entail.

What do you think are the behaviour and capabilities in each of these major areas of development?

Comment
The **intellectual area** includes all major cognitive activities and language. That means it includes thinking, remembering and reasoning. All the mathematical and science processing capabilities are included here. In addition, every aspect of language such as listening, speaking, reading and writing are in this developmental domain.

In the **social-emotional** area lies ability for social relationships, self-esteem and resilience. Our competency in expressing and controlling our feelings is also found here.

In the **psychomotor domain**, our ability to manipulate objects and to move about is within this area.
Bearing in mind all the three domains, let's look at children's developmental differences. This will help us understand that children learn at their own pace and that there is need to plan for individual differences in our teaching.

B. Children's developmental differences

Children between three and eight years change very fast. They are growing up rapidly developing new skills and acquiring knowledge.

What the child could not do the other year; they were able to do it last term. This term they can do it even better. Children change in cognitive, language abilities, social and emotional behaviours. They also change in physical and motor abilities. In each of the three areas of development they change, but at different rates.

Activity 2

Make three tables like the one in Table 1.1, 1.2, and 1.3 below. On the tables, you will notice that we have begun to list examples of development competencies and milestones in the development of children of 3-4 years, 5-6 years and 7-8 years in each area of development. You are going to make your tables and list more examples of competencies for children of each age group.

Table 1.1 Development of children 3-4 years

Cognitive	Social-emotional	Psycho-motor
• *Short memory span*	• *Ego centric*	• *Energetic*

Table 1.2 Development of children 5-6 years

Cognitive	Social-emotional	Psycho-motor
• *Speaks first language fluently.*	• *Work in groups, share, and take turn.*	• *Can manipulate and model objects.*

Table 1.3 Development of children 7-8 years

Cognitive	Social-emotional	Psychomotor
• *Can read and write simple sentences*	• *Can share and work in groups effectively*	• *Can throw skip, jump, climb, run, kick.*

Now complete your tables with your lists of children's abilities and characteristics at each of the age groupings.

Comment

Your tables may look like the ones given. Compare these tables with yours

Table 1.4 Major milestones and competences of 3 – 4 Year Olds

Cognitive and Language	Social – Emotional	Psychomotor
• Short memory span • Listen to instructions • Very inquisitive • Recognize family, relatives and neighbours • Trace home from school • Illogical reasoning and initiative • Recognize pictures of shapes and people • Can name people, family and friends	• Ego centric • Trusting and honest • Interact with family members • Attachment to parents • Follow rules • No tolerance • Mix easily with peer group • Forget easily • Resolve conflicts easily • Fear strangers • Naughty – beat others and take things • Imitative • Complaining and reporting	• Energetic • Explore • Very playful • Distinctive • Muscular coordination not strong • Eye-hand coordination not easy

Figure 1.4 Young children show their emotions directly

Table 1.5 Major Milestones and Competencies of 5 – 6 Year Olds

Cognitive/ Language	Social Emotional	Psychomotor
• The child speaks first language fluently. • They can conceptualize concrete objects in the environment and name them. • They can classify and group objects according to different aspects. • They understand basic instruction in 2nd and 3rd language. • They can predict and hypothesize, cause and effect of simple events and occurrences. • They are able to read and narrate simple stories. • They can identify numbers 1-100 and do basic mathematical skills. • They are, curious, observant and inquisitive. • Can do simple experiments.	• They work in groups, share, and take turn. • Keep rules in games. • They can emphasize. • They know what is right and wrong. • They role - play, dramatize. • They easily socialize to the religion of their parents. • They can appreciate, kindness, honesty, trust-adults and will question if a rule is broken. • They can express their emotional feelings verbally and physically. • Children know they are loved or not loved. • They are also frank. • They can play hide and seek game.	• They are physically active • They can manipulate and model objects. • Can play football etc. • They can zip and button. • They can hope, jump balance on one leg. • They can climb trees. • They can ride bicycles. • They can write, draw, paint, colour. • They can roll, pass through a tunnel.

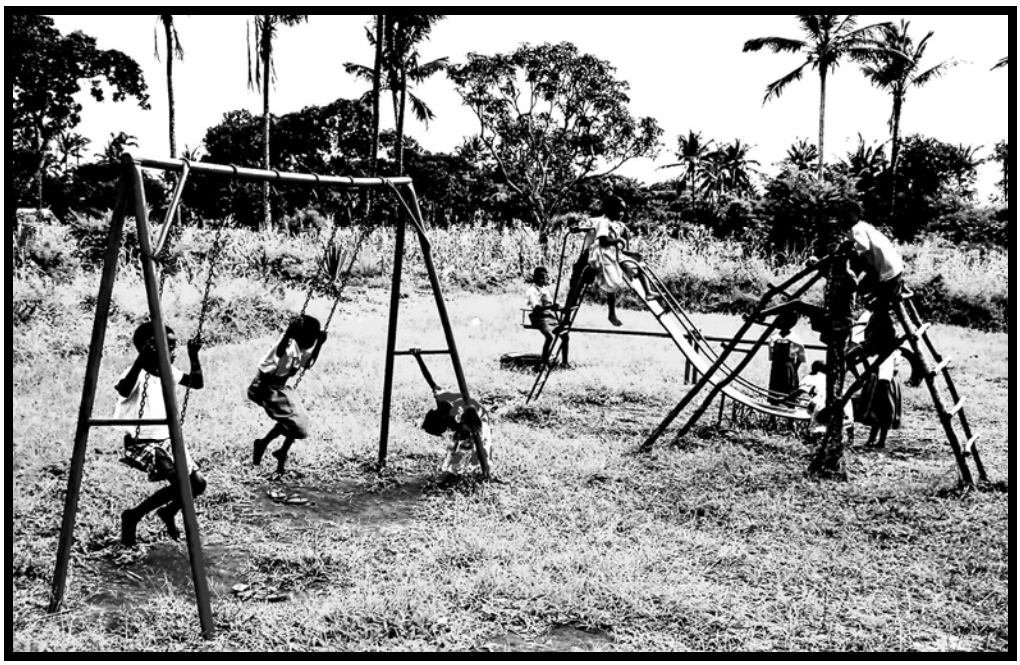

Figure 1.5 Children enjoying physical activities

Table 1.6 Major Competences and Milestones of 7 – 8 Year Olds

Cognitive and Language	Social Emotional	Psychomotor
• Can read and write simple sentences. • Can do simple addition up to 2 digit numbers. • Can recall events. • Can construct simple sentences. • Can narrate stones. • Can role play? • Can dramatize. • Think perceptively. • Can perform simple experiments.	• They: Share • Work in groups. • Playing in groups. • Start choosing friends. • Follow instruction to avoid punishment. • Concern about the welfare of others (empathize). • Differentiate between good and bad. • Can pray. • Take responsibilities. • Can be aggressive. • Complaining and reporting.	• Can dance to rhythm. • Can sing. • Model • Draw • Construct things. • Paint, write. • Play games, musical instrument.

Comment

What we need to remember is that children's rate of development varies. Some develop fast, some averagely, while others are slow. This means that if we have a class of children who have the same age, their development levels are still very different. Some may be one or two years behind and some may be a year or more ahead.

As teachers we should not think that the slow ones are stupid. We can do harm to the children if we label them as stupid. We are damaging their self-concepts.

The cause of these slow rates of development could be genetic; it is a family trait of maturing slowly. Even plants and animals have these differences.

The cause of the differences could also be the exposure or the experiences the children have had. Some children may have missed ECD classes and other interactions and hence their limitations.

In addition, poor health and nutrition, and difficult circumstances may affect the child physically and mentally. Instead of being judgmental, we should look for ways and means of helping each child at their level.

C. What have we learned?

In this section we learned that children's development is grouped within three areas. These domains are cognitive, social emotional and psychomotor. We learned that language is in the cognitive area while moral and spiritual are in the social emotional area. We also learned that psychomotor includes both movement and manipulation.

We also discussed that child's development changes and we recalled the developmental differences of children 3-4 years, 5-6 years and 7-8 years. We learned that it is important to know some of these differences because children in our classroom may have wide differences in development. We learned there is need to recognize developmental differences.

We have come to the end of this section. In the next section, we are going to discuss how children learn.

Figure 1.6 Children's behaviours reflect their levels of development.

UNIT 1 Section 3

How children learn

A.Introduction

In the previous section, we learned the differences in child development. In this section, we are going to discuss how children learn.

From your experience as a teacher you may have noticed that children of the same age differ in their learning. They respond very differently in learning situations in the classroom. Some would like to talk about a problem with the other children while there are those that may ask questions. Other children wait for instructions from the teacher.

What do you think are some of the reasons for these differences in the way children learn?

Comment

Although we all spend a lot of our time learning in life there are various ways that we can learn. These different ways of learning are called learning styles. These learning styles guide children and teachers need to understand these styles so that they can provide appropriate activities and learning materials. Now, let us look at the learning styles in some detail.

B. Learning Styles

Let us think about the different ways in which children learn so that we can understand how to enhance their learning.

In what different ways do you think children learn?

Comment

There are several major learning styles that teachers need to be aware of. These are:

- *doing,*
- *discovering*
- *exploring,*
- *questioning,*
- *talking,*
- *listening,*
- *imitation and role play,*
- *trial and error ,*
- *practice, and*
- *learning from each other*

Let us look at each of these carefully so that we can understand the ways children learn in our classrooms

***(i) Doing*:**
Children are able to construct knowledge from their actions on concrete objects from their environment. By doing and actively involved in manipulating objects, they become cognitively involved. They also improve their concentration skills and become more competent as they practice with relevant objects.

Figure 1.7 Children keenly involved in a learning activity

Activity 3

Make a table similar to Table1.7. On the table you will be identifying how children responded to teaching and learning materials that you gave them. You will list five different times that you gave objects to the children in your class to manipulate and learn from. Think about how they responded to the objects. How did they act? Did they become more involved?

Table 1.7 Responses of Children to Objects Given

Class and Subjects	Objects Given	How they responded

Now fill in the table.

Comment
If children are relaxed and encouraged to use teaching and learning materials they pay more attention and they concentrate more when doing tasks provided. They often get motivated and want to learn even more. That is part of how children learn: to do activities with objects. Young children often need to manipulate objects to enhance their learning.

***(ii) Discovery and exploring*:**
In this learning style children want to touch, shake, taste, open, throw, and take apart objects as they interact with them on their own. Naturally children's actions on objects encourage them to try to discover how things relate to one another and how they work. Children at this level go beyond "doing" something with the objects. They want "to understand how and why the object works the way it does''.

As children keep persisting in finding out more from objects, they strengthen their memory and understanding. To satisfy this curiosity, children need varied and challenging learning materials and opportunities to discover their environment. The more they explore and discover, the more they are learning.

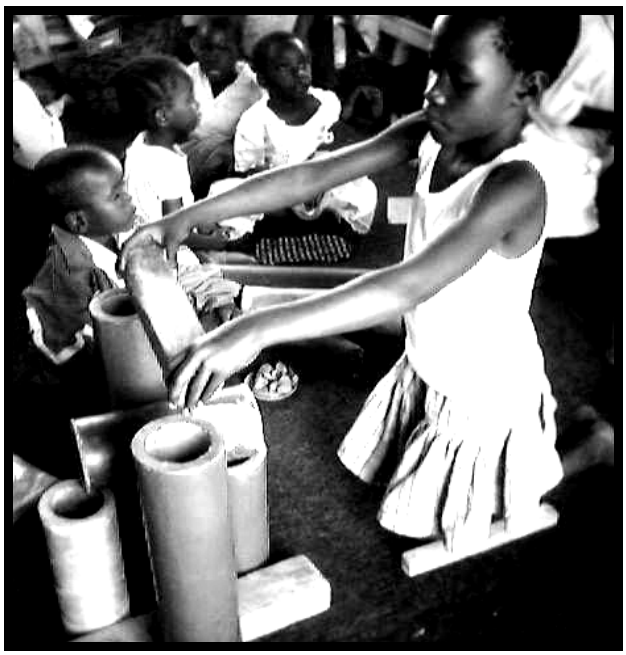

Figure 1.8 A child developing science processing skills during block building.

Let us think about the case study below.

Case Study

Mrs. Waiyaki brought to her class various seashells of different sizes that she had collected years ago. She asked the children to put the larger ones to their ears so they could hear the "roar of the waves". Some of the children explored the various parts of the shells and several tried to put their pencils inside to retrieve the animals that they thought were inside. One of the pencils got stuck and as the children tried to remove it, the shell dropped and broke. Mrs. Waiyaki yelled at the children. She took back all the shells from the children and put them away. Then she quickly ended the science lesson and began a seatwork activity.

What do you think are the strengths and weaknesses of Mrs. Waiyaki's approach? What could she have done differently?

Comment

The majority of us do not give enough guidance or clear instructions to children before we give tasks to children. Children need to know what to do and how to do what is expected. They also need to know what they are not allowed to do with the resources provided. We often forget to give this guidance to the children, and then loose our tempers when the children use the materials in the wrong way. Materials that are difficult to replace should be given with instructions on the care of the same. Children are curious naturally. It is up to us to guide the guide them properly.

Now let us look questioning, speaking and listening.

(iii) Asking questions, talking and listening:

Children's curiosity and desire to know leads them to ask many questions about the world around them. If they are free in a classroom, they naturally will want to ask questions and to talk with the teacher.

We must support children by providing a conducive learning environment that is interactive. Opportunities for social interaction should be encouraged where children are free to ask questions. Teachers need to feel free to answer children questions and further challenge children's thinking.

By listening to children's questions and ideas teachers will enhance and promote children's language and social skills.

Which classroom interactions do you think can support children learning?

Comment

When children are comfortable and encouraged, they will naturally ask questions. They will learn freely when they are respected. Even when their answers are wrong, Children won't ask questions or talk freely when they fear ridicule, embarrassment or being shamed. A classroom in which there is meaningful social interaction, promotes learning. In classrooms where the children respond to questions willingly and their answers are rewarded, learning of children is enhanced. Finally, in classrooms where children have useful group work and discussions, the quality of learning is even better.

Figure 1.9 Children interacting freely with their teacher.

(iv) Imitation and Role Playing

Now let us look at how imitation and role-play contribute to learning

In what way do you think imitation and role-playing contribute to learning?

Comment

Children in ECD and lower primary like to act or talk like adults. They play the role of an adult and can pretend to be a cat, a cook, or even pretend to be nursing a baby. Adults and older children should set good examples as role models for younger children to emulate. The way adults behave is what children copy and the impression created can have a lasting effect on the child. Teachers should make materials available for the role-playing. This helps the children to internalize what they are learning.

Social studies is a content area in which we can often incorporate role-playing. Likewise, language lessons can also allow for role-play as children act out a story read or extend the story using the same characters.

In science children can attempt to act out various objects being studied in a pantomime. This often has humorous consequences, but it is serious learning.' Engineers' often have to think of how machines move and try to simulate that movement.

Activity 4

Make a list of role play activities that you can include in your next week's lessons. Include a role-play or imitation every day in at least one subject.

Comment

Some ideas for role play include having the children act out the character in a story you read or what the character did the following day. They may also include having the children act our numbers, such as ones , tens and hundreds (such as 2, 20, 200) so they can feel the differences. Another role play could be to act out the various roles of the family members inside the home and outside in the community. There is no end to types of role plays and each should be selected so that children learn from them.

Figure 1.10 Girls role playing their mothers doing the washing.

***(v) Trial and Error Learning* and practice:**

Now let us turn our attention to the role of trial and error in children's learning and the importance of practice.

What do you think are the roles of trial and error and practice in children's learning?

Comment

We should appreciate that making errors is a way of learning for children. We should avoid seeking for perfect answers from children and encourage children's initiative. We should provide opportunities in a way that the child can practice several times and learn on their own how something works. As teachers we know "practice makes perfect". And in a game activity within groups the children practice without even realizing they are doing work. They are having fun, but we know they are practicing basic skills.

(vi) Learning from other children:

We now think about how children learn from each other.

How do you feel about peer teaching to promote children's learning?

Comment

As a good teacher you have seen that children are capable of learning from other children. For example children can learn from siblings and playmates. When children are playing with materials they can share ideas and challenge each other, for example, in a game activity. This is very natural and some children learn best in social situations. Teachers should facilitate interactive learning in which children can share materials in a project or in a game.

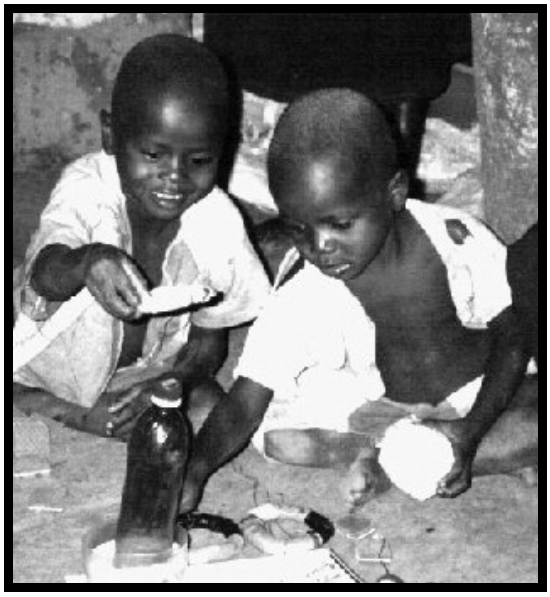

Figure 1.11 Young siblings learning from each other

C.Activities and materials for different learning styles

We just covered the most important types of learning styles. As teachers, we need to include some different activities and materials for these varied styles of learning in our classrooms. We enhance the learning of all children when we include some activities and materials appropriate for each of the learning styles.

Activity 5

Make a table similar to Table 1.8. The table is on next page. We have listed on activity and one type of materials as examples. We want you to add two more activities and three learning materials for each type of learning. List activities and materials you might use in your classroom to develop each learning style of your pupils

Table 1.8 Activities and Materials for Different Learning Styles

Learning Style	Activity	Materials
Doing	*1.Throwing a dice and naming the number shown* *2.* *3.*	*1. Dice* *2.* *3.* *4.*
Discovery and Exploring	*1.Floating and sinking experiment* *2.* *3.*	*1.Pieces of wood, plastics, coins* *2.* *3* *4.*
Asking questions, talking and listening	*Show picture and discuss it*	*1. Picture of people at market* *2.* *3.* *4.*
Imitation and role playing	*1. Act out shop-keeper and shopper* *2.* *3.*	*1. Objects to purchase, "money"* *2.* *3.* *4.*
Trial and error and practice	*1. Letter formation in the air, on desk, on paper* *2.* *3*	*1. Letter formation chart, chalkboard and chalk, paper and pencils* *2.* *3.* *4.*
Learning from other children	*1. Group work activity in measurement* *2.* *3.*	*1. Desks, chairs and other furniture to be measure, string or measuring stick, paper and pencils* *2.* *3.* *4.*

Now fill in your table.

Comment

There are many activities that you may have added for each of the learning styles. As a creative teacher you easily can identify learning activities for each style of learning.

D. What have we learned?

In this section we have learned that children have various ways of learning. These different ways of learning are called learning styles. Children learn by doing, discovering and exploring things around them. They also learn by asking questions, talking and listening to each other and to adults. They learn by imitating role models and role playing situations they are familiar with. They also learn by practicing actions and activities so that skills become automatic. Finally, they learn from interactions in informal settings from other children. We also learned that as teachers we can provide different kinds of activities and materials that match their learning styles. In this way we have shown that we will be supporting all of children's learning.

Figure 1.12 Children's learning styles influence their preferences of free choice activities

UNIT 1 Section 4

Multiple Intelligences of Children

A. Introduction

In the last section, we learned that children have different ways of learning. Now we want to explore why these have these different styles of learning.

Why do you think children have different ways of learning?

Comment

You may have thought that they have these differences in learning because of different levels of intelligences. You are right. It is related to differences in intelligences, but not to the amount of intelligence but to different types of intelligences. The reason children have different styles of learning appears to be related to their intelligence type. There is more than one type of intelligence. Let us explore intelligences further through the case study below.

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Case Study

Mr. Ochieng had been with his class for one month. He had been watching them carefully. There were two children who just can not sit still. They always want to get up and move around, swing their legs or fidget in their chairs. When he asks them to sit still, they can't think. They seem to go blank when they are not moving.

And then there are several groups of children who always are "visiting with their friends". They like to work in groups. Even when then are told to be quiet and do their work independently, they talk to each other.

He has a child that is always are humming or singing to herself as she does her school work. She acts like she is hearing music in her head. She taps the pencil to some unheard rhythm. She also moves to some unsung song. When she is told to pay attention, she appears not to be concentrating.

He has several children in his class who are so interested in animals, plants and other things from nature. They are often bringing these objects into the classroom in their pockets. He finds insects, leaves,

stones and other objects in their desks. They may even be playing with them during their lessons.

Other children in his class are always doodling or drawing. The pages of their book have designs that they had drawn on them. They never stop doodling even as the teacher talks. As they are listening and think, they draw.

How do you think Mr. Ochieng should react to these different children's behaviours?

Comment

We as teachers sometimes think of these behaviours as "mis-behaviours". Sometimes we believe that the children are behaving badly and then need to be controlled. They need to be shaped so that they can sit and work quietly. We think of this as good classroom management.

We may also wonder why these children won't just sit quietly as you talk or do their work without talking, moving, or being distracted. Experts on brain research give us some answers. Their research shows that these different behaviours or "mis-behaviours" demonstrate how different children think. These are the ways they develop knowledge and how they like to express what they know.

According to these experts these differences reflect **different types of intelligences**. Some children develop knowledge through music; others through actions; others through sharing ideas with other; some through reading silently, and so on.

So, Mr. Ochieng, and all of us teachers, should try to identify these different types of intelligences of children. After we identify children's intelligences, we should use child centred methods and include appropriate activities that will assist the children to learn. Let us now explore how we can identify intelligences of children.

B. Identifying multiple intelligences

We have learned that children don't learn in the same way because their brains are not identical. There is not one type of intelligences. There are multiple intelligences. Each of us has our preferred types of intelligences. We often don't have one but we have several.

Which types of intelligences do you prefer to use?

Comment

All of us have our preferred intelligences that guide our learning and our teaching. The descriptions below will help you to answer the question above. They also will guide identifying the multiple intelligences of children.

A person with a particular type of intelligence has the following preferences and interests:

(i) Linguistic:

Enjoys reading and writing activities as well as telling and listening to stories. Communicates with others in a highly verbal way with a good vocabulary for his age.

(ii) Logical Mathematical:

Asks a lot of questions about how things work and likes to do experiments in science class or in free play. Enjoys math class (or if preschool, enjoys counting and doing other things with numbers) and finds math and if exposed to computers finds computer games interesting. At free play time, enjoys putting things in categories, hierarchies, or other logical patterns.

(iii) Spatial:

Enjoys looking maps, charts and figures. Daydreams a lot and doodles on workbooks or other materials. Enjoys art activities and is good at drawings. While reading, gets more meaning out of pictures than words. Builds interesting three-dimensional constructions (e.g., LEGO buildings) and enjoys doing puzzles, mazes, or similar visual activities.

(iv) Bodily-Kinaesthetic:

Shows physical prowess advanced for age and may excel in one or more sports. Moves, twitches, taps, or fidgets while seated for a long time in one spot. Tends to be use excessive movement: runs to class, jumps over a chair. Has good fine-motor coordination and may be good in crafts. Enjoys working with clay or other tactile experiences (e.g., finger-painting). Loves to take things apart and put them back together again.

(v) Musical:

Remembers melodies of songs and tells you when music sounds off-key or disturbing in some other way. Has a rhythmic way of speaking and/or moving. Unconsciously hums to self and taps rhythmically on the table or desk as he/she works. Is sensitive to environment noises (e.g., rain on the roof) Responds favorably when a piece of music is put on and often has a good singing voice. Sings songs that learned outside of the classroom.

(vi) Interpersonal:
Enjoys socializing with peers and belongs to informal peer groups (if older belongs to committees, organizations and clubs. Seems to be a natural leader and others seek out his/her company. Has a good sense of empathy or concern for others and gives advice to friends who have problems. Likes to play games with other children and enjoys informally teaching them.

(vii) Intrapersonal:
Displays a sense of independence or a strong will and "marches to the beat of a different drummer" in his/her style of living and learning. Prefers working alone to working with others and doesn't talk much about his own interests. Has a realistic sense of his/her abilities and weaknesses and has a good sense of self-direction. Is able to learn from failures and successes and usually has a good self-esteem.

(viii) Naturalist:
Talks a lot about favorite animals or preferred spots in nature during class sharing and brings to school bugs, flowers, leaves, or other natural things to share with classmates or teachers. Likes field trips in nature or to the places where there are animals. Shows sensitivity to natural formations (e.g., while walking outside with the class, will notice mountains, clouds) or to physical forms of cultures (costumes, jewelry, types of buildings, etc.) Likes to care for plants or animals in the classroom. Gets excited when studying about nature, plants, or animals and enjoys doing nature projects in class. May defend animal rights and prefers science content that relation to biology and ecology and social studies content that relates to culture.

Activity 6

Make a table like the Table 1.9 below. On your table, list some names of children in their class who match each type of intelligence.

Table 1.9 Matching Your Pupils with Their Preferred Intelligences

Types of Intelligences	**Names of Pupils in Your Classrooms**			
Linguistic				
Logical Mathematical				
Spatial				
Bodily-Kinaesthetic				
Musical				
Interpersonal				
Intrapersonal				
Naturalist				

You may make your table now and fill in the pupils' names

Comment

Children's intelligences influence how they learn. If we know their preferred intelligences, we know what types of activities and materials to use to help them learn. We know how to provide for each of the intelligences of our pupils.

As teachers we want our children to learn. Now with understanding the multiple intelligences we can ensure we do what is necessary to assist them to learn.

C. Appropriate activities and materials for multiple intelligences

Now we want to think about how to select what activities and materials are relevant to children with different intelligences. Think about the following question.

What kind of activities and materials do you think are appropriate for each of the forms of intelligence?

Comment:

The table on the next page guides us in selecting suitable activities and materials for each type of intelligences. It also assists us to think of how each group of children think. By using this table, we are able to better understand our children.

Figure 1.13 Different intelligences need different learning materials.

Table 1.10 Relevant Activities and Materials for Each Type of Intelligences

Children who are highly:	Think In These Ways	They Love These Activities	They Need These Materials
Linguistic	in words	reading, writing, telling stories, playing word games	books, tapes, writing tools, paper, diaries, dialogue, discussion, debate, stories
Logical-Mathematical	by reasoning	experimenting, questioning, figuring out logical puzzles, calculating	materials to experiment with, science materials, manipulatives, trips to the planetarium and science museum
Spatial	in images and pictures	designing, drawing, visualizing, doodling	art, blocks, plastic LEGOs, video, movies, slides, imagination games, mazes, puzzles, illustrated books, trips to art museums
Bodily-Kinesthetic	through somatic sensations	dancing, running, jumping, building, touching, gesturing	role play, drama, movement, things to build, sports and physical games, tactile experiences, hands-on learning
Musical	via rhythms and melodies	singing, whistling, humming, tapping feet and hands, listening	sing-along time, trips to concerts, music playing at home and school, musical instruments
Interpersonal	by bouncing ideas off other people	leading, organizing, relating, manipulating, mediating, partying	friends, group games, social gatherings, community events, clubs, mentors/ apprenticeships
Intrapersonal	in relation to their goals, needs and feelings	Setting goals, meditating, dreaming, planning, reflecting	secret places, time alone, self-paced projects, choices
Naturalist	through nature and natural forms	playing with pets, gardening, investigating nature, raising animals, caring for planet earth	access to nature, opportunities for interacting with animals, tools for investigating nature (e.g., magnifying glass, binoculars)

Teacher, if you provide a variety of these activities in your classroom with many diverse materials, you will be providing what is necessary for each child to learn.

D. What have we learned?

In this section we learned that children have different types of intelligences that guide how they learn. We explored what are called multiple intelligences that we all have. We discovered that some children think more in words and others in images and pictures. Some think through reasoning and others use physical sensations. We saw that a few children think through rhythms and melodies while other thinking is more through objects and events in nature. We learned that many children think by interacting with and bouncing their ideas off of others around them while we found out that other children think in relation to their own needs, feeling and goals. Thus, in this section we explored the characteristics and examples of each of these eight intelligences. We learned that we can identify the intelligences of children within our classroom. We further learned the types of activities and materials that are relevant for each of the intelligences. We were challenged to try to provide as many of these types of activities and materials as possible. In that way we learned that we will ensure the learning of children with the different intelligences.

Figure 1.14 A classroom rich with different activities and materials

UNIT 2

MATERIALS FOR CHILDREN

UNIT 2, *Table of Contents*

UNIT 2 INTRODUCTION

Welcome to Unit 2, of this manual. In Unit 1, we discussed children's development and learning styles.

In this unit we are going to explore what we mean by teaching and learning materials. We will also discuss the importance of materials in enhancing children's learning.

In this unit we will explore the different types of materials and how each type of materials helps children learn and develop specific skills and knowledge. Finally, in this unit we will look at how children's accidents with materials can be prevented.

We have divided the unit into four sections. These are:

- teaching and learning materials,
- importance of materials for children,
- guidelines in selecting materials for children, and
- materials, safety and first aid.

By the end of this unit, you should be able to:

(a) State the importance of teaching and learning materials for children's development
(b) List some benefits of specific types of materials
(c) List important standards for teaching and learning materials
(d) State ways of preventing and treating injuries that may occur when using materials.

We hope that you will find this unit interesting, relevant and useful in your teaching. We will begin by looking at teaching and learning materials for children.
Welcome

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UNIT 2 Section 1

Teaching and learning materials

A. Introduction

Welcome to Section 1 of this unit. In this unit we are going to build on our understanding of children by considering why teaching and learning materials help them to learn. You may remember that in the last unit we discussed how young children have different intelligences and styles of learning. You also recall that children are at the stage of development where their learning is concrete. It occurs around their physical world and objects around them. What they have not seen is not understood. We will consider how our classroom materials can enhance their capacity to learn.

We will begin by looking at the meaning of teaching and learning materials. This will be followed by the various categories of materials that we may have in our classroom.

What do you understand by teaching and learning materials?

Comment
You may have looked at teaching materials as instructional materials and resources that we bring to the classroom to enhance teaching. Some examples include;

- weighing scales,
- charts,
- video cassettes
- VCR equipment,
- pictures,
- puppets and
- books and many others.

Teaching aids are called teaching materials. Anything that we use in teaching activities is a teaching material.

On the other hand learning materials include diverse objects that the children use during classroom activities to enhance their understanding. Some examples of learning materials include objects in learning centres such as utensils and clothing in housekeeping centre, boxes and containers for “purchasing” in the shop area.

Any materials that a child uses for learning could be considered a learning material.

As you can see teaching materials may be learning materials and learning materials could be used as teaching materials. It depends on how we use the materials and for what purpose. A puppet or weighing scales could be used in demonstrations. The children in their activities could use the same puppet or scale.

Children bring materials to the classroom that they are interested in, use them for play at the same time learn from them. We may use the same materials to extend the children's knowledge.

Now do the activity that follows.

Activity 7

On the Table 2.1 is a list of some teaching and learning materials. Make a table similar table. List 25 additional materials that you may have in your classroom. Place a tick in the column for teaching if you use the materials in your teaching. Place a tick in the column for learning if the children use the materials in their activities.

Table 2.1 Teaching and Learning Materials

Type of Materials	For Teaching	For Learning
1.Clay or plasticine 2. Story books 3. Activity sheets 4. Audio Cassettes 5. Rain or weather gauges 6. 7. 8. 9. 10. (*Continue listing 11-28)* 29. 30.		

Once you have your own table made, you may complete the activity.

Comment

You may have noticed that some of the materials are used for both teaching and learning. We often demonstrate using materials and even demonstrate how to use the materials.

Some classrooms do not have enough materials for learning or teaching. Making a list of 25 objects would be challenging to some of us. Some

classrooms have materials in abundance and could list over a hundred. If our classrooms have no materials, we need to do something about it. In the next sub-section, we are going to discuss the variety of materials we can use in our teaching and pupil's learning.

B. Types of teaching and learning materials

Let us begin by considering what types of materials can be brought to the classroom for teaching and learning.

What do you think are some of the different types Of materials that can be used by children?

Comment

In the last section we saw that both teachers and pupils can use materials. We need to explore what types of materials are beneficial in promoting learning. Let us look at various categories of materials that enhance children's development and learning. We will classify the materials into several categories in our class for the pupils' and those that we use for teaching. The items discussed are not exhaustive, but this sample will give you some ideas. We will begin with Construction Blocks

What do you think construction blocks are for?

Comment

Blocks are not just for small children. Look at the figure below.

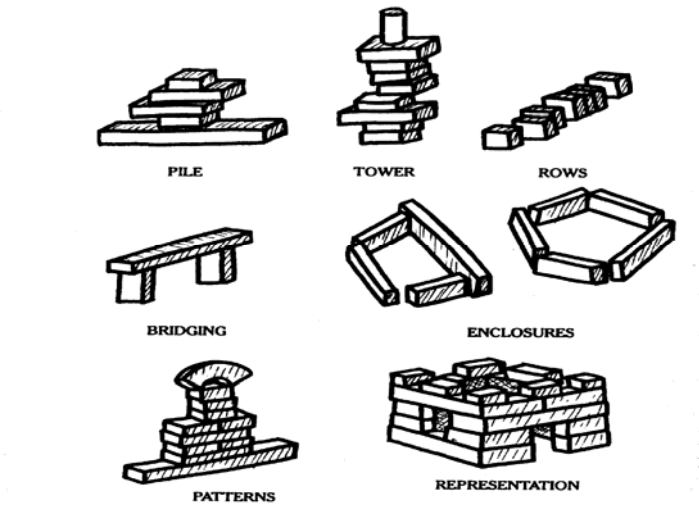


Figure 2.1 Children's developmental levels block building

As Figure 2.1 shows there are developmental stages in block play. As children get older they become more advanced in their levels of construction. They use

logic as well as their understanding of relationships of objects within space. They become small 'engineers and architects'. The more they practice, the more skills they develop.

Architects and engineer still use these concepts and skills of block construction in the process of designing and doing their work. They use the same principles even though today they are making use of computers to do their constructions.

Classrooms need a variety of blocks. They should be in different sizes and shapes. The basic blocks are called unit blocks and come in specific sizes and shapes. In addition to the unit blocks, there are blocks of various curved shapes and other geometric shapes. Figure 2.2 shows some of the various types of blocks. More details on the block measurements are included in the appendices of this manual and you are free to make reference.

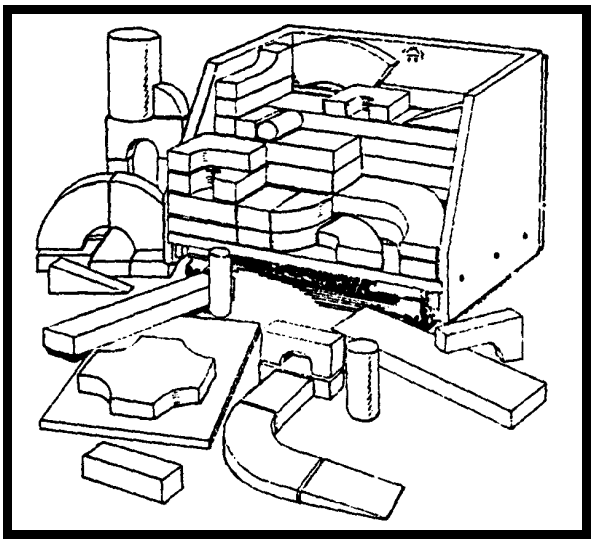


Figure 2.2 Various Types of Blocks for Construction

Now let us look at Outdoor Play Materials

What do you think are Outdoor Play Materials?

Comment Children require various types of play materials for their outdoor play and games. These include balls, tyres, skipping ropes, tossing rings. Playground equipment is also required. Some designs for playgrounds are included in the appendices. Objects and Containers for water and Sand Play make children gain many skills. Many different objects can be used in the sand and water play.

Some of the objects for sand play include:

- Different objects for pouring and measuring
- Objects for imprinting or using for designs such as combs, brushes or deep textures
- Sieves
- Bottles with holes

Some of the materials for sand play are shown in Figure 2.2 below.

Some of the objects for water play are listed below and they include the following:

- Different objects for pouring and measuring
- Objects for imprinting or using for designs such as combs, brushes or deep textures
- Sieves
- Bottles with holes

Figure 2.2 Sand PlayMaterials

Figure 2.3 Water Play Materials

The materials for water play can be seen on Figure 2.3. You many know of many other materials that you could select. These are just a few.

Let us now look at various materials that children can manipulate for learning**.**

What do you think Manipulative Materials for Learning include?

Comment

This category of materials is so large that, it may be impossible to identify even a reasonable percentage the items that could be included here. Some of these items include:

- Clothes and objects used for role play
- Puzzle boards
- Weighing scales and items to weigh
- Items for measuring and measurement tools
- Lacing and stitching materials
- Beading and threading materials, such as large beads and knitting yarn
- Weaving materials
- Flash cards
- Musical instruments and costumes
- Art materials, such as paints, paper

Some of these materials are pictured in the figures below:

Figure 2.5 Various learning materials for manipulation

It important to note that a variety of topics and subjects can be learnt using these materials.

Let us now turn our attention to the role of books and writing materials in the learning process.

Figure 2.6 Books and Writing Materials

What do you think is the role of books and writing materials?

Comment

Picture books, books with illustrations, early readers and short stories appropriate for children's ages could be available and accessible in our classrooms. Writing materials, such as coloured chalk, a chalkboard positioned at children's level is also important. At the same time exercise books and scribbling papers could be availed to the children. Samples of correct letter formation of capital and small letter should be visible for all children to practice and thus improve their handwriting skills.

Where possible, our classrooms could have letter formation charts that show how children can form letters. Figure 2.7 shows an example of a letter formation chart.

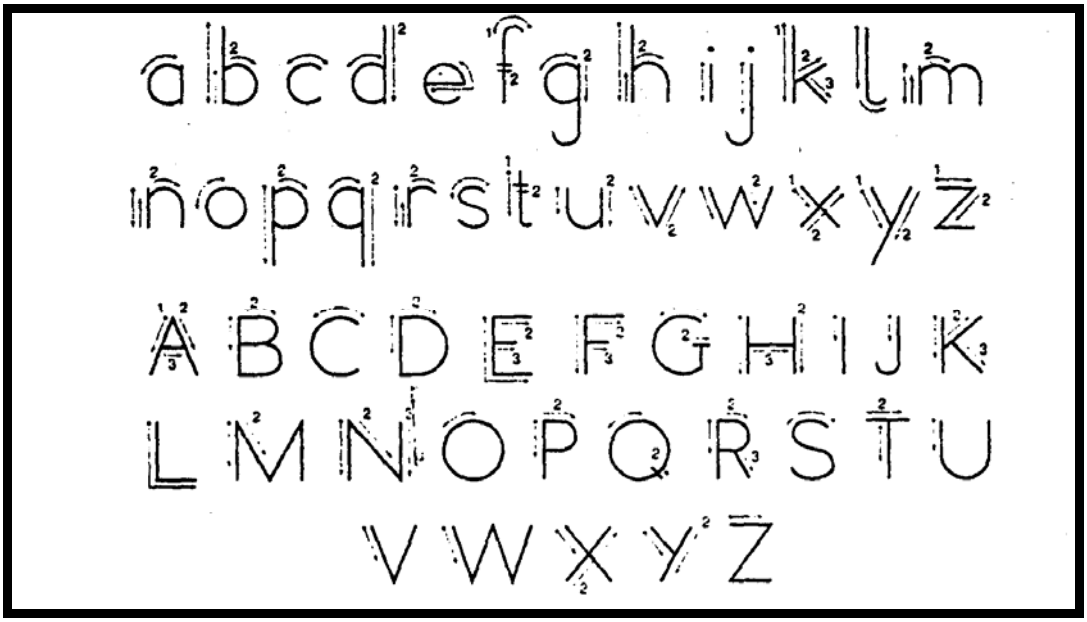


Figure 2.7 Letter Formation Chart

There are a number of affordable children's activity worksheets that are sold in supermarkets. These books contain activities for children of various ages. Some of the worksheets are useful enhancing children's, reasoning and problems solving skills. Samples of such activity sheets are included in the Appendices.
Let us look at the puppets.

In what way do think puppets can enhance learning?

Comment

There are many types of puppets. Some of these are shown in Figure 2.5 below. Puppetry and puppet have many uses in the classroom. Our classroom could have various puppets for our teaching and for playing with the pupils. Some types of hand puppets are pictured below. Look these puppets and decide what kind of activities you could carry out using them

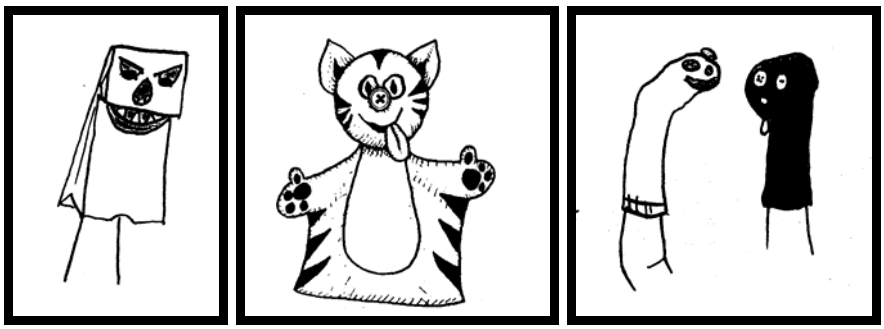


Figure 2.8 Different Types of Hand Puppets

There are other types of puppets that are not pictured here. You probably can identify the missing ones, including marionettes and the wood and string ones.

Let us now think about the role of pictures and other visuals in the learning process.

What do you think is the role of pictures and other visuals in teaching and learning?

Comment

"A picture is worth a thousand words" is a famous saying. Children learn much more when they see the objects in pictures and charts.. Pictures are very important teaching tools. You can bring a remote experience to the classroom using visuals. For example, most children and indeed many adults have never seen how an ice burg looks like. A picture of the same would safe a lot of explanations. We need to have pictures for most topics that we are teaching.

Figure 2.10 Pictures attract learners' attention

Can you think of other types of teaching and learning materials?

Comment

There are many other types of teaching and learning materials that we bring to the classrooms. This discussion was not complete. Some of the materials that were not included here will be discussed later..

C. What we have learned

In this section we have explored various types of teaching and learning materials. We have also considered various categories of materials that are important in you classroom. Some of these include blocks, puppets, manipulatives, puzzles, pictures, and many more. You have learned that many different types of materials are needed for children's learning.

Figure 2.11 Colourful charts make a classroom attractive

UNIT 2 Section 2

Importance of materials for children

A. Introduction

In the last section we explored types of materials for children's learning. In this section we are going to examine why materials are important for children's learning and development and how specific materials contribute in a significant way to children's learning. We will see how specific materials in your classroom can enhance children's development of concepts and skills. We will try to understand better how materials ensure learning and holistic development. We will begin by looking at the importance of materials for learning. Welcome.

B. Value of teaching and learning materials

What do you think is the Importance of materials in learning?

Comment

In the last section we looked at a variety of teaching and learning materials that are useful in classroom. To understand their importance we consider their impact on learning. That means we look at how they influence development and learning.

We may not see immediately the impact of materials on children's learning. Sometimes we cannot see impacts for some years. Let us consider the case study below and think about the impact of the our materials on the children's development.

Case Study

Three friends were visiting their old school late one afternoon. Their former teacher, Mrs. Aloo was still in the classroom arranging various materials ready for use by her learners the following day. They greeted her warmly as they had not seen her in the last fifteen years. She was interested in where they were and what they were doing. Each one them narrated the story of their life. The first was in the university training to be a doctor while the second was studying engineering. The third one was already an accomplished writer of children's stories and was training to become a schoolteacher. Mrs. Aloo was very happy and congratulated them on their achievement and hard work.

The former students were very quick to tell her that she was the

one who should be thanked and congratulated. Her class was always stimulating and so many teaching and learning materials had made them what they were today. In fact, they were coming to thank her for making learning memorable and fun. They even brought her some gifts in appreciation of her tireless work.

What do you think Mrs. Aloo did in her class that made former students come back long after they had left her class?

Comment

One of the things Mrs. Aloo did was to provide teaching and learning materials that were attractive, relevant and adequate for all the learners. She had many different kinds of materials in her classroom. There were a variety of them neatly displayed in various learning areas.

Another thing that Mrs. Aloo did was to encourage the children to interact freely with the materials she provided. She gave them time and freedom for exploration.
Mrs. Aloo guided the children's learning with the materials. She asked them questions to think about as they used the materials. She kept moving them to deeper understanding by directing their attention and provoking their thinking as they used the materials.

She selected specific materials for certain units and displayed them at different times. She put out the materials with certain objectives in mind. She was aware of what she wanted the children to learn.

She also knew how to use the same materials for different topics and experiences. She helped the children to think about new uses and purposes of each of the materials so that the children were learning to be more creative.
It appears that the teaching and learning materials enhanced the children's development.

Let us explore in more details how materials can enhance the children's development. Let us see how materials can motivate the learners

In what way do you think the use of materials can motivate learners?

Comment

Children are sensory learners at the ages under review. They want to touch an object, handle it and do things with it. They don't want to watch as much as they want to do. Remember, we learned that they are active learners who construct their own knowledge. Materials for handling enhance the development of their knowledge

To learn more effectively in class, pupils want to do the experiment rather than watch a demonstration. They are excited and would like to use objects.

If they listen to a story, they want handle the book and read it. They imagine that the characters they are hearing about could actually be seen like in the book. If there are objects used in a story, they want to do the role-play using those materials.

Materials in the classroom attract children's attention and improve their attention span. When they handle materials, they learn through them. They can also demonstrate what they have learned.

As said before, children like to be actively involved in their own learning. They prefer to do with their own hands. This is the stage of development where they learn by doing. We need to consider how we could provide many child centred activities in our teaching. Child centred activities encourages us to bring a lot of materials for the children to use and learn from.
Now, let us examine how materials enhance concept formation.

In what way do you think teaching and learning materials could enhance concept formation?

Comment

When children are provided with the materials to play with, they are highly motivated and do a lot of experimentation with the materials. They want to compare what they know about similar materials to these materials. They have ideas about the objects, but their handling of these objects will confirm what they know or will cause them to learn something new. Their concept or ideas are built on ,grow and improve.

Materials can help children to learn certain abstract concepts that would be otherwise impossible to comprehend. Children are concrete learners at these ages. They need to use concrete objects to learn many concepts. In mathematics for example, children need to use sticks or other objects for developing number value, addition, subtraction, place value and many others.

When children interact materials and have concrete experiences with materials they begin to naturally classify them and identify relationships among them. Materials increase the children's awareness of their environment the relationships**.** Having said that, let us see how materials can contribute to skill development.

How do you think materials contribute to skill development?

Comment

According to Piaget, infants and the very young children have the basic processing skills to solve problems they face. He suggests that

between eighteen and twenty-four months they become like small scientists.

This is wonderful news for us teachers. It means that children already have basic skills. We can build on these innate capabilities of children in two ways:

- give the children appropriate materials and activities in practical applications,
- guide the children on how to use the materials in the activity so that the intended skill is learned.

What children can do naturally is greatly increased by the our guidance. We need to show children how to use learning materials to apply their knowledge. We need to demonstrate clearly what they want the children to do with the materials. The children need to be guided on what concepts they are going to apply and how to use the materials. When we give them bottle tops to count with, we are assisting them to develop skills needed for academic success.

Now let's see how the materials can be used to practice concepts they have learnt

How do you think learning materials can allow for practice of learning strategies?

Comment

When children are given materials to manipulate for a purpose they start applying a strategy to solve problems. When children are given a problem to solve and provided with materials to manipulate for a purpose of solving the problems, they start developing strategies.

Let us explore these ideas more. You can consider them as you do the following activity.

Activity 8

Collect ten branches and sticks of various lengths and thickness. Also collect 10 pieces of string and rope of different lengths and thickness. Divide the class into three groups.

As a group activity give some children the branches and sticks. On the floor they are to arrange them by their lengths. Observe what they do. Listen to their conversations as they arrange them and make notes on what they are saying

With another group of children, have them arrange the branches and sticks by their thickness and NOT by length. Listen to their conversations as they arrange them by the thickness of the branches

Give a third group of children the strings and ropes to arrange in order by <u>their lengths</u> on the desk or table. Again, observe what they do. Listen to what they say as they arrange these materials by their length.

What did you learn from the children in each group as they did the activity with the materials?

Comment

May be you found out that, the materials in this activity motivated the children to think. The pupils had to remember various concepts that they had learned: long, longer, longest. They had to remember how to measure length and thickness. They had to use various strategies to put these materials in order.

The pupils had to look carefully at the materials. Some had to look at length of the objects and ignore the thickness. Others had to look at the thickness and ignore the length.

The use of materials in activities enhances thinking. Children of these ages need materials to understand relationships. They can see the relationships among the concrete objects. They can manipulate the objects and learn relationships more easily. Let us look at the importance of having specific materials in mind and deliberately plan to use the in our teaching.

What do you think is the value of specific materials?

Comment

Every time we write our Schemes of Work and lesson plans we usually list materials we will require to use or have the pupils use. It is important that we reflect on why we put them down. If we do not know why we select a particular material, how will we improvise if it is not available? We won't know its value, its contribution to learning. Each type of material has different benefits. They don't impact on learning in the same way. They all enhance learning but not always in the same way.

How do your think specific types of teaching and learning materials impact children's learning and development?

Comment

Every type of learning materials in some way enhances children's development. We will now explore the contributions of some of them.

(i) Construction blocks

Blocks of different shapes and sizes are particularly important materials

to have in a classroom. They provide for many different types of learning. Some of the specific benefits of blocks are included in the table below.

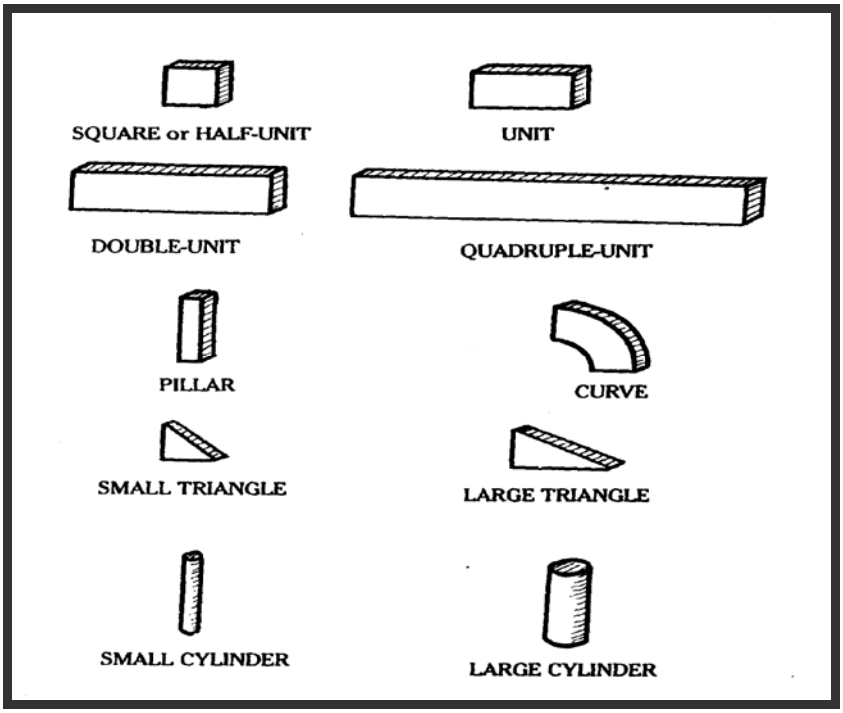


Figure 2.12 Examples of Unit Blocks

Table 2.2 Value of Blocks

Skill Areas	Skills to be developed	Example of Skills
Oral Language	• Oral communication • Self expression	• Listening and speaking • Sentence construction
Perception and Motor Skills	• Eye hand coordination • Estimating spatial relationships	• Grasping objects • Placing, moving and retrieving objects
Cognitive	• Science and mathematical processing skills • Creative thinking	• Observation, prediction, hypothesizing, • Divergent thinking (multiple uses)

(ii)Water and sand play

Water and sand play have particular benefits for children. For water play activities we need to have: water sufficient for floating and sinking activities and pouring, different sized objects to fill and pour, sieves and funnels, objects with hole on their sides and objects that will float and some that will sink. Some of the benefits of water play include the following.

Table 2.3 Value of Water Play Activities and Materials

Skill Areas	Skills to be developed	Example of Skills
Oral Language	• Oral communication • Self expression	• Listening and speaking in turns • Sentence construction
Perception and Motor Skills	• Eye hand coordination • Estimating spatial relationships	• Grasping objects • Placing, moving and retrieving objects
Cognitive	• Science and mathematical processing skills	• Observation, prediction, hypothesizing,

(iii) Manipulatives for exploration and learning

As we have learned, children love to hand objects. They explore them thoroughly and then they use them as tools and in other learning activities. Various types of manipulatives useful for the classroom include counting objects, objects for measuring length and mass, items for weighing with a scale, lacing boards and sewing cards, beads and pegs, lotto games, colored cubes, puzzles, nesting towers, alphabet and number cards, letter or number blocks, pegboards and game boards, mirrors and magnets, stacking rings and nesting toys.

Table 2.4 Value of Sensory Manipulatives

Skill Areas	Skills to be developed	Example of Skills
Oral Language	• Oral communication • Self expression	• Listening and speaking • Sentence construction
Visual Perception and Motor Skills	• Eye hand coordination • Estimating spatial relationships	• Grasping objects • Placing, moving and retrieving objects
Cognitive	• Formation and/ or changing of concepts • Knowledge of functions of objects • Knowledge of relationships among objects • Science and mathematical processing skills • Mathematical concepts	• Learning characteristics of objects • Learning how to use objects as tools • Learning comparison skills • Observation, prediction, hypothesizing, construction • Concepts of size, shape, colour, weight, similarity or differences
Social	• Independence • Self control	• Making decisions • Discipline

Figure 2.13 Examples of Sensory Manipulatives

(iv) Value of puppets and puppetry

Puppets contribute to development in many ways. They can be used by the teacher or by the children. There are many types of puppets that can be made and used to enhance children's learning. Table 2.5 shows some of the benefits of puppets.

T***able 2.5 How Puppets Enhance Learning and Development***

Skill Areas	Skills to be developed	Example of Skills
Social and Emotional	• Interpersonal skills • Emotional release	• Learning conflict resolution strategies • Use of safe outlet for expressing feelings
Oral Language	• Pronunciation and articulation • Vocabulary usage • Sentence Formation	• Articulation of words • Use of words appropriately • Use of questions and responses
Visual Perception and Motor Skills	• Muscle Control • Eye Hand Coordination	• Grasping and holding • Manipulating and moving
Logical Thinking and Reasoning	• Problem solving skills	• Identification of strategies for problems solving

Figure 2.14 More examples of furry hand puppets

(v) Print and writing materials

There is a wide variety of print and writing materials that can be brought to a classroom. Many of them not have to be bought. These include pictures and labels, story books with pictures, picture books, simple books with words, books with short sentences, hand made picture dictionaries, writing paper, pencils, charcoal, crayons or chalk, thin paper that can be used for tracing, individual slates or "chalkboards". Several ways that these materials contribute to children's development are listed on Table 2.6.

Table 2.6 Importance of Print Materials

Skill Areas	Skills to be developed	Example of Skills
Motor	• Emergent reading book handling skills • Eyes to move in appropriate directions	• Turning pages, starting from front to back • Reading left to right.
Language	• Language Functions • Grammatical expressions	• Appropriate reading of poem, story, text. • Sentence structures for questions, explantions, etc.
Visual Perception	• Picture reading • Letter and Word identification	• Turning pages, starting from front to back • Reading left to right.
Mental	• Concept Formation • Processing skills • Creative thinking	• Classifying • Categorizing • Prediction • Generalization • Use of imagination

Figure 2.15 Children developing an early interest in books

(vii) Outdoor Play Materials

These materials allow children to develop various types of skills and strengthen different parts of their bodies. The table below shows the value of these materials and equipment.

Table 2.8 Importance of Outdoor Play Materials and Equipment

Areas of Development	Skill to be developed	Example of Skills
Muscle Strength	• Rolling • Climbing • Throwing • Swinging • Pulling	• Rolling tyres • Climbing ladders • Throwing balls • Swinging • Rope Pulls
Visual Perception/ Eye Hand Coordination	• Rolling Tyres • Throwing/ Catching • Climbing	• Observation • Reacting • Responding
Large and Fine Motor Coordination and Balance	• Rolling Tyres • Climbing • Balancing • Skipping	• Grasping and holding • Manipulating and moving • Rope Skipping
Large and Fine Motor Control	• Throwing and catching • Rolling Tyres	• Identification of strategies for problems solving

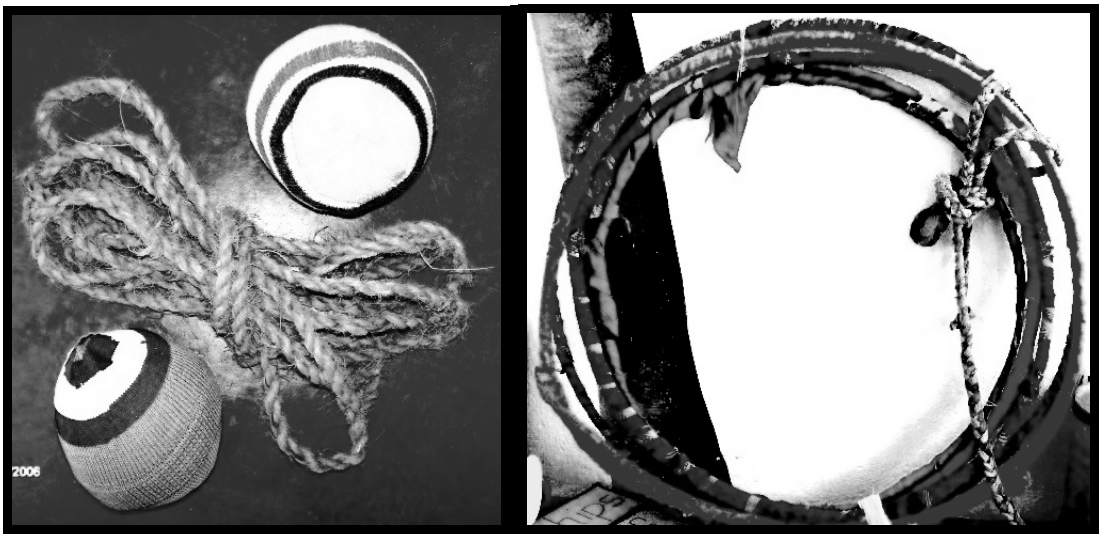


Figure 2.16 Balls, skipping ropes and hoops made of low cost materials

(vi) Use of Computers

The Ministry of Education is encouraging the use of computers in schools. In fact, computers are now in a number of our primary schools in towns. They offer particular learning opportunities for children.

Table 2.7 Value of Computers for Learning

Skill Areas	Skills to be developed	Example of Skills
Specific Content Area Software (Language, Maths, etc.)	• Specific to content areas (Maths Examples: Operations, Measurement) (Language Examples: Word Forms, Sentence Construction, Spelling	• Practice in adding, subtracting, multiplication, etc. • Games for identification of singular /plurals, correction/incorrect writing of questions and sentences, etc.
Mental Processing	Processing skills: Observation, Prediction,	• Responding in game activity • Anticipating action required
Visual Perception and Fine Motor Skills	• Muscle Control • Eye Hand Coordination	• Grasping and holding • Manipulating and moving
Logical Thinking and Reasoning	• Problem solving skills	• Identification of strategies for problems solving

The ideas listed in this section do not include all areas or all materials. You could identify other materials and also suggest other benefits of the materials. These ideas were included to give you an opportunity to appreciate the value of a variety of materials for children's learning.

C. What have we learned?

In this unit we explored some of the ways that materials contribute to children's learning and development. How important materials are for children's learning and development. Materials motivate children to explore their world around them. Teaching and learning materials enhance children's concept formation and help them to develop an awareness of relationships.

We also learned that they contribute to skill development since children use their natural mental processing skills to understand and use the materials. Finally, we learned that as children manipulate materials they have opportunities to practice valuable learning strategies. Without a doubt, Teacher, you learned that materials in your classroom are necessary. They ensure that children use their natural abilities to develop and learn as they should.

We also saw that a variety of materials contribute toward holistic development, and that specific materials enhance particular developmental concepts, skills and strategies

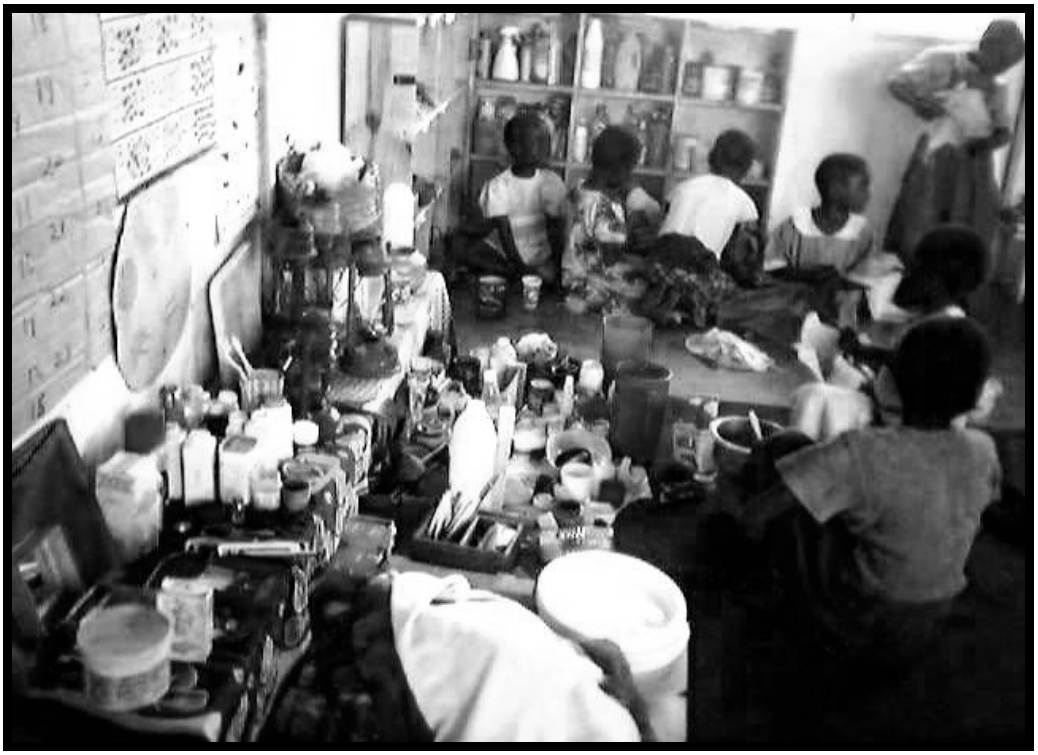


Figure 2.17 A classroom rich in learning materials

UNIT 2 Section 3

Guidelines on selecting quality materials

A. Introduction

In the previous two units, we learned about types of teaching and learning materials and their importance. Now we are going to consider some guidelines or standards for selecting or making materials for our classrooms. We are going to call this criterion for choosing or selecting materials.

Let us consider the standards for materials selection.

B. Standards for selecting materials

What do you think should guide us in selecting teaching and learning materials?

Comment

Materials for use must be selected carefully guided by some standards.
Read the case study below.

Case Study

Mr. Munyi was a new teacher handling standard one class. That morning he had been advised by the District TAC Tutor that children of that level and age learn through activities where adequate and relevant materials are availed for children to interact with. The TAC Tutor explained to him how waste objects could be transformed into suitable teaching and learning materials. At lunchtime Mr. Munyi happily collected various objects from around the school compound and near by area. He quickly put them in his classroom in various places. Some he placed in the Nature Corner, others in the Sensory and Exploration Centres and others were put near the water bucket. He was going to have the children use these for floating and sinking experiments. He organised the children into groups and explained to them what he expected. He watched with great interest as the children quickly become involved with materials. Suddenly, problems arose. One pupil cut herself with a can that had sharp edges. Another child got a wood sliver in his finger

because of a piece of bark that was protruding. Then two other children started getting rashes from t leaves of a poisonous plant he had brought in.

Mr. Munyi was very worried and discouraged by the turn of events.

What did Mr. Munyi forget to do before he put the materials in his classroom? Do you think this may happen to you ?

Comment

Mr. Munyi wanted to be an effective teacher. He listened to the TAC Tutor on how to make use of the local waste, but he did not pay enough attention to how materials are prepared before they become teaching and learning materials.

Many of us are like Mr. Munyi. We want to bring materials, but we don't consider the quality of the materials. For example, if we think about it: bottle tops from beer bottles do not make good counters for young children unless they are repainted. They could be offensive in some religions.

What do you think are important guidelines for selecting materials for use in classrooms?

Comment

In your answer, you may have thought of some of the following criteria:

- appropriate for the children's culture and developmental levels,
- size appropriate for their age,
- durable,
- versatile,
- variety
- attractive
- functional and
- safe

Let us explore each of these so that we are able to use them to guide us in selections of materials in the future.

(i) Appropriate Culturally and Developmentally

Materials must be appropriate in several ways. They should be appropriate to the culture of the parents. We do not want to create cultural conflict between home practices and beliefs. We want the transition from family to school to be smooth. For example, religious believes and thus we should not ask pupils to use objects that can be offensive.

The materials must also be appropriate to the children's level of development. Children become frustrated with materials that are too difficult for them to use. This is particularly true with special needs. They require having materials that match their levels of competence.

But there could be a problem if the materials are too simple. Children become bored and this may cause injuries as they explore other ways to use the objects. The materials must match their developmental level.

Materials provide opportunities for activities and learning. Select materials that are appropriate for your objectives. When you select materials consider what you want the pupils to learn. If you want them to develop memory of simple addition sums, flash cards in addition are appropriate but those for subtraction and number value are not. Select the materials that are appropriate to your plans. Remove the others that are not appropriate.

(ii) Appropriate Size

Learning materials should be suitable for children's hand and body size. We should examine learning materials to ensure that children use them without difficulty. Materials may be challenging for the children but should not add unnecessary difficulty when they use them. For example, the holes in the beads should not be too small for the strings; that the beads are not too long to get a string out the other end; that the tip is not too limp to penetrate the opening.

(iii) Durability

Whenever possible, materials in class could be used more than once. Materials require time for preparation for classroom use. It is not practical to make them or collect them afresh every time they are needed. Where possible, teaching and learning materials of metal and hardwood should be used because they don't break easily and are more easily repaired. We will think about how to make our materials more durable in a later unit.

(iv) Versatility

Material collected or made should be used in different learning activities to stimulate a variety of skills and at the same time save the cost of making. The material should be useful in helping the children to develop physically, mentally, socially, emotionally, morally and spiritually. Versatile materials will cover more than one of these areas or more than one content area of the curriculum. We need to be creative in how children use the materials. Common things can be used to teach many concepts. Storybooks with pictures can be used to teach many concepts in a variety of content areas.

(v) Sufficient quantity and variety

Children need as many different materials as possible to learn and practice new skills. For instance, puzzles of various levels of difficulty are needed for

enhancing mental and fine motor skills. Dramatic play materials can be used practice the development of physical and social skills. In addition, a stock of materials is needed to appeal to different skills, different skill levels, and different individual interests.

Children discover their own learning materials from very common things around them. We could include some of those that children are interested in also, not just academic ones. We look for materials using the eyes of the children and select materials that children are interested in as learning materials.

(vi) Attractiveness

Materials for children should be simple with a variety of shapes, colours and texture. They could be constructed with aesthetic appeal and in line with principles of good design. The setting in which the materials are used should always be well organised to encourage children to engage in the learning opportunities the materials offer. Walls, furniture, and floor coverings could be painted with neutral solid colours to provide a background to the learning materials. Wall displays should encourage children's curiosity and inquisitiveness. Developing pupils' interest, creativity and learning would be the determining factors in material display arrangement.

(vii) Functionality

The materials in our classrooms are selected for a reason. They are there basically to help children to learn. The question that should be in our minds is 'What do I want the children to learn from these materials?'

Charts in mathematics, for example, could show the relationships to facilitate learning. Other specific materials are brought to the classroom for a reason that is usually related to our Schemes of Work and lesson plans. The manipulative materials, like blocks, are judged in terms of their open-endedness. Single-skill materials, like puzzles, are also viewed in terms of the particular skill they can offer to children.

Don't let them over stay. Remove them after some time and reintroduce them again later to ensure greater learning.

(viii) Safety

Children's safety is crucial when thinking of selecting and using materials for children's learning. Outdoor equipment must be securely built to ensure stability even when used by a number of children at one time. There should be adequate space between equipments in the classroom so that children can move freely without injury. We should regularly inspect materials used in the classroom to detect rough edges, sharp corners, projecting parts and peeling paints to ensure they are repaired and kept in good order.

These eight criteria can be used to evaluate the quality of teaching and learning materials. Now let's go through a checklist for judging the quality and suitability of materials.

What do you think should go into a Quality Checklist for Materials?

Comment

You may have a type of informal check list you use for assessing the quality of you materials. Compare yours with the one on the next page. Table 2.8 shows an example of a Quality Checklist for Teaching and Learning Materials. The example on Table 2.8 has been filled in.

Table 2.8 Sample of an Already Completed Quality Checklist for Classroom Materials

Standards of Quality	**Types of Classroom Materials**		
	Charts	**Manipulatives**	**Other: _____**
Developmentally Appropriate	Good. Most at level of average child. A few at level of slower learners. None at level of advanced learners	Only has some counters for Maths from beer and soda bottles. Beer bottle tops are not appropriate but don't have enough soda bottle tops.	None other than counters
Appropriate Size	Most are full sized but writing can't be read from across the room	They are right size for children to handle	
Durable	Not covered. Some are torn	Very durable	
Versatile	Most are for specific topic	Children finding other uses for them.	
Sufficient Quantity	Have one or two for each content area	Not enough for all of the children	
Attractive	Use different colours but no pictures. Some are dirty and torn. Others are faded.	They are not repainted, just as they are.	
Functional	Only refer to them occasionally. They have over stayed	They are only for children's use	
Safe	Very safe. Noting sharp. Can't cut a finger.	Some are rusting and have sharp edges	

Activity 9

Make a Table similar to the Quality Checklist in Table 2.8. Select three different types of materials you have in your classroom. Using the quality characteristics on the quality checklist, evaluate your materials.

Comment

This activity allows us to look at our materials objectively. The checklist provides us with information we need to act on.

Now that we have assessed them, we need to consider what action to take. For example,

- The materials that are not safe need to be repaired or discarded.
- The materials that are not appropriate need to be replaced with more appropriate ones.
- The materials that are insufficient need to have others collected or made.

C. What have we learned?

In this section we have identified quality standards for teaching and learning materials. We learned that materials should be developmentally and culturally appropriate so that children are able to learn from them effectively. They also need to be the correct size, which is a size that is right for the age of the children. Materials need to be as durable as possible so that we do not have keep replacing them. The must be versatile which means they can be used for more than one activity. We ensure that there are sufficient in quantity so that all of the children who need to use them have access to them when they are needed. The materials should attractive to look at and be functional. Functional materials have a purpose in learning; they are not just play toys. Finally, we learned that the materials must be safe for pupils' handling and that we must ensure that high standards of safety are maintained.

Figure 2.18 An attractive and functional multipurpose drum

UNIT 2 Section 4

Preventing and treating injuries

A. Introduction

Strict safety measures are very necessary in schools as accidents in school can lead to the school being sued by parents. They say that children in the classroom and on the playing fields are supervised. Teachers also say that the children do not show an interest in dangerous areas or items. It is true that responsible supervision is important. It is also true that we are not able to watch every move that children make or that children will never become curious about something off-limits. Supervision has to be balanced with safety precautions that will help prevent accidents and injuries.

Now we are going to discuss some common accidents and injuries that can occur in school and some suggestions on how to prevent them.

B. Common accidents and injuries

What do you think are the most common accidents that are likely to occur in school?

Comment

The most frequent injuries and accidents are

- cuts,
- inserting items in the ears and nose
- choking.

Let us explore them each and look at their causes, prevention and simple treatment.

(i) Cuts

A cut is a forceful injury to the skin. There are different types of cuts. These are tear in the skin (laceration), slicing of skin tissue (incise wound) or a piercing of skin tissue (stab or puncture wound.)

What do you think are common courses of cuts?

Comment

Many children accidentally cut themselves with sharp objects, such as broken glass or razor blades left on the ground. They are often cut during play and sporting activities. They also get cut from nails on boards used to make play materials or from falls while using play equipment and riding bicycles.

How do you think such accidents could be avoided?

Comment

The best methods of prevention are to remove the causes by:

- Smoothening the sharp edges of objects that are used as learning materials,
- Checking the rim of tins used to store materials for children and if it has foil or other substances that can tear skin, remove them.
- Smoothening the cut edges of plastic bottles by placing all of the cut edges on hot surfaces (not directly on the fire),
- Removing or hammering in nails in equipment and furniture until they are flush with the wood,
- Training children how to hold sharp objects so as to avoid being cut,
- Removing stones from the playing field that might cause children to trip and hurt themselves and
- Giving children guidelines on safe play.

How do you think cuts should be treated when they occur?

Comment

Most cuts are minor and simple. First aid treatment is usually all that is needed. What we need to do is to:

- stop the bleeding,
- determine whether other tissues, such as blood vessels, nerves, tendons, ligaments, joints, bones, or internal organs, have been injured.
- determine whether evaluation and treatment by a health professional are needed.
- clean the wound and remove any dirt or debris to prevent infections.
- determine whether a tetanus shot is required

Cuts to the head or face may appear worse than they are and bleed a lot because of the good blood supply to this area. Controlling the bleeding will allow us to determine the seriousness of the injury.

Some types of cuts are serious and need medical evaluation and treatment. The serious types of cuts include:

- Long or deep cuts that will require stitches,
- Cuts that open with movement of the body area, such as cuts on joints.
- Cuts that may scar and affect the appearance or function of a body area.
- A cut on an eyelid or lip, which does not heal well, may interfere with

function or leave a permanent scar.

- Cuts that remove all of the layers of the skin (avulsion injuries), such as slicing off the tip of a finger. An avulsion injury may take a long time to heal.
- Cuts from an animal or human bite. Infection is more likely with a bite injury.
- Cuts that have damage to underlying tissues such as Injuries to nerves, tendons,
- Cuts over a possible broken bone. Bacteria can get into a cut over a broken bone and infect the bone.
- Cuts caused by a crushing injury. With this type of injury, the cut may have occurred when the skin split open from the force of the injury. The force of the injury may also damage underlying tissues and blood vessels. Crush injuries have a high risk of infection and,
- Cuts with a known or suspected object (debris) in the wound, such as glass or wood.

(ii) …Inserting objects in ears and nose

Children often put things in their ears and us their noses. Let us now look at injuries caused by inserted objects

How do you think we could treat injuries caused by inserted objects?

Comment

Foreign bodies inserted into the ear usually do not cause significant damage. However, objects that are inserted forcefully can damage the ear canal or penetrate the eardrum.

Problems with objects in the ear most commonly occur in children younger than five years and in people who have profound mental disability. Some objects in the ear may cause more problems than others. These may include:

- Complaint of discomfort or unusual noises in the ear. In this case, it is reasonable to try to remove the object. If the object cannot be removed, it may fall out on its own over the next 24 hours.
- Food items may be placed in the ear. Dry foods expand when they become moist. Seeds, such as beans, peas, or popcorn, can swell from the moistness of the ear canal, making removal more difficult. The objects may cause pain and hearing loss as they expand to fill the ear canal. The irritation may cause a foul-smelling liquid to drain from the ear.
- The round disc batteries also called button cell batteries are more dangerous than other objects and should be removed immediately. The moist tissue in the ear canal can cause the battery to release strong chemicals (alkali) quickly, often in less than 1 hour. This can cause a severe burn and scarring in as little as four hours.

It is important to note that the longer an object is left in the ear, the more difficult it is to remove. Also, infection can result from prolonged presence of the object. A visit to a health professional is needed if an object remains in the ear longer than 24 hours. An urgent visit to a doctor is needed any time a disc battery is placed in the ear or symptoms of injury, such as sudden hearing loss, moderate or severe pain, dizziness, or bleeding. These develop after an object has been inserted in the ear.

Lets how we may prevent such accidents

How do you think the accidents of this nature could be prevented?

Comment

Children need to be cautioned against inserting objects into their own or others' ears. Such "games" should be strongly discouraged in and out of school.

Learning materials that are too large to insert into ears should be selected for use. Since many seeds and beans are small enough, we could select and make use of larger materials for the same activities or if we must use them, very close supervision is required.

Children need to be cautioned against inserting objects into their own or others noses. We can select learning materials that are too large to insert into the nose. Since many seeds and beans are small, use larger materials for the same activities, especially for younger children

How can we treat such accidents?

Comment

It is best to have a health professional remove the object from the nose or ear. We should not attempt to remove it ourselves for we might push it in further.

Some objects inserted in the nose cause more problems than others. The round, flat disc batteries (also called button cell batteries) are more dangerous than other objects and should be removed immediately. It can cause serious damage to the sensitive mucous membranes lining the nose.

Seeds, such as beans or popcorn, can swell from the moistness of the nasal tissue making removal more difficult.

An object in the nose may cause some irritation and swelling of the mucous membranes inside the nose. This swelling can cause a stuffy nose, making it difficult to breathe through the nose.

Infection can develop in the nose or in the sinuses following the insertion of an object. The longer the object is in the nose, the more likely it is that an infection will develop. The first sign of infection is usually increased drainage from the

nose that changes from clear at first but turns yellow, green, or brown and has an odour.

The best treatment for objects in the nose is to see if they can be removed naturally. We can try to ask the child to blow it out through the nose just as if he were blowing his nose.

Don't attempt to remove it yourself if the child can not blow it out. You can push it in further. It is best to have a health professional remove the object.

An object inserted in the nose may cause a nosebleed if the object irritates the tissues in the nose. Treat the nosebleed as you normally do.

(iii) Choking

Let us consider what we mean by choking.

What do you understanding by choking?

Comment

Choking is the blocking the air ways. It is most often caused by objects swallowed being too large to pass down into the stomach. When you swallow food, liquid, or an object, what is swallowed passes from your mouth through your throat and esophagus into your stomach. A swallowed object will usually pass through the rest of your digestive tract without problems and show up in your stool in a few days. If food or a nonfood item gets stuck along the way, a problem may develop that will require a visit to a doctor.

What are the common causes of choking and how can we prevent children from choking?

Comment

Children often put objects other than foods in their mouths. Sometimes they do not intend to swallow. They chew on the object, suck it and explore it with their tongue. The swallowing of the object is often accidental.

In other cases children are trying to hurry as they eat. They don't chew the food sufficiently and they swallow large amounts of food at one time. Then it gets stuck in the process.

- Children need to be cautioned against putting objects into their mouths
- Select learning materials that are too large to swallow Since many seed and bean are small enough, use larger materials for the same activities.
- Children needed to be guided on proper eating habits, including taking smaller amounts, chewing thoroughly and swallowing smaller portions.

The treatment for choking depends upon whether or not the airways are completely obstructed or partially obstructed. Let us look at both of these.

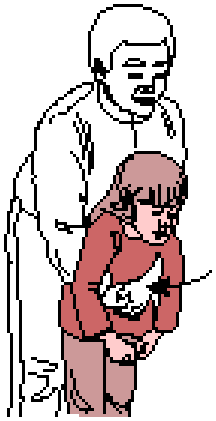
(a) Complete Airway Obstruction (choking)

A person who is choking (has complete airway obstruction):

- Can't cry, talk, breathe, or cough.
- May grasp throat.
- May become severely anxious or agitated.
- May turn blue or dusky in color.
- May pass out.

A choking rescue procedure known as the Heimlich maneuver is used to clear an obstruction in adults and children over 1 year of age. Back blows and abdominal thrusts are used in babies under 1 year of age. A description of the Heimlich Maneuver on a child is shown in Figure 2.6.

Figure 2. 6 The Heimlich Maneuver on a Child



Stand behind the child. With your arms around his or her waist, form a fist with one hand and place it, thumb side in, between the ribs and waistline. Grab your fist with your other hand. Keeping your arms off the child's rib cage, give four quick inward and upward thrusts. You may have to repeat this several times until the obstructing object is coughed out.

Source: http://www.health.harvard.edu/fhg/firstaid/heimlichChild.shtml

(b) Partially Blocked Windpipe.

The Signs of a partially blocked windpipe include:

- Gagging.
- Coughing.
- Difficulty breathing.
- Mild to moderate anxiety

The choking rescue procedure (Heimlich maneuver) is not recommended when the above signs are present. A cough will often dislodge the food or object and relieve the symptoms. Try to get the child to cough. If coughing does not relieve your symptoms, contact your health professional for evaluation

Teacher you have just learned about various accidents and injuries that might result from unsafe materials or misuse of materials.

Which steps will you take to prevent these accidents in your classroom?

Comment

Prevention of accidents is much better than being prepared with a first aid kit to treat the injury. We need to look at all of the materials in your classroom and make sure they are safe for your children to handle. Discard any that are unsafe. Repair any that need repairing because a sharp part is sticking out.

We also need to give the children guidelines on how to handle the materials as they use them in the activities. Give them clear guidelines concerning behaviors you will allow and which ones you won't. Make sure that you give them the reasons why those behaviors are not acceptable. They will learn safety from your explanations.

Finally, we need to supervise the children's use of the materials. Watch them carefully during activities inside and outside. Your supervision could prevent an accidental and preventable injury.

C. What have we learned?

In this section we learned that children may have different kinds of accidents or injuries with materials. We have also learned that cuts, inserting items in the ears and nose and choking are the most common.

We have also learned the primary causes of each of these and various measure of preventing them. In addition, you have been guided on some basic steps for first aid as treatment. We believe that you and your pupils will benefit from this information.

Figure 2.19 Learning materials need checking to prevent accidents

UNIT 3

LOW COST TEACHING AND LEARNING MATERIALS

UNIT 3, *Table of Contents*

UNIT 3 INTRODUCTION

Welcome to Unit 3, of this manual on low cost materials. In the last unit, we looked at the importance of materials for children's learning. We learned that children at all the stages of development require them to use a lot of materials. We saw that they learn **about** the materials, **from** and then **use** the materials to help them learn many things.

In this unit we are going to discuss low cost teaching and learning materials. We are going to find out what they are and where we could obtain them. We will also consider strategies we may use to encourage the community to assist in collecting and making them. We will also discuss the precautions we need to take as we prepare the materials for our classrooms. For the purpose of discussion, we have divided the unit into four sections. These are:

- low cost materials,
- local sources of low cost materials,
- engaging the community in material collection, development and
- precautions in material preparation and use.

By the end of this unit you should be able to:

(a) give examples of low cost teaching and learning materials,
(b) list various local sources of low cost teaching and learning materials,
(c) describe strategies that encourage communities to provide low cost materials to schools and
(d) state some pre-cautions that we might take in handling materials from waste or from the local environment.
(e) We will begin with low cost teaching and learning materials

UNIT 3 Section 1

A. Introduction

Welcome, Teacher. In this unit we will build on what we learned in the first two units on the import teaching and learning materials that have low costs. We will learn that there are materials that we can bring to our classrooms for our teaching and for the children's learning. We will find out where we can find some of these low cost materials.

B. Definition of low cost materials

Let us now think about what we mean by low cost materials.

What do you think is the meaning of "low cost materials"?

Comment

You may have defined low cost teaching and learning materials as resources that we may have in the class that were collected or prepared at minimal costs. They may have been originally waste items that you might have made without much effort.

However, you are right to say that they are not free. Nothing is totally free, as it will requires either time to collect or make or has a financial implication. When we get scrapes of wood from the local carpenter, he may require a small token or a soda. In addition we have to take time and effort to collect the pieces of wood. If the materials are bulky, we might require some sort of transport. All of these are costs. There is nothing that is wholly free; hence, the term l**ow cost materials**.

C. Examples of low cost materials

Now that we agree on what low cost materials are, let's think about some examples.

What examples might you have of low cost materials?

Comment

Low cost materials are all around us. These may be grouped according to where they are collected from. Let's look at some of them one by one;

(i) shops, hotels, carpenters, other artisans and repair places.

Materials collected here may include:

- Wood blocks of various shapes and sizes
- boxes of all kinds - egg cartons, milk cartons, plastic vegetable trays, match boxes
- plastic bottles, boxes and jugs - bleach bottles, ice cream cartons, detergent bottles, cheese containers, margarine containers
- cardboard tubing from toilet paper, paper towels, wrapping paper
- broom handles, spools, bottle caps, lids, pipe cleaners, elastic bands
- tiles, linoleum floor square
- scrap metal and pipe, wheels
- gears from clocks, radios, fans, cars, irons, toasters; handles, knobs, hinges and fittings of all kinds
- scrap wood, fruit crates, large cartons, barrels
- nuts, bolts, nails, washers, screws
- cloth - various textures and colors:
- yarn, ribbon, rickrack, fringing, decorative tape, lace edging, thread, embroidery floss
- buttons, beads, sequins, buckles, snaps, zippers
- needles, pins.
-

Figure 3.1 Low cost materials from stones, banana bark and gourds

(ii) ***Materials from outdoor play areas and community open spaces.***

These materials may include items such as:

- banana bark fibres for rings
- ropes
- bicycle tyres, automobile tyres
- large cartons, fruit crates,
- Metal drums
- plastic bags for balls
- concrete blocks,
- bricks,
- large stones/boulders
- branches

The list is endless; you may add to the list.

Activity10

Make a table like the one below in Table 3.1 List 50-100 items following the examples given.. You have 20 minutes for this activity.

Table 3.1 List of Low Cost Materials for the Housekeeping/Shop Areas

List of Materials for Housekeeping and Shop Areas
• Old dresses, pants, shirts, blouses • Old dolls, doll's clothes and furniture, • Kitchen utensils • Old food containers • Play money (notes and coins) or units for exchanging • • • • •

Make your table with your list now.

Comment

Compare your list with the one below. Add to your list the ones that you did not include:

- Hats
- Shoes,
- Shawls,
- Necklaces, earrings, bracelets, pins, belts
- Material to use as saris, turbans, trains, capes
- gloves, handbags, wallets, aprons
- Coats.
- Hand mirror, compacts, long mirror, clothes rack, coat hangers
- Old broken electronic equipment:
- Broken iron boxes and other appliances
- Fruit and vegetable crates,
- Baskets and
- Shopping bags

Now let us make another list of low cost materials. This time we may think of objects for sand and water play areas

Activity 11

The table on the next page contains a list of some low cost materials but it is not complete. Give additional examples.

Table 3.2 List of Low Cost Materials for the Sand and Water Play Areas

List of Materials for Sand and Water Play Areas		
• Plastic jugs, • Cups, etc. — al. In varying sizes • Old teapots, coffee pots, watering cans, • Pieces of garden hose • Bottles, jars with lids and without lids • Tin cans	• Cork, • Sponges, • Styrofoam, • Marbles • Rubber balls, • Balloons, • Wood • Food colouring, • Soap, • Flour • String	• Wire, • Rubber bands • • • • • • • • •

You may add your list of materials.

Comment

We should note that there are so many types of materials that can be included for sand and water play. Every material brings different learning opportunities for the pupils. Some materials that you may have thought of include the following:

1. Stones,
2. Bricks,
3. Planks,
4. Twigs
5. Shovels,
6. Spoons,
7. Pails,
8. Scoops,
9. Rakes
10. Molds,
11. Egg cartons
12. Muffin tins,
13. Cake tins,
14. Paper cups,
15. Sea shells,
16. Bottle tops
17. Plastic boxes,
18. Dust pans,
19. Brushes,
20. Brooms
21. Sugar, salt, coffee, tea, spices, seeds
22. Bags - paper and plastic
23. Straws
24. Cone-shaped paper cups
25. String
26. Net material

As we have said, there are lists of materials for the creative areas and for the mathematics and science centres. We should generate our own materials that will suit the children we are teaching.

D. Using low cost materials in the classroom

Let us now turn our attention on how some low cost materials could be used to make teaching and learning exciting. We will focus on waste items that have many uses in a classroom.

Now how do we go about using these low cost materials for teaching and learning?

Comment

You may have come up with interesting ideas. Let's see how we may make use of used **Scratch Cards**

(i) Scratch cards

A scratch card bears numbers and beautiful colours. They could be used in matching activities and teaching colours. They can be cut into various shapes. They may also be used for number recognition activities. In addition the:

- pin numbers on the back could be used in simple and complex addition.
- value of the card on the front can be used to teach number values: tens, hundreds and thousands.
- the card itself can be used for any type of flash card used in mathematics, language, science or any other subject. You peal off the back and it becomes a white card that you can write on.

Figure 3.2 Learning materials made from used scratch cards

Let us look at how we may use plastic bottles.

(ii) plastic bottles

Small plastic bottles partially filled with water and decorated with different colours could be used with small items to be added for teaching floating and sinking. They could also be used for teaching colours and shapes because of designs on the bottle labels. Other uses may include the following:

- bottles made into a 'vehicle' to teach weight and capacity in mathematics, motion in science, sentences and oral expression in language and modes of transportation in social studies.
- parts of water bottles assembled with tapes to make rain gauges for use in science experiments.
- could also be used to teach sizes, shapes, and 3-dimensional figures e.g. cylinder.
- They could also be used in Mathematics for counting of drops of water, measurement and volume.
- cut in pieces, the bottle parts can teach part and whole and fractions in Mathematics,
- with the bottom cut off and a cylinder put on top, can be used as body part of a puppet
- plastic bottle and manila papers to make 'donkeys' to teach transportation and domestic animals in science and creative arts.

Figure 3.3 Examples of some uses of bottles

In what way do you think toilet paper rolls could be used for teaching and learning?

Comment

Toilet paper rolls could be decorated with different colours and number values inserted into a decorated jam jar to make a small TV. This could be used to a variety of lessons across the curriculum. For example; alphabet written on it for language and colours

Figure ***3.4 Example of handheld TV for number value***

How about the egg trays? What do you think we can do with them?

Comment

Decorated egg trays and biscuit boxes could be used to make a reversible ferries or houses. One side is the ferry and when flipped over it becomes a house. This could be used in Art to teach colours, patterns, and shapes and in Science to teach floating , while in social studies could be used to teach modes of transportation and types of houses.

Egg trays with shapes drawn inside and matching shape flash cards from small scratch cards could also be used to teach colours, number values, counting and shapes in mathematics..

Figure 3.5 Decorated egg tray for sorting activities

Like the egg trays, biscuit boxes could be used to make Marionette puppets. These could be used in Language to teach parts of the body, Mathematics for counting, shapes, and colours, and in Science for teaching motion of body parts.

What do you think we can use cereals and biscuit boxes for?

Comment

You may have thought of many uses for these boxes. Some of them include:

- inside of the boxes could be used for game boards of many types, such as the snakes and ladders game.
- flash cards and individual work cards
- colourful sections can be cut into small pieces for collages and mosaics.
- storing small materials

These are only a few ideas. You may think of many more.

There are so many more ideas that could be developed with you're your imagination.

E. What have we learned?

In this section you have learned about low cost teaching materials. You have learned what they are and how to use them. You have made lists of many different types of low cost materials. You have learned how to change waste materials into useful teaching and learning materials. Finally, you also have learned to creatively design some additional materials for your classroom from these waste materials.

We have come to the end of this section. In the next section we are going to discuss local sources of the materials**.**

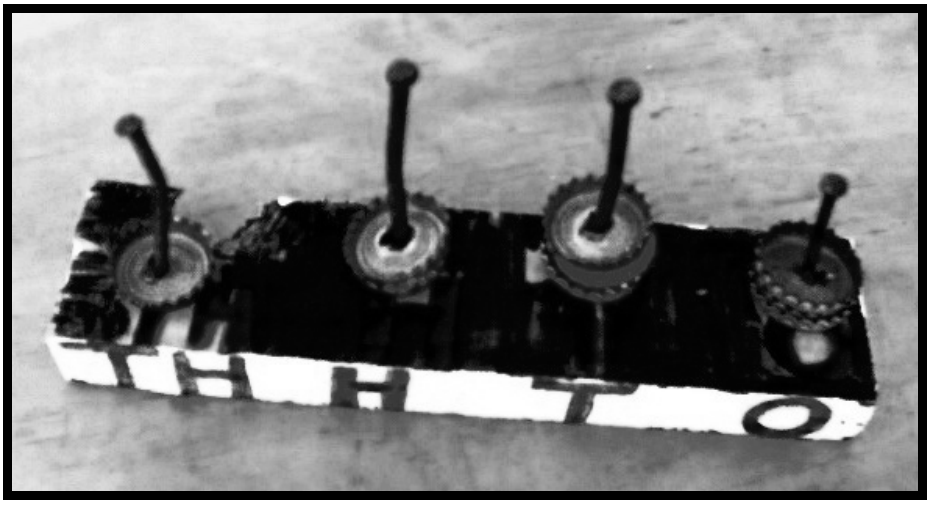


Figure 3.6 Example of low cost materials for learning place value in Maths

UNIT 3 Section 2

Local sources of low cost materials

A. Introduction

In the last section we looked at various teaching and learning materials. We discussed what these materials were and that many of them could be created from waste materials. In this section, we are going to examine in more details where we can get these low cost materials. There are three basic sources of classroom resources as the Figure 3.7shows. There are those that you make, those that you collect and those that are bought. Low cost materials may also collect locally, made or bought.

The diagram below gives a summary of three sources of the teaching and learning materials.

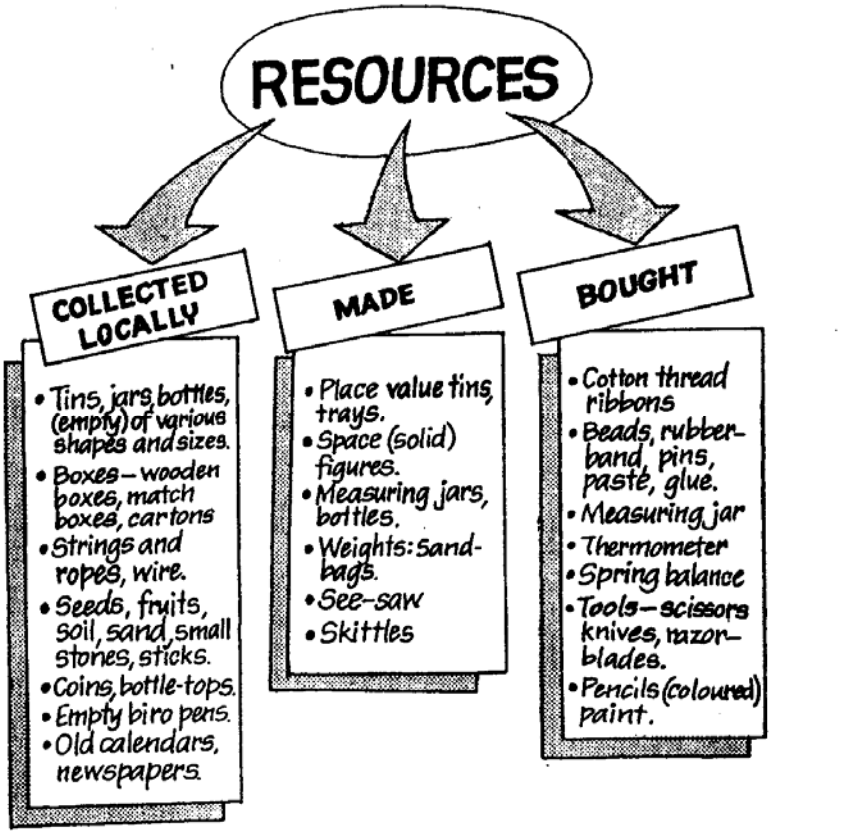


Figure 3.7 Sources of Low Cost Materials

As we can see from the figure above, some materials could be collected and used immediately or used after minor cleaning. Others are collected locally, but they are not ready for use in the class. Others cannot be found easily and hence they must be bought. Let us now consider materials that are found in the community.

B. Waste materials from pupils' families and other teachers

Waste materials are generated in every household. All the members of our school community have these waste materials. Our school community includes the children, teachers and their families. Each of these families generates some waste materials that may be converted into teaching and learning materials for our classroom.

Let us consider each of these in more detail.

How do you think pupils and their families can help in collecting teaching and learning materials?

Comment

Pupils in the school can assist us by collecting waste materials from their families and even from the school compound. Pupils can be encouraged to look for and brings specific materials to class.

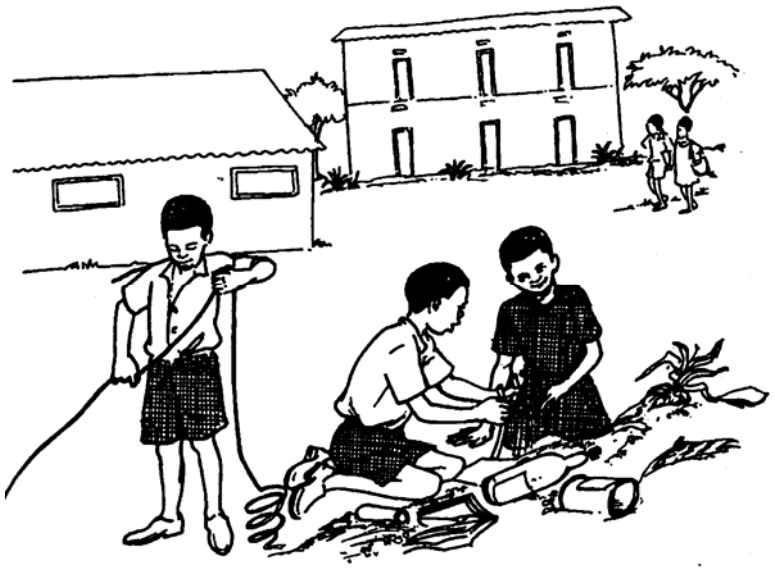


Figure 3.8 Pupils Collecting Waste From School Compound

Some of the household wastes that they may collect include toilet tissue rolls; empty plastic bottles and other plastic containers as well as tins. Wire and string. biscuit and cereal boxes may also be available.

Families may also be willing to provide other objects that are useful as teaching and learning materials. Some of these waste materials, like plastic containers, bottles, wires and string, are also useful for the families. However, the parents may be willing to give some of these materials to the school when they know what they are used for.

Let's see the type of materials that teachers and the community may provide.

(i) Materials from the Teachers

Teachers know the value of teaching and learning materials. They may be willing to assist in efforts to expand the materials available in the school. Some of the materials they may bring are: old magazines with pictures or children stories, cartons, tins, bottles and coins.

All teachers in the school should be encouraged to collect and bring their useful household waste to the school. They could bring them in regularly so as to build enough stock.

Let's see how other community members may contribute.

(ii) Materials from other family members in the community

Other family members in the community may have useful household waste. They may be willing to save some of these for use in the school.

The parents or other adult members of these families need to be approached with clear information about what is needed and why it is needed. They may need to be assisted in collection of the materials.

C. Materials from nature

Let us now look at the materials found from nature.

What materials do you think are available from nature?

Comment

An important source of learning materials for both teacher-structured and discovery learning activities are from nature. When we are walking outside we can collect materials to bring to the class. When we take the children on nature walks they could also assist us to collect teaching and learning materials.

Many of us have a collection of materials from nature. Some of these include:

- dried flowers,
- cones,
- seed pods,
- stalks
- leaves of different
- shapes/sizes
- bark,
- feathers,
- bird's nests,
- mosses
- fungi,
- rocks of various weights/
- textures,
- pieces of metal,
- seaweed
- shells

These materials provide primary resources for teacher-structured science and classification experiences and for inviting exploration in special interest centres during discovery periods.

Clay is also a useful material in areas where it is available naturally. It can be made into many different objects for use in the classroom. In Figure 3.9 you can see huts, cups, a car and utensils molded from clay. Materials from clay can be used in almost all of the subject areas.

Figure 3.9Various learning materials made from clay

Let's now think about natural materials that we can't bring to our classroom.

What you think we can do about teaching materials in nature that we can't bring into the classroom?

Comment

Sometimes the natural materials cannot be brought to the classroom. Sometimes, they are part of nature that is not in our control. Sometimes they are immoveable or too large. The pupils have to go out to the natural environment and observe these natural resources there. Nature walks to observe various plants, cloud formations and animal habitats provide opportunities to see things that could not be brought to the classroom.

Nature can also provide other learning opportunities for learning. For example, children can practice the mathematical skills of measuring circumference by measuring trees in the school compound. These natural resources become learning materials as Figure 3.10 below shows.

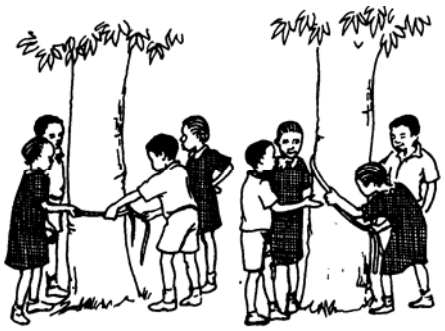


Figure 3.10 Measurement Activities Using Natural Resources

Now let's think of other natural resources within the community.

What other natural resources from your community can be used in your teaching and learning?

Comment

Every school has natural resources in its community. If you were not able to think of many, walk around the school and out into the wider community. Look at the types of soil, land and rock formations, vegetation, wildlife and water supplies. These are only a few of the natural resources that we could use for teaching.

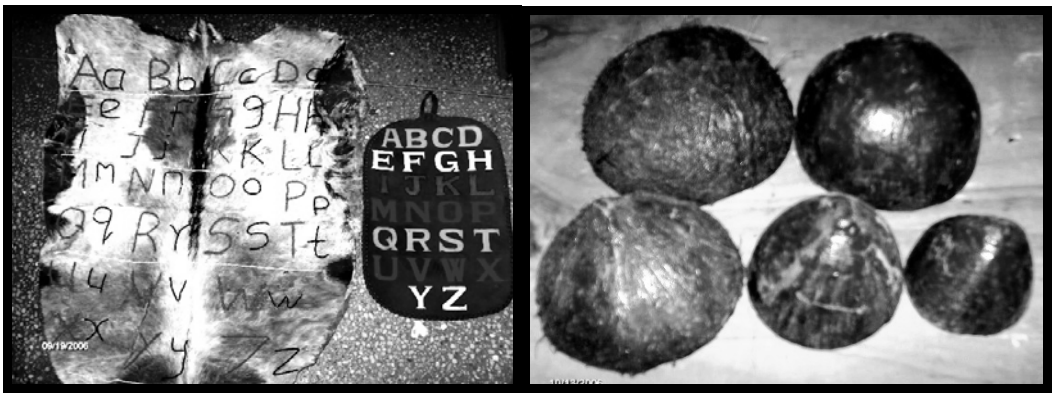


Figure 3.11 Leather hides and coconuts are available in some communities

We are now going to see teaching and learning materials from local business and institutions.

D. Materials from local businesses and institutions

In every community there are some local businesses and other institutions that may have materials fro teaching and learning. Let us think of what might be available in your community.

What types of teaching and learning materials do you think you could get from your local businesses and institutions?

Comment

In every community there are small and large businesses and some institutions that may have appropriate learning and teaching materials. Let's consider what businesses and institutions are in your community. On Table 3.3 is a partial list of business and some of the materials they may provide.

Activity 12

We want you to make a table like the one on the next page. The list is not finished and some of those businesses may not be in your community. On your table we want you to list the businesses that are in your community and the materials you might be able to get from them.

Table 3.3 Materials From Selected Businesses and Institutions

Type of Business/ Institution	Materials They May Provide
Hotels and Restaurants	Plastic bottles, tins, containers, old cloth and other waste materials
Markets	Damaged goods that are still usable including clothing, jewellery, shoes, hats, purses, plastic containers, yarn, etc.
Carpenters	Wood blocks, saw dust, other wood items
Hardware Stores	Paint at reduced rates
Tile and Carpet Stores	Out of stock sample squares of carpets, floor tiles; perhaps a piece of carpet that is damaged
Petrol Stations	Used automobile tyres
Bicycle Repair	Bicycle tyres
Stationery Stores	Slightly damaged cards and paper stock,

You may make your table now.

Comment

As you read the table you will notice that schools in large urban centres have an advantage. They are nearer to large business and institutions that may provide various materials to schools.

Institutions and large businesses usually need a proper introduction from someone in authority to confirm that the request is legitimate. When they are satisfied, they may give materials free or they may charge a small amount.

E. What have we learned?

In this section we have learned that there are three types of resource materials: those collected, those made and those purchased. We also learned that household waste can be collected from local families and changed into useful teaching and learning materials. We further learned that some natural resources can be brought to your classroom. We learned that sometimes you will use other natural resources out side during nature walk or other learning activities. We explored and learned about some businesses and institutions that may have materials for your classroom. We now challenge you to identify others.

Figure 3.12 Letters and numbers from plastic containers and rubber slippers

UNIT 3 Section 3

Engaging the community in materials collection and development

A. Introduction

In the last section we discussed the resource materials in the communities. We saw that some are available from families while others are natural resources. We also learned that there were some materials available from businesses and other institutions in the community.

In this unit we are going to discuss how to obtain these materials from the community. We will look at community mobilisation. We will also consider specific strategies that may be used to encourage communities, to provide low cost materials to our schools. We will begin with community mobilisation.

B. Community Mobilisation

Let us begin by thinking about what community mobilisation is.

What do you understand by the term "community mobilisation"?

Comment

Perhaps you have come up with one of the following:

- a process by which a group moves from being passive collectively to active participants in public life; or
- a process through which a group gains control over resources or assets which may include technologies, money and information to fulfil their obligation; or
- involves ways in which a group acquires control over sufficient resources to make collect action possible.

(Source: Abstracted from FPESP: School Empowerment Programme Module, pp. 121-122)

In this case we want to involve the community around the school, including local businesses and institutions, so as to be contributing teaching and learning materials that may be used for teaching and learning. We would like to mobilize the adult members of the families and the business people and heads of the institutions.

Let us see how our schools can mobilise these groups of people.

There are certain steps that the head of the school can take to mobilise the community. These are:

(i) **Identify leaders in the groups**. It is essential to use the leaders in the community, businesses and institutions. They would be involved according to their roles or specific tasks.

(ii) **Involve them in the decision making process**, and also try and avoid conflicts. To avoid conflict with the community the head teacher needs to understand
- Why people resist change
- Work appropriately with the teams at each stage of the change process
- Understand that conflict I are inevitable and may be very positive
- Maintain and develop further their self and social awareness
- Keep communicating

(iii) **Take responsibility of executing decisions** even though he or she is involving others. Whatever happens in the school is the responsibility of the head teacher. The head is ultimately responsible and in charge of executing decisions.

(iv) **Recognise the role of members** to achieve the goals, which means that the head has to ensure that
- Everyone is clear about their role
- Everyone is clear about what they are expected to do
- Delegation does not turn to abdication of responsibility.

(v) **Have methods to sustain continued interest** within the group
- It is difficult to keep people enthusiastic and constantly supporting the school
- Try to think how it is important to know and understand how to continue motivate people

We could take some of these steps, especially if we already have a strong relationship with members of the community.

Let's consider how we might begin to take these steps. Let us do an activity for community mobilisation.

Activity 13

Look at the community mobilisation cycle in Figure 3.13. Your Head Teacher could identify what has to be done in each step. Talk with your Head

Teacher about these steps. Discuss how the school could mobilise the community to collect teaching and learning materials.

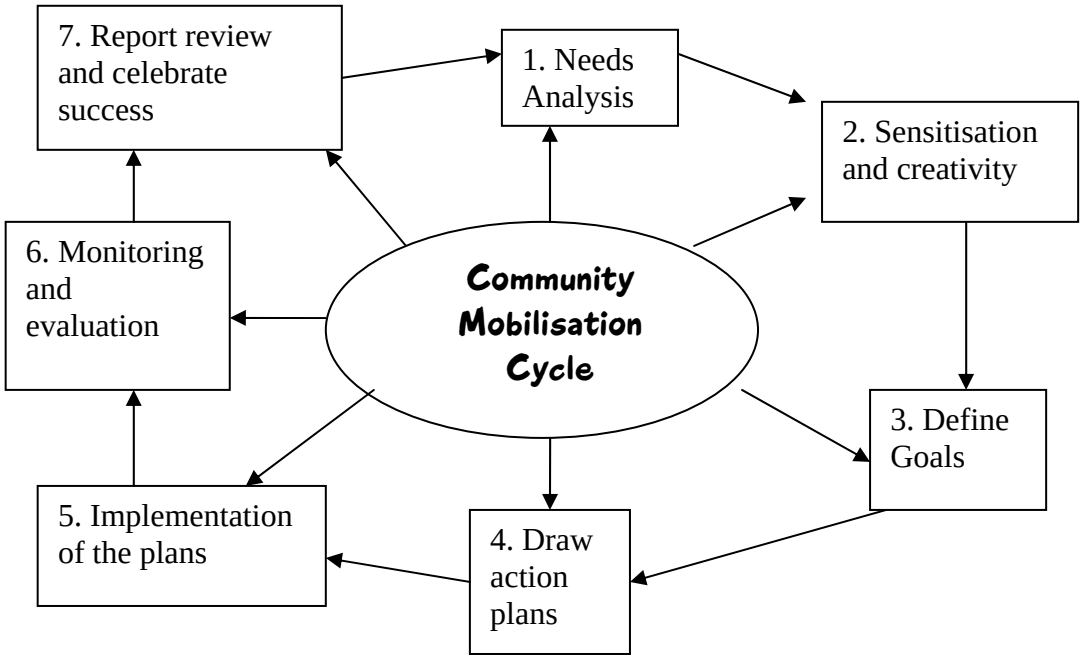


Figure 3.13 Community Mobilisation Cycle

You may discuss these steps with your Head Teacher now.

Comment

The head teachers are being trained in community mobilisation. The head teacher should be able to give us guidance concerning these steps. What we do is to think about how to use this cycle for mobilising the community to collect and develop materials for you and other teachers in the school.

Let's look at specific strategies for community mobilisation.

C. Strategies for mobilising communities

There are different strategies that may be used to mobilise communities around schools.

What do you think can be done to mobilise your school community?

Comment

You may have thought of several strategies because you are activity involved with the community already. Compare your list with the ones that follow:

(i) Special Days

We could take advantage to sensitise the community on special days, like prize giving day. Notices could be sent to all the community members in the school. They could be encouraged to participate in the provision of the materials. The community members can then be told about the drive to gather teaching and learning materials.

(ii) Collection Days

The school can determine one or two days a month that are collection days for materials. Community members can be informed and encouraged to bring their waste materials on those days. They may come to appreciate the opportunity to dispose of this waste.

(iii) Special Appeal Letters

The District Education Officer could be asked to write letters appealing to specific institutions and businesses to donate materials. These letters have substantial influence. Institutions often respond favourably to such letters

(iv) Materials Development Workshops

You don't need to make everything yourself. Teachers and schools could organize materials development workshops for parents or other community members. Very often now parents have little extra time for these activities. You may have to search out others from the community who may have the time and interest in making materials.

(v) Community Volunteers

You may ask for volunteers from local CBOs, and grandparents from the community who can help you in making materials. You can also draw upon the resources people in the community to make materials. They can do it at the school in a Materials Development Workshop.

Remember to give them clear guidelines so you are not disappointed in the quality of the materials.

D. What Have We Learned?

In this section we have looked at community mobilisation. We explored several strategies that may be used to engage the community in collecting and making materials for your classroom. We encourage you to think of other strategies that have been effective in your community for other types of donations.

UNIT 3 Section 4

Precautions in materials preparation

A. Introduction

In the last section we explored how to mobilise the community around the school to help in collecting teaching and learning materials using various strategies. However we should remember that there are problems that could arise from success. Materials may be unsuitable; others may require cleaning and still others may not be required for classroom use.

In this section we are going to discuss the precautions we need to take to ensure that the materials ready for use by the pupils. The first thing we need to do is to classify the materials. Let us think about what that means.

B. Classifying materials

.

What do you think is involved in material classification?

Comment

Imagine a mountain of plastic bottles and containers, tins, cartons and boxes of various sizes and shapes. In between these materials are scratch cards, toilet and paper towel rolls, old clothes, torn shoes and handbags and also some old utensils. The community donated all these items. They are in one enormous pile in the compound. We need to organise these materials.

How do you think we should sort these materials?

Comment

We do not have one subscribed way of sorting these different types of materials. One method of separating them is identified on Table 3.4

Table 3.4 Strategies for Sorting Donated Materials

Sorting Strategy	**Categories**								
Suitability	*Useable*								*Not Usable*
Type of Material	Plastic bottles/ jars	Utensils	Tins	Wood pieces	Clothing	Out Door use	Paper	Manipu-latives	Discard all

You will notice that you first go though the pile of items separating what is not usable from what is usable. Then what is usable is sorted by the type of material it is. The materials that are not usable because they represent a threat to the safety and health of the children are thrown away immediately.

It is important to separate the usable materials into categories of plastics, wood, metal tins, outdoor use, etc. The reason for separating the materials this way is to help us check each group for potential health and safety risks for the children.

For example, tins that may pose special safety risks are those that have sharp edges, uneven tears, are rusted and those that contain dangerous substances.

Clothing and paper materials need to be separated as quickly as possible. Any moisture that may come from containers that are not clean and dry might spoil them.

Plastic bottles often take long to dry when washed. They may have been donated when still containing liquid. They need to be separated from tins, metal, wood, paper and cloths to prevent damage to these items.

After the sorting and discarding, we need to clean the materials so that they become user friendly. Let's consider what we need to do in cleaning the materials.

C. Cleaning materials

How do you think we go about cleaning the materials?

Comment

Now we have between seven and ten smaller piles of usable items. But these items are not ready yet to be taken to and used in the classroom for teaching and learning.

Even if the items might have been washed before they were donated, they have to be rewashed. We have to ensure that they are hygienic

When the items are rewashed with soap also we should add a disinfectant, such as *dettol,* or *jik* to the water. Make sure they are thoroughly clean. Dry the tins and plastics thoroughly upside down on a dish rack.

After washing them with the soap and disinfectant and rinsing thoroughly, the clothing items should be put in the sun to dry. The sun will stop any mould from growing in the material.

Now let's develop a plan for your school. In this activity you will develop a plan on how your school will organise for collecting and cleaning materials for teaching and learning.

Activity 14

Make a <u>School Plan for Organising Donated Materials</u>. This plan will guide the school on receiving and preparing donated materials for classroom use. Consider the following information when you make your plan.

- ***Where will the donated materials be received?***
- ***Where will they be sorted?***
- ***How will unusable materials be discarded?***
- ***Who will clean the useable materials?***
- ***Where will they be stored?***

You may make your school plan now.

Comment

You have done well to make a plan that the school can follow when they get materials donated to the school. Remember the case of Mr. Munyi in Standard 1. He did not take any of these precautions, and his materials injured children. Cleaning materials thoroughly is an important precaution we should take with donated materials.

Now let see how we may ensure that the materials can be used safely.

D. Ensuring safe for classroom use

We want materials used for teaching and learning that are safe because we want to prevent accidents.

How do you think we may ensure safe usage of the materials?

Comment

We said earlier that we should ensure that the materials we received were hygienic. They still may not be completely safe for pupil's use. For example, the tins may be clean but have some areas that need to be smoothened, filed or straightened. Wood chips and blocks may still be rough and have some sharp points even though they are clean.

Each piece of the material must be thoroughly inspected and threats to safety should be identified. Once they are identified, we should take the responsibility of making them safe.

Community members could also be involved in ensuring that the materials are

safe. Someone in the school could be appointed to be responsible for ensuring that this is done properly. A number of people could work together to ensure materials in the classroom are safe for use.

Activity 15

Now, let's go back to the School Plan that we made earlier. We need to make decisions on these additional areas:

- ***Who inspects the materials for safety threats***
- ***Who makes the materials safe?***
- ***Who does the final inspection?***

Add any other areas that you consider important. Now, complete the plan in duplicate and give a copy to your Head Teacher.

E. What Have We Learned?

In this section we have looked at precautions we must take with donated materials before we give them to pupils to use. We have learned we must have a plan on how materials will be sorted, cleaned and made safe. You were guided on questions to ask in order to develop such a plan. Then you were challenged to discuss these areas and develop you school plan. We believe that this plan will be of benefit to your school. Thank you for your efforts.

We have come to the end of this unit. In the next unit we are going to learn how child centred teaching approaches enhance learning. We will also think about the importance of teaching and learning materials in these approaches.

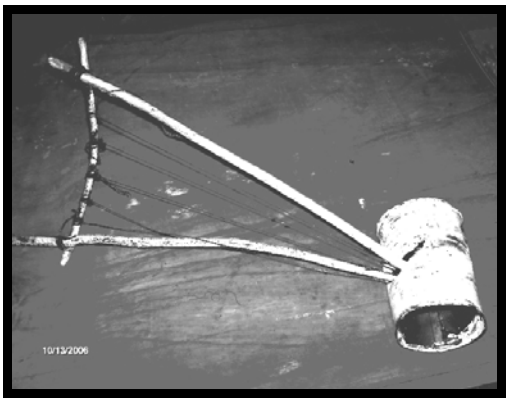


Figure 3.14. Materials made safe for use in the classroom

UNIT 4

USING CHILD CENTRED ACTIVITIES WITH MATERIALS

UNIT 4, *Table of Contents*

UNIT 4 INTRODUCTION

Welcome to unit 4 of this module. In the last unit we explored where we could obtain low cost materials and how we could prepare them for our classrooms teaching.
In this unit we are going to discuss the shift from teacher centred approaches to child centred approaches. We will discuss the characteristics of the child centred methods and the importance of materials in child centred learning.

We will also explore the characteristics of two child centred approaches. These are; **thematic** and **problem solving** approaches. We hope that this information will be useful to you as you assess your own teaching strategies.

The unit is divided into four sections, namely:

- Changing roles of the teacher
- Child centred methods
- Thematic approach
- Problem solving approaches

By the end of this unit you should be able to:

(a) describe role of teacher as facilitator of pupils' learning
(b) state characteristics of child centred methods
(c) state characteristics of thematic approach
(d) state characteristics of problem solving learning
(e) list importance of materials in child centred approaches

In each section, there are questions and activities designed to help you internalise the content under discussion. Make an effort to complete the activities and to think about the questions asked before you move on.

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UNIT 4 Section 1

Changing roles of the teachers

A. Introduction

Teaching involves a teacher, intention, content and the learner. It involves the teacher's understanding pupil's behavior and basic principles of teaching, which include planning, preparing, exposing and evaluation. In teaching usually one person (a teacher) passes some information (i.e. about an object, a person, a process or a skill) to the pupil.

Teaching can be said to be a strategy. The teaching strategy is defined as: "*all activities and processes required in passing information to the learner*". In classroom teaching there are two main teaching approaches. These are:

- teacher centred and
- child centred teaching approaches.

The teacher centred strategy is the one in which the teacher is the focus. The teacher determines the content of the information to give to the child and delivers this content as effectively as possible. The child centred teaching focuses on the child, and the teacher encourages pupils' learning by discovery and experimentation.

Let us consider these differences in more detail.

B. From teacher centred to child centred focus

Let's begin with teacher centred approach.

What do you think the teacher centred approach entails?

Comment

This is the type of teaching in which most of the content is available in almost ready-made form. This strategy is also known as expository or lecture method. In this strategy learners are expected to get information from the teacher, in quality and quantity as decided and given by them. The teacher controls the information, and remains active all the time during the teaching process. The pupils on the other hand are passive listeners. Examples are lecture method or the telling teaching strategy.

Let us look at the child centred approach.

What do you think is involved in the child centred approach?

Comment

This is a method of teaching in which the teacher plays a minimum role in exposing the new learning materials and allows the learner to find out, collect, get or create new material. In this approach the teacher is a facilitator. By using certain strategies the teacher creates a learning situation, which may result in new learning or new skills being developed.

The strategy that the teacher uses ensures that the learner's participation is to the maximum. The learner is at the center of all activities. This strategy is also known as heuristic or discovery teaching. The aim of child centred teaching is to develop a holistic or a whole child. In child centred teaching children's own interests determine what they learn.

We will explore further the shift from teacher centred teaching to child centred teaching approaches. We hope that this information will be useful to you as you perform your duties.

Let us begin by looking at the shift from teacher centred to child centred approach.

What do you think are the differences between the child centred and teacher centred approaches?

Comment

Consider the situation of two excellent teachers in your school. Imagine that they were trained in the same college. Read the case study below and note their differences.

Case Study

Mr. Abdi was posted to Kiangai Primary School last year. He had just graduated from a teacher training college. He was a very popular teacher with the children. His classroom was full of charts, learning centres and the pupils' work was displayed throughout the classroom. Pupil's desks were arranged in six clusters for their group work.

Every time he came to class, pupils quickly ran to greet him and talked to him in excited voices. They ask him many questions about things they were learning in class. When he begun a lesson, he invited pupils to collect specific items from the learning centre, which they would discuss. He then asked them questions and posed problems and then pupils work actively in groups to find the answer, and the solution to the problems.

Mr. Noor, on the other hand, had been in this primary school for over fifteen years. He was one of the first teachers to be trained from this area and he was at the top of his class in the college. Everyone knew him and respected him for his knowledge and experience. The pupils greeted him formally when he came to class and waited quietly for him to teach them. If they did not understand what he was explaining, they did not ask him questions. They were not free with him because he was very traditional and reserved.

Mr. Noor's classroom had lovely charts nicely arranged and the desks were arranged in orderly rows. The materials he used for demonstrations were locked in his cupboard. As he begun his lessons, he carefully reviewed what they had learned the previous day and introduced the new concept. He brought out the teaching materials and used it to demonstrate the new concept. He explained on the board how to apply the concept and gave various examples. Then he assigned the pupils the work and supervised them as they did the class work.

What do you think are the reasons for the differences in these two teachers?

Comment

There are individual differences among teachers that influence their teaching approach. Each teacher has his or her own personality that influences how he or she relates with others and how they like to teach. Also, the teacher's age and length of experience can also make one teacher differ from the other. Perhaps these may be some of the reasons why Mr. Noor and Mr. Abdi are different in their approaches.

There are also differences in the training of teachers that may account for the differences in these two teachers. Mr. Noor and Mr. Abdi in the case study probably received very different types of training even if they went to the same college. Teachers are not trained as they were years ago. Now teachers are trained to use different approaches. They are taught to use approaches that focus on the child rather than teaching approaches that focus on the teacher.

These differences in training are what we have learned about children and how they learn. Teaching in the past focused on the teacher and training prepared the teacher to be knowledgeable and to impart that knowledge to the children. Children were considered passive recipients of the teachers' knowledge. The teacher gave instructions and the pupils listened if they wanted to learn.

But our understanding of how children learn is now different. Research has shown that children construct their knowledge and are active in their learning.

We now know that they are not like sponges that absorb water. We have also learned that children also have different ways of learning that have to be considered.

One teaching method will not work for all children. We are challenged to adjust our teaching to ensure learning of each child according to their developmental levels and capabilities.

In unit 1, we discussed how children develop and learn. We learned what research has shown us about children. This information is for guiding us in our teaching. We need to change how we teach so that we support children's learning more effectively.

Now that we know that children are active learners we need to change how we teach them. Our role should change from teaching to that of a facilitator. We have to focus more on the child.

Before we look at some child centred approach, let us explore some of the new roles of teachers that go with child centred approaches.

C. Teacher as facilitator of learning

Let us agree on what we mean by teacher as a facilitator of learning.

What do you understand by the word facilitator?

Comment

You may have thought of a facilitator as:

- someone who makes something happen
- someone who works with others to achieve a common goal
- someone who builds on the strengths of others to accomplish a desired result.

Each of these answers suggests the role of the teacher as a facilitator to learning. We should identify children's capacities and use the appropriate strategies so that children learn what they require. We need to collaborate with the pupils so that they take responsibilities for their own learning. We should ensure that learning is effective by adjusting the:

- approaches we use,
- materials and
- activities we design for the children.

In order to become a facilitator we have to develop a special relationship with the children. We need to mentor the pupils.

D. Teacher as mentor

Again, we need to agree on what the term mentoring means.

What do you think mentoring involves?

Comment

A mentor is a role model, a guide, an advisor, a teacher and a counsellor, all in one person. The teacher who is the mentor does the actions that go with each of these roles.

Let's look at the teacher as a role model. We should be role models for our pupils in:

- appropriate social behaviour who can be imitated by the learners,
- thinking and learning strategies for their pupils. If you use problems solving approaches in teaching, we are providing children with a model to copy.
- Being open to comments and questioning that children will try to emulate,
- willingness to listen and being examples and encourage flexibility

As reflective teachers our actions must demonstrate that there is always more to be learnt. As we reflect and discuss how to be more effective in our teaching we come to understand that all of us continue to learn and that learning is a life long process.

Now let us look at the teacher as a guide.

What do you understand by the term "guide"?

Comment

A guide is someone who shows the way all directs us on how to get there. As a guide, we lead our pupils toward greater understanding. A counsellor sheds light to issues, uses questions to stimulate pupils' thinking. Teachers understand the content pupils need to know, as they are familiar with the syllabus. They are also aware of the learning needs of the pupils. As teachers we should guide the pupils towards that learning. Our schemes of work and lesson plans form the basis of our teaching and thereafter we are able to guide the pupils appropriately.

We also guide pupils on how to learn and how to develop skills. Pupils learn to think and ask questions when the teacher encourages them thus making them feel free. They will feel free if their ideas are respected and taken into account by the teacher.

Let us now think about the teacher as an adviser.

What do you think is the role of the teacher as an advisor?

Comment

An advisor gives hints and strategies on how to succeed. We give clues and ideas to our pupils on how they could learn and remember more effectively. We also advise them on the most appropriate methods for problem solving.

This calls for an advisor to seek to be knowledgeable and conversant with a variety of information on different subjects. We should be resourceful, competent and hardworking.

Now let us consider what we mean by the teacher as a counsellor.

What do you think is the role of the teacher as a counsellor?

Comment

A counsellor collaborates with someone having a problem to resolve the problem. A counsellor will advise, but also challenge so that the difficulty is eliminated. You as a teacher advise children who are having social problems on the consequences so they find reason to stop the undesired behaviours. You also guide pupils with family problems that affect them emotionally so that they are able to concentrate on their schoolwork. You also encourage the pupils who are slow learners to persevere and not give up, as they will eventually understand the concepts being taught.

As we learned in Unit 1 children cannot learn if they have psychological problems. Maslow says that the physical and security needs must be satisfied before they can concentrate.

Figure 4.1 Teacher as counsellor enhancing learning

We have been discussing the various roles that a teacher takes as a mentor. They have many things they do as mentors to assist the pupils. All of these actions are intended to support and enhance pupils' effective learning.

How do you think teachers use these mentoring roles to facilitate pupils' learning?

Comment

Here are some ideas for you to compare with what you already have.

- Establishing a positive climate for learning
- Involving the learner in planning how and what they will learn
- Setting realistic expectations for the learner
- Providing a vision for the whole learning situation
- Asking questions, offering alternatives and challenging the pupils throughout the learning processes
- Challenging and motivates the pupils to resolve learning problems
- Listening carefully to what the pupils are saying and not understanding
- Giving the pupil a helping hand when needed
- Maintaining continuous reflective thinking throughout the teaching and learning processes

E. What have we learned?

In this section we explored the changes in focus in teaching from teacher centred to child centred. You saw that the child centred focus is consistent with research on children's development and learning. You also learned that the teacher is now considered a facilitator of children's learning and has to use various strategies to ensure that children learn. You also learned that teachers are mentors to their pupils, and as mentors have many different roles to play. In mentoring pupils teachers do many different things to facilitate their learning. Some of these pertain to establish the right environment, guiding and stimulating thinking and learning, and supporting the pupils' efforts. You also learned that being a reflective teacher also enhances your pupils learning.

We explored a variety of methods that support children's learning. In the next section we will consider in detail some of those methods and activities that are focused on children and the most appropriate to enhance children's participation and learning. Welcome.

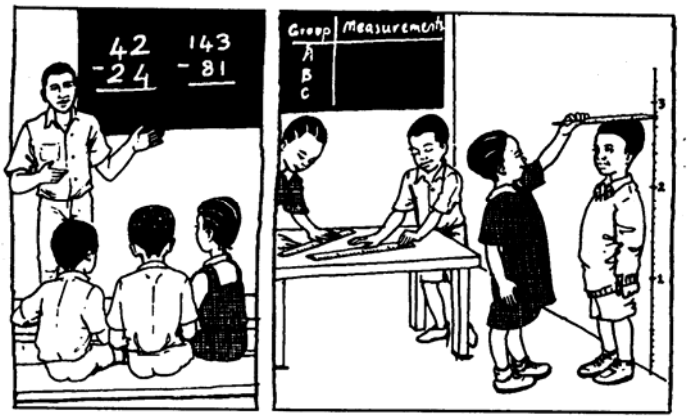


Figure 4.2 Different teaching approaches with varied learning outcomes

UNIT 4 Section 2

Child centred methods

A. Introduction

The National Centre for Early Childhood Education at Kenya Institute of Education advocates for child centred teaching in early childhood education. Early childhood education encompasses education for children in both pre-primary and lower primary classes. Child centred teaching is appropriate for early childhood development. Using child centred teaching minimises any problems associated with the transition from pre-school to primary classes. It also enhances the pupils' learning.

In this section we will explore the characteristics of child centred teaching approaches.

B. Characteristics of child centred methods

Let us think about approaches that centre on the child.

What do you think are some of the qualities of child centred teaching?

Comment

As you thought about the qualities of child centred teaching, you may have identified things that you have typically seen in child centred classrooms. Perhaps you thought of certain activities that the teachers in these classes always seem to do. Compare your list with that of NACECE, 1992 below. Add any that may not be on your list.

- Happy relaxed but busy atmosphere
- More pupil than teacher activity
- Group work to cater for individual differences and needs
- Plenty of good visual aids and current use of display of materials
- Pupils' work is displayed carefully
- Classroom bright and colorful
- Many interesting learning areas in the classroom
- No corporal punishment
- Lessons planned to meet the needs of the learners

- A variety of interesting apparatus which children are allowed to use after completion of an assignment
- No meaningless memorization
- Pupils learn leadership skills through distribution of their own materials and tidying up.

Now, we want to assess our teaching. We want to find out how child centred our teaching in our classes.

Activity 16

Make a table like Table 4.1 below. The left column has characteristics of child centred teaching described by NACECE, 1992. The column on the right is labelled "My Classroom".

Read each characteristic. Ask yourself, "Is that a quality of my teaching?" "Is my classroom environment typically like that?"

Write a yes or no in the right column for each characteristic.

Table 4.1 Characteristic of Child Centred Teaching

Characteristics/ Qualities of Child Centred Teaching	**My Classroom**
Happy relaxed but busy atmosphere	
More pupil than teacher activity	
Group work to cater for individual differences and needs	
Plenty of good visual aids and current use of display of materials	
Pupils' work is displayed carefully	
Classroom bright and colorful	
Many interesting learning areas in the classroom	
No corporal punishment	
Lessons planned to meet the needs of the learners	
A variety of interesting apparatus which children are allowed to use after completion of an assignment	
No meaningless memorization	
Pupils learn leadership skills through distribution of their own materials and tidying up.	

You may fill your table now.

Comment
If you have more "yes" than "no" you are making a serious effort to shift from teacher centred to child centred approaches. You are to be commended.

Let us now think about some of the qualities of child centred approached in more detail. Let us focus on how this approach impacts the strategies we use in teaching.

C. Child centred strategies

Now we must agree about what child centred strategies are.

What do you think child centred teaching strategies are?

Comment
The teaching strategies for child centred strategy include: telling, listening, questioning, reinforcing, giving feed back, modeling, observing, nurturing and working with groups. They may appear similar to those of teacher centred approaches, but they are different.

According Froebel the purpose of teaching and instruction is to bring out more and more from man rather than put more and more into man. Froebel likened teachers to gardeners who prepare the ground, set the stage for growth with regular watering and fertilizing and stand back to wait for growth to occur. A teacher guides, motivates, and leads the children's learning.

Child development psychologists support the view that teachers be indirect, nurturing, and sensitive to the children's growth and development. Teaching children is described as indirect rather than direct. Indirect teaching may include, reviewing and completing records, planning, evaluating, arranging the environment, setting up a problem in the science area and preparing the art materials.

In classroom situation teachers combine different strategies to transform children's activities and encounters with their environment into valuable learning experiences. These strategies include: telling, listening, questioning, reinforcing, giving feed back, modeling, observing, nurturing and working with groups.

What do you think is the telling strategy?

Comment
Sometimes it is necessary for the teacher to tell a child a fact or instruct. For example when giving instructions, such as:

- stopping an activity
- when asking the child to wait for something

- when explaining to a child how to use an object such as a hammer
- when giving directions on how to do an activity
- when stating a rule
- when giving the name of an object
- when giving feedback that an answer is correct.

There are many things that children will not learn themselves through discovery; for example, learning how to begin writing a word with a capital letter. This is most rapidly learned through direct teaching of a teacher telling a child how or what to do.

However, teachers of pre-primary and lower primary children may find that using telling strategies is inappropriate. It is inappropriate teaching because of the following reasons:

- It is one way communication and it often leaves little opportunity for children's responses
- It is a strategy that creates passive children. Children do not get the opportunity to participate, explore and try things for themselves. It is unsuitable to the needs of active, moving, curious children.

However, if telling, or teacher talk as it is sometimes called, is to be used in teaching, we need to consider:

- Supplementing our words with real objects, or with activities such as films, reading a story or by telling a story and others.
- Talking clearly to children, using simple and clear sentences
- Using examples that relates to the past and present experiences of the children.

Let's look at the role of listening.

Why do think the teacher should be an active listener?

Comment

Active listening by the teacher is important in class. Careful listening to the children's ideas serves the following functions:

- builds a climate of acceptance of the children and their ideas
- shows that the pupil has the support of a concerned adult who cares enough to actually listen.
- helps the teacher to gain knowledge about the children that is useful in planning and evaluating learning experiences.

Active listening means that the teacher is reflecting on what the child is saying. The teacher is trying to fully understand the thoughts that are being communicated.

Demonstrations are usually teacher focused. An effective teacher uses the demonstration to also ask questions to assess children's understanding. The teacher uses active listening strategies.

Active listening is more than just hearing. It involves the following:

- being physically attentive
- devoting oneself to what the child is saying
- looking directly at the child
- letting the child know that the teacher is focusing on his/her contribution
- thinking of the important things the child is saying
- waiting a few seconds before responding, this helps the child to know that the teacher is thinking about his/her ideas

Figure 4.3 Demonstrations are opportunities for questions and discussion.

Let's think about how we should respond to children's questions or ideas.

How should we respond to the pupils after listening to them?

Comment

We may respond to the child appropriately by:

- repeating what the child said
- Commenting on the main theme or the important points the child has made ,
- observing the child for body movements, or other types of nonverbal communication which may give some additional information about the child; for example, does the child make pauses, stammers, ends a statement with sigh?

These may reveal much of the child's feelings and attitudes that cannot be expressed in words.

The other aspect is asking questions.

Well thought out, carefully phrased question should be asked at the right time. Questions provide children opportunities to use their minds. As teachers interact with children, they can use either closed or open-ended questions.

What do you think are open-ended questions?

Comment

These are questions that call for divergent and evaluative thinking. They are considered thought provoking questions because they encourage children to use their knowledge and judgment to arrive at answers and new ideas. We use these types of questions to lift children to higher order thinking processes. Some examples of open – ended questions are:

- *What do you think of this object?*
- *Can you tell me more about your game?*
- *Why do you think that this object will float?*
- *How could that happen?*
- Let us look at the closed questions.

What do you think are the closed questions?

Comment

These are questions that can be answered in only one-way and have specific answer. Closed questions call for convergent thinking. They require children to recall specific facts from memory. We ask these questions to get children's knowledge, skills or feelings that they are expected to have learnt.

When we use open or closed questions it is important to tie the questions to children actions and experiences. Questions help to involve children in a conversation. They also help to communicate useful information. Questions are useful to relieve the teacher from doing too much teacher talk/telling.

However, asking children too may questions can make them insecure or even feel threatened. In addition, some questions can be rude, especially those questions that touch on private and personal things. We need to try as much as possible to avoid asking questions that can lead to personal responses, especially questions related to family issues.

Now let's see how we may reinforce positive behaviour and learning.

What do you understand by reinforcement?

Comment

Reinforcement can be a smile, a quick hug, a wink or praise. These actions or words make the children feel appreciated and they feel happy to contribute further. Sometimes teachers make use of things like examination grades, rewards, extra assignments and so on to reinforce children.

When we reinforce a child's actions we are encouraging him/her to repeat the action. For example a positive reinforcement such as a hug, a reward, a smile or a grade encourages the child to be nice and probably to continue making extra effort.

Some reinforcements are negative, such as threatening a child with a punishment. We are trying to get the child to do something. If he does it we stop threatening. If he doesn't, we are likely to move from the threat to the punishment.

One powerful, negative reinforcement is ignoring the child. Some of us ignore undesirable behaviour from the child. We use this as a discipline technique. Some children behave in some ways in order to attract the teacher's attention. These behaviors include fighting, temper tantrum, kicking, spitting, and hitting. These can gradually disappear when ignored in a process called extinction. Extinction is the gradual weakening of a response as a direct result of no reinforcement.

Reinforcement promotes learning and increases positive behaviour. It is a positive strategy of teaching as opposed to punishment.

However teachers need to be careful when using reinforcement. Before we can apply reinforcement in children we must first understand our children in the following ways:

- Why is the child behaving that way?
- What is the meaning of this behaviour?

Sometimes when the children fail to get adult's attention and response they can arouse resentment and hostility, especially in insecure children who are seeking reassurance through getting attention or when children want to feel important. In this way lack of reinforcement can lead to resentment and hostility in children.

Children require basic human motivation and opportunities to express their feelings and sentiments. Reinforcing children's behaviour without permitting development of autonomy in learning to use their intrinsic motivation is treating children like objects or animals. Reinforcement will create dependence of the pupil on the teacher who always reinforce.

We are now going to look at the importance of giving feedback.

What do you think is the importance of giving feedback?

Comment

This is letting children know how they are progressing. It is a type of reinforcement. It involves:

- Recognizing the child for some achievement or for some demonstrated skill or behaviour.
- Giving them some explicit information about the behaviour
- Communicating to children something about their performance
- Clarifying children's tasks, affirming to them that their work is good, valid and accepted.

Feed back is considered useful when it:

- Describes what the child is doing rather than placing a value judgment on it
- Is specific instead of general. For example, *"You climbed to the top of the ladder today"* instead of "*You did well outside*".
- Directs the child toward something she has control over and can do something about, e.g*." Put these dishes here"* is more useful than *"Pick up"*
- Is well timed with the child's actions and given while children are actually working or achieving.

Let's look at the importance of modeling.

In what ways is the teacher a role model?

Comment

Every action, non-action, and reaction, every bit of verbal and nonverbal behaviour of the teacher is noted by the children, and many of these behaviours become incorporated into children's minds.

According to social learning theories, new behaviour is learnt through observation and imitation of a model such as a parent, a teacher or any other important person in the life of the child. As we discussed in the earlier section, children learn as they observe and imitate their parents, teachers and others around them.

Children also model the behavior they see. Teachers have a responsibility to exhibit behaviours that are worthy of being copied. Children internalize the attitudes teachers' hold towards other people, the environment, and learning. As responsible teachers we must analyze our attitudes, values and behaviors to try to transmit those that are pro-social for children's healthy development.

The teacher should also be a keen observer of pupil's behaviour.

Why do you think it is important for teachers to observe children's behaviour?

Comment

As children work and play in the classroom and outside, the teacher maintains the active role of observer. The entire group of children, small groups working together, and each individual child needs to receive the teacher's careful observation.

Observation enables the teacher to facilitate children's learning in the following ways:

- Maintain control of the children, even when they are actively involved in individual, self-initiated activities.
- Intuitively know something is wrong or a disaster is approaching. The teacher will infer the problem the child is facing and try to intervene or give alternatives.
- To ensure safely of the children by maintaining order and control of the learning activities of children.

In an organized children's learning environment observation takes place throughout the day. We should learn to nurture this good behaviour.

What do you think nurturing involves?

Comment

We must be able to give children the nurturance, love, care and affection that each child needs and craves to. The ability to give children the nurturance they need is a strategy of a successful teacher. Nurturance, feeling the warmth and approval of a teacher enhances intellectual growth in children. Children who feel secure, loved and nurtured develop confidence, support and security they need to risk learning new things and to reach out to others.

Figure 4.4 Nurturing teachers increase children's success in learning

In nurturing we understand the needs of individual children by understanding their backgrounds. Nurturing can be done through:

- respecting the feelings of children,
- permitting them to cry and to be angry and
- taking the time to listen to children.

Lets look the importance of group work.

What do you think is the importance of group work?

Comment

Like all humans, children are social beings and take great pleasure in working with others. Children in preschool and lower primary have difficulty working in groups because:

- Their attention spans are still short
- They cannot sit still for long before they become distracted
- They are still egocentric in their way of thinking

However to become a part of a group is a desire for everyone. As children work in groups:

- they develop the skills of social interaction
- they strengthen their cognitive abilities
- they see alternative points of view of others and adjust their thinking to that of the group
- they recognize the ideas of others and can see the same events in different ways

Figure 4.5 Children developing many skills during group activity.
(Source: SPRED Math P. 286.)

When grouping young children for an activity like story telling, discussion or for a game, we should be flexible and understanding because, members of the group need to be free to leave or to rejoin.

When children work in groups, we need to be aware of the following:

- these are very young children
- they are not expected to behave like adults.
- they talk, dance, stand, wiggle, squirm etc.

We should accept children's natural behaviour but encourage them to more mature actions by:

- keeping group activities short, flexible and spontaneous,
- establishing physical closeness with the children,
- beginning with something interesting to attract children to settle, and.
- seeing that all the children have the opportunity to participate.

The strategies of teaching discussed above will constitute our total teaching behaviour in a child centred learning environment. The strategies should not be assumed to work in isolation but should be practiced in an integrated manner.

Activity 17

In this activity we want you to think about your own classroom strategies. Reflect on your own teaching and answer the following question:

How would you assess yourself on each of these child centred strategies?

You may reflect on your classroom teaching and rate yourself now.

Comment

As we reflect on our own capabilities in effectively employing these teaching strategies, we will be looking at our present use of these strategies. Being reflective practitioners we will be able us to be aware of our strengths and weaknesses. It will also provide us with the motivation to approach other experts to assist us to improve. Reflecting on our own teaching strategies will suggest what we need to change for the benefit of the children.

Let's look at the importance of teaching learning materials in child centred approach to teaching.

D. Importance of materials in child centred classrooms

Let us now consider why child centred classrooms have so many materials.

What do you think is the importance of materials in the child centred approaches?

Comment

Child centred approach encourages the setting up of learning centres where the children spend time interacting with materials and other children. These learning centres are central to the learning of the children.

We control the content and activities of the learning centres, but the children interact with the materials in numerous ways. It is not all the interactions that are directed by the teacher. This makes the quality and quantity of materials and activities at learning centres vital to success or failure of child centred approaches.

Learning centres that have insufficient materials and activities will have the desired outcome. Children will not learn what was expected. Learning centres with materials that match the activities will also lead to good results.

In child centred approaches we have to pay particular attention to the learning materials. If we ensure that there is enough and relevant materials at the right time, children will do the rest. The children will learn naturally.

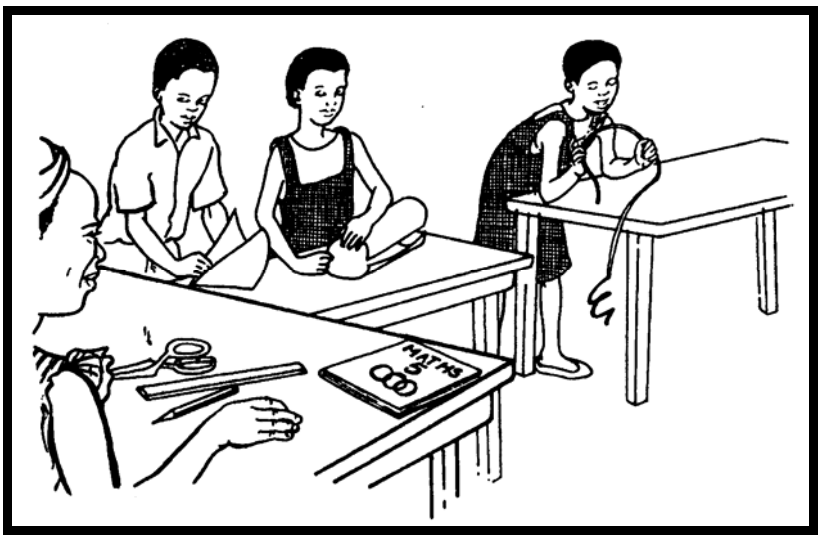


Figure 4.6 Children handling resources learn concepts faster

E. What have we learned?

We have been exploring the teaching strategies of the child centred teaching approaches. We learned that there are appropriate times for teacher talk, as well as telling, but most of the time we need to use other strategies. The teacher as a keen observer can identify problems in children's learning and behaviour before they become serious. We also learned that questioning is helpful for learning but

should not be overdone. Both open ended and closed ended questions are to be used since they call for different thinking.

Various types of reinforcement should be used, but not to the extent that children become dependent. A nurturing relationship encourages a free atmosphere where learning is enhanced. Having the children learn to work in groups is necessary but children of these ages have to be guided in the social skills of group work.

We also learned that materials are important in child centred approaches. Children use them in learning centres and their quantity and quality enhances the children's learning

You also reflected on and learned, Teacher, your own capabilities in these teaching strategies. We hope you have identified some of your strengths in teaching.

In the next section we will explore more about child centred approaches and how you can use your strengths and various materials to create classrooms that fully stimulate children's development and learning.

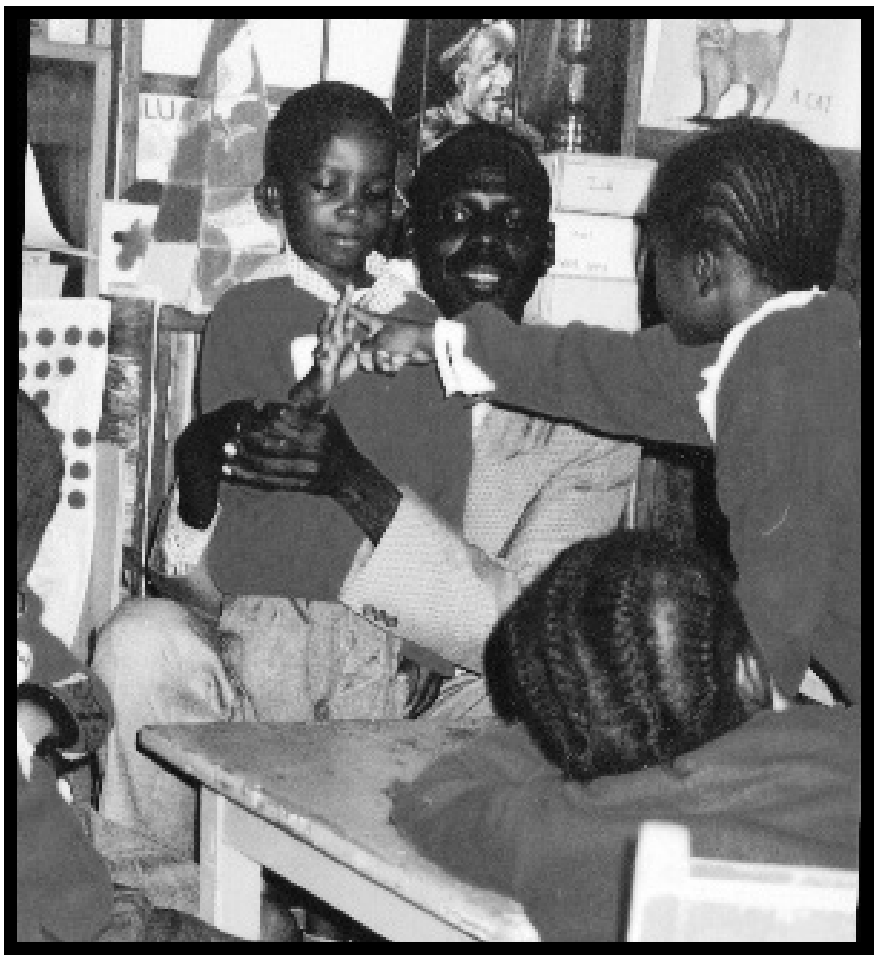


Figure 4.7 Teacher's facilitating role in child centred approach

UNIT 4 Section 3

Thematic approach

A. Introduction

In early childhood, teaching takes place in an integrated manner. In teaching young children, we use the holistic approach in which cognitive, social, physical, emotional and language skills are developed using integrated activities. This means that learning is not treated as occurring in separate subjects or contents. Children do not see their immediate world as being made of separate subjects but see it as one world. For example in an early childhood learning environment, activities such as language, mathematics, music, outdoor, science and social skills, are taught using and integrated thematic approach.

As we discussed in the last section, lower primary children are still in early childhood development. They share more developmental characteristics of pre-primary than of upper primary pupils. The thematic approach is also appropriate for them.

In this unit we are going to explore the thematic approach. We will also discuss characteristics of thematic classroom and why learning materials are vital within the thematic approach to learning. Welcome.

Let us look at what the thematic approach includes.

What do you think the thematic approach involves?

Comment

The word thematic is derived from theme. A theme is a topic, or a unit on which learning is based.

The purpose of thematic approach is to provide a child centred learning environment that is holistic and integrated. Its goal is to make classroom learning as natural as learning outside of the classroom. In this way children find meaning in what they are learning and are able to apply what they learn in the school to their immediate environment.

If you are not familiar with thematic approach, you may think that thematic approach is the same as the child centred approach.

Let's look at this more carefully. We need to agree on whether they are the same or different.

Do you think that child centred and thematic Approaches are the same or different?

Comment

Actually thematic approach is a child centred approach. Not all child centred teaching is thematic; not all child centred classrooms are thematic. Let us consider these differences.

The thematic approach is sensitive to the characteristics of children, their levels of development as well as their interests and needs just like other child centred approaches. The major difference is that thematic approach integrates all the various activity areas into a holistic view point using a theme.

Let us consider the qualities of a thematic classroom.

B. Characteristics of thematic approach

This is teaching / learning of various activity areas in an integrated manner using a theme. Knowledge, skills, attitudes are acquired on different activity areas using a given theme. This means that school activities and content areas such as mathematics, science, social studies, language, music, art and outdoor play can be taught in one theme like the family and the home. It is only the teacher who is aware of the knowledge skills, and attitudes to pass to the children while the children are learning them in a flow of thematic activities.

Listed below are the characteristics of thematic and integrated learning

- Many activities are incorporated in one theme
- The teacher is aware of the different knowledge, skills, concepts and attitudes to be developed in children in different activity areas.
- Thematic learning is continuous; the theme runs through the planned activities for a given period of time.
- The arrangement of the learning corners portrays the theme learnt during a particular time.
- Children's interests and abilities are taken into consideration when planning activities in each theme
- Learning is at the pace of the children
- There is flexibility in the choice of themes, learning activities and in the planning of the activities
- It is one of the most natural methods of helping children to learn.

A variety of learning materials are important in thematic classrooms because much of the learning is done through learning centres. Classrooms that have many materials at the learning centres enhance children's opportunities to interact with materials and thus to develop skills and knowledge.

C. Examples of themes

We want now to consider some examples of themes. Examples of some of the themes that have been suggested for teaching children at the early childhood level include the following (GoK, 1999):

- **Family members**: these include mother, father, brother, sister, aunt, uncle, grandmother grandfather and others. Their roles and activities.
- **Buildings at home:** which can include houses, toilets, granaries, cow shed, Kitchen, storeroom etc.
- **Kitchen:** Utensils, fireplace, cooking food
- **Sitting room:** furniture (chair, table, bed, cupboard) and equipment, which include the radio, T.V.
- **Bedroom:** including clothes we wear, Equipment such as side mirror, fans, heaters and so on.
- **School:** teachers, children, classrooms, toilets, uniforms, books
- **Market:** Open air markets, super markets, stalls, cashier etc
- **Shop/Kiosk**: Shopkeeper, buyer/customer, shop, items/goods, cashier
- **Hospital:** words, casualty room, doctor, nurse, patient, medicine etc
- **Weather and seasons:** Sun, clouds, rain, thunder, lighting, floods, dry, wet, wind
- **Gender:** father-mother, boy-girl, brother-sister, uncle-aunt
- **Parts of the body:** Head, neck, shoulders, arm, hand , finger, chest, stomach back, leg, toe
- **Worship:** God, Allah, Buddha, and Jehovah
- **Creation:** Worship places (such as church, temple, Mosque)
- **Religious Leaders:** Sheiks, Bishops, Maalims, Pastors, Reverend, Priests
- **Holidays:** Sundays, Saturdays
- **Celebrated religious days:** Christmas, Maulidi, Easter
- **People and their Work:** Policeman/woman, nurse, Doctor, Shopkeeper, Market sellers, Hawkers, Pastor, Sheikh, Bishop, Priests, Watchman, Farmer, Mechanic, Chief.
- **Physical Features:** rivers, mountains, valleys, hills, lakes, swamps, forest, oceans, dams
- **Transport:** animal transport –donkeys, camels, horses.
- Road transport – cars, trucks, buses
- , Water transport – boats, ships
- Air transport, and rail transport
- **Sounds:** Sounds made by animals and other things. High and Low, Soft and loud
- **Water:** Uses of water, sinking and floating, water-play activities, sources of water
- **Festivals and Ceremonies:** Birthdays, sports day, parents day, national days (Madaraka Day, Jamhuri Day, Kenyatta Day, Moi Day) and religious holidays,
- **Our Country:** Kenya president, national flag, national anthem, national days, local leaders
- **Plants:** Food crops, forests, flowers, trees, etc.

- **Animals:** Birds, domestic animals, wild animals, pets, insects

The primary syllabus also refers to similar themes, particularly in English. Science, Social Studies.

Activity 18

Teacher for this activity you will need a copy of the Primary Education Syllabus, Volume One and Two. Do not begin the activity until you have the two syllabi. You will also need a paper and pen. Go and bring those resources before you begin.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>

When you have the materials you may begin the activity

>>>>>>>>>>>>>>>>>>>>>>>>>>>>

Find the Section on English in Volume One. Find the themes and sub themes for your class level (standard). They are clearly listed with sub theme underneath. List these themes and sub themes on the paper.

Find the sections on Science and Social Studies in Volume Two. Identify the themes in those sections for your class level. List them on the paper.

Comment

You notice that the Ministry has ensured that at least three content areas are taught thematically. This should be a challenge to you, Teacher, to begin to organise for thematic teaching. In the next unit we will explore planning for thematic teaching. But first let us consider a different child centred approach.

D. What have we learnt?

In this section we explored the thematic approach. We learned that it is completely holistic teaching in which all content areas are to be integrated around the theme. We learned that the purpose of thematic is to make learning at school more natural. We learned that in thematic learning the teacher is aware of her objectives and goals, but the learning environment for the children is a flow of activities across the curriculum without the normal content area breaks. We also learnt that there are numerous themes suggested by the Ministry of Education for pre-primary and lower primary teachers. We have challenged you to asses where you could use thematic approach in your class. Best wishes.

UNIT 4 Section 4

Problem solving approach

A. Introduction

In the last section, we explored the thematic approach in teaching and learning. We are now going to consider another approach that is often used in science. This is the problem solving approach.

We hope that you will find out that this approach has wider applications. It is also very useful in guiding children to apply other knowledge to solve their day-to-day problems.

Let's look at what this problem solving approach to learning is and its characteristics.

B. Characteristics of problem solving approach

Let's first consider what the problem solving approach is.

What do you think problem-solving approach is?

Comment

The problem solving approach is a science teaching strategy to promote learning. This approach encourages learning through a process of questions or situations that confront pupils with problems that require answers. Children are provided with a problem to solve and they are guided on how to solve the problem.

In this approach children are involved in formulating the problem while the teacher provides the enabling problem solving environment. However, the teacher can also help the less experienced children and lead them in formulating the problems or assist them in doing experiments.

Now, let's think about the steps involved in this approach.

What do you think are the steps that are followed in applying problem solving approaches?

Comment

There are six steps in the problem solving approach. The children are guided in each one of them. When they are in upper classes, they will require less guidance. The steps are:

- A problem is posed, for example:. does air have weight?
- The problem is refined and defined
- The experiment or steps in solving the problem are identified and the relationships of the various parts of the experiments are explained
- A hypothesis is formulated and tested
- Data is collected using the experiment or the steps set
- A solutions is found which is either accepted or rejected

Infants and young children use these steps without thinking and they are not at all consistent in what they do. Teachers can guide children in these steps so that they become effective problem solvers.

Let's look at what problems we should select in guiding children in this approach.

What do you think will determine the selection of the problem?

Comment

The selection of a problem for classroom investigation depends on:

- Whether the problem is appropriate to children's ability and experiences
- Whether the children have the required previous experiences or have come across related information contained in the problem
- Whether the child is able to manipulate the given materials or experiments and
- whether the child is able to perform the activities necessary to arrive at a suitable solution to the problem.

Problems in science may be related to the following problems or experiments:

- Air has weight
- Air exerts pressure
- Air expands when heated
- Air contracts when heated

From these statements of science, children can formulate simple problems which they can go a head to develop simple experiments to test their hypothesis

Problems in Maths could focus on practical activities, such as measurement of volume and weight. These are activities often given to children of these ages. Now in the problem solving approach, the children are given a problem to set up and are guided on how to set up an experiment to get the answer. In this approach the activity is not just random discovery and exploration, but guided learning in how to set up and solve the problem.

Figure 4.8 Estimating quantities as a problem solving activity

Now we are going to look at the value of the problem solving approach for children's learning.

C. Application of problem solving approach

Let's consider how this approach contributes to children's learning.

How do you think the problem solving approach enhances children's learning?

Comment

Problems solving is an approach that guides the pupils to develop strategies to solving practical problems related to their daily life experiences at home and at school. In this approach the child recognizes that their daily problems could be solved using the same strategies (steps) as those used in science. They also come to see the solutions as part of their personal achievements. This motivates them to think and their learning is encouraged to grow.

Problem solving approach is also important in helping children discover new solutions to problems rather than reciting and reproducing text answers from memory. Children become more creative and innovative.

Thus, this approach becomes the basis of independent thinking, creativity and learning. It also fosters their confidence, as they become independent thinkers.

Activity 19

Teacher, in this activity we want you to reflect on the following question.

How you could use the problem solving approach with your pupils?

You may review your schemes of work to see where you could incorporate this approach in your classroom.

Comment

We may each answer this question in various ways. Perhaps you suggested that you could take a science topic on "sources" and instead of using Teacher Talk (Telling) or discussion you would use the problem solving approach. You decided you were going to give a story that in which there is a problem: no water. You are going to give the problem to the children. They have to identify where the water comes from so that they are to go and get the water.

Perhaps you decided that you want to use problem-solving approach in the Social Studies unit on the Family and family responsibilities. You have them role play out the responsibilities of various family members, but there is a problem they have to solve. One by one the adult members become sick. They cannot do their work. The children have to solve the problem. One by one they fall sick until there are no grown ups left. The children have to then solve the problem: who will cook, who work for money for food, etc.

You can use this approach in many ways. We should be encouraged to use it as it enhances the quality of children's thinking.

D. What have we learned?

In this section explored the problem solving approach. You learned that this is from the sciences but can be applied in other areas. You also learned that pupils can be guided in following the six steps of problem solving and later they will be able to use it in solving their own problems in life. You learned that it is a valuable approach for developing children's thinking, creativity and confidence. You were challenged to identify how you could use it in your classroom to encourage your children's thinking.

Teacher, in this unit we looked at child centred approaches and explored various strategies used to enhance children's learning. We explored further specific child centred approaches that you might use in your classroom, such as the thematic approach and problem solving approaches.

Materials are very important in all of these approaches. You are encouraged to continue gathering your low cost teaching and learning materials as you go on with the next unit of this manual.

In the next unit we will discuss planning. We need to plan for our teaching so that learning is enhanced. Welcome.

Figure 4.9 Child centre classrooms with different activities and materials

UNIT 5

EFFECTIVE PLANNING

UNIT 5, *Table of Contents*

UNIT 5 INTRODUCTION

Welcome to unit 5 of this manual. In unit 4, we discussed child centred teaching approaches. We said that, in child centred approaches, a variety of teaching and leaning materials are used and are very necessary. We also said that we require to be very organised if the children are going to benefit from the materials that we select and provide.

The preparation for teaching stage is not easy as there are many demands on us like organizing marking and other activities for large classes. In this unit we are going to discuss how we can meet these challenges and demands by planning adequately. We will review the format and characteristics of Schemes of Work and lesson plans. We will consider how to use them in a child centred teaching using thematic approaches.
This unit is divided into four sections. These sections are:

- importance of planning
- using the syllabus or guidelines for planning
- preparation of schemes of work
- lesson planning

By the end of this unit you should be able to:
(a) state the importance of planning,
(b) state how the primary school syllabus/ guidelines are used in planning,
(c) state how the pre-primary teachers use the Guidelines for Early Childhood Development in planning,
(d) prepare quality Schemes of Work and
(e) prepare an effective lesson plan.

UNIT 5 Section 1

Importance of planning

A. Introduction

We have been focusing on children and how they learn. We have recognised that the teachers have very important and complex roles. We have also discussed the kinds of approaches that enhance children's learning.

Now we need to consider that even the best strategies and teaching approaches can not be effective when we are not prepared or organised. Teaching is a professional task that requires us to be prepared. We need to plan.

We will begin by looking at the value of planning for our teaching.

B. Importance of planning

We will begin by looking at why planning is necessary.

.

What do you think is the importance of planning in teaching and learning process?

Comment

Think of a situation where we never prepare at all for teaching. There would be complete confusion and chaos. The learners would not benefit at all.

Read the following case study and note the difference between a teacher who prepares for teaching and one who does not.

Case study

Mr. Abdi and Mrs. Koske have been teaching in Jasho Primary School for a long time. Prize Giving Day was always a very exciting occasion for Mr. Abdi but not Mrs Koske

Mr. Abdi planned for his teaching carefully every year. For that reason, his students always did well. They received many awards during this day. Mrs. Koske's on the other hand did plan but without much thought. Her students never got good grades and hence did not receive any prizes during this important day. In fact, the parents were not happy with her.

During this year's Prize Giving Day, Mr. Abdi was given a special prize as his students had excelled in all areas of the curriculum.

When he was asked why his students did so well, he said that it was because he knew his students well and that he planned for each one of them so that they could learn at their own pace. Everyone was impressed with his answer, including Mrs. Koske. She decided to ask him for help so that she could improve on her performance.

Why do you think Mrs. Koske did not plan for her teaching carefully?

Comment

Perhaps, you indicated that she did not plan, as she did not have the time, and that she had many duties and responsibilities. Perhaps you also said that, she was not trained well on the importance of planning and how to do her planning. You may have suggested that it is not necessary for experienced teachers to plan. You may have even said that no one checked whether we planned or not and so there was no need for planning.

However, we need to plan in order to teach effectively. Even though planning takes time and effort, it is necessary as planning is basic to good teaching.

Planning is also very important to many different stakeholders: These are:

- school head,
- parents
- children
- community at large.
- Ministry of Education and
- for yourself

It is important to plan because the head of the school will need to make decisions on how to run the school. The head teacher is responsible for the finances and other resources in the school and the implementation of the national curriculum. The head teacher has to resolve conflicts among staff as well as ensure that teaching and learning run smoothly in the school. In addition, the school head has to ensure that all of the stakeholders, such as members of the community support teaching and learning in the school.

In the School Empowerment Programme, head teachers are guided on how to improve their leadership skills. Sound leadership in the school ensures that children learn effectively. In order to lead effectively, there is need for information. Thus, heads teachers require their teachers to submit various records and plans so that relevant and timely decisions could be made.

Teachers' records and plans are valuable inputs into the decisions of the school heads. They are like food that the body has to take, absorb and use for health, energy and body repair. Without these records and plans, schools cannot run smoothly.

Let us consider this in more detail as we do the following activity.

Activity 20

Make a table like 5.1 below. Go through the bulleted list and put a tick in the columns: Your plans will enhance Head Teacher's success" or "Your plans are not needed for Head Teacher's success".

Table 5.1 Importance of Teachers' Plans for Head Teacher's Success in Leadership

Head Teacher's Leadership Area	Teachers' Plans Will Enhance Head Teacher's Success	Teachers' Plans Are Unnecessary for Head Teacher's Success
• Priorities, plans and organises activities;		
• Initiates and manages change and improvement in pursuit of strategic objectives;		
• Makes decisions based upon analysis, interpretation and understanding of data and information;		
• Provides professional direction to the work of others;		
• Thinks and plans strategically, formulates and communicates policies, rules, motto and mission for the school;		
• Plans school development and involves stakeholders;		
• Implements strategies to achieve effective teaching and learning;		
• Ensures the curriculum is well delivered to meet the learners' needs;		

You may complete your table now.

Comment
If you put a ticked in each box in the column "Teachers' Plans Will Enhance Head Teacher's Success", you are correct. We should be aware of the importance of plans, and if we are not submitting them, we need to begin do so immediately.

If you had one or more ticks in the right column labelled "Teachers' Plans Are Unnecessary for Head Teacher's Success", you are mistaken. The school head cannot make informed decisions or plan without our information. Reconsider what you ticked.

Now let's look at the importance of planning to our pupils.

Why do you think it is important to plan for the children?

Comment
Our plans and record keeping support children's learning. In the case study we read earlier, Mr. Abdi said that he knew his children well and ensured that they learned what they were supposed to. He knew what to present to the children and how to enhance their learning. This can only be done if we plan and also keep records.

Teaching is like a journey. We need to know what the children are supposed to learn during the year. The knowledge, skills and levels of competencies should be set so that their performances can be measured. Then we should ensure that we use our resources effectively to enable them to learn and develop the knowledge and skills they are expected to acquire at every level. The academic success of the children depends to a large extent on adequate planning.

In what areas do you think we should plan to support effective teaching and learning?

Comment
You may have thought of the following:

- concepts and skills to teach;
- activities and methods to use,
- when they should be taught and
- teaching and learning resources.

We cannot succeed in teaching unless we organise what we are going to teach through planning. We require to be organised and to plan so that we may cover the syllabus. Time is such a valuable resource, but when it is gone we cannot get it back again. When we don't plan properly, we are not prepared. When we are not prepared, we waste children's time for learning.

Let's think about the importance of planning for children as we do an activity.

Activity 21

Look at the picture below. What do you think is happening?

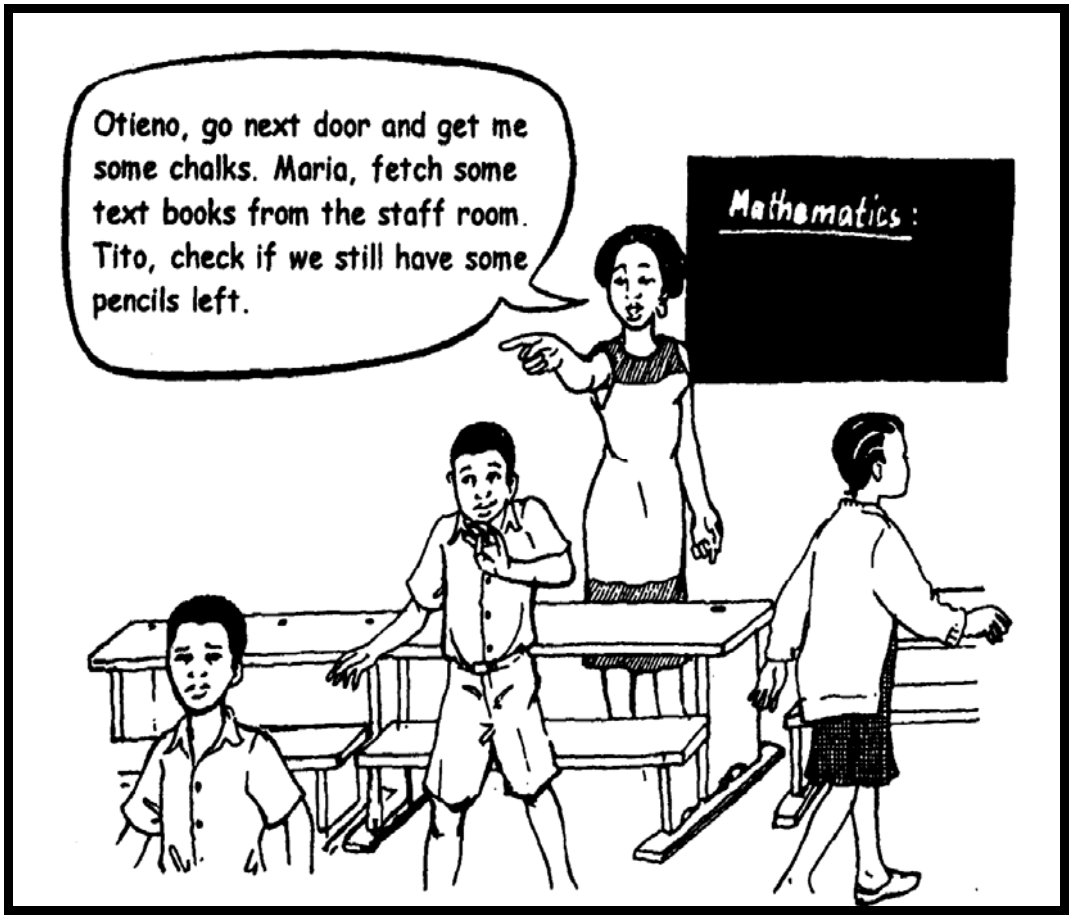


Figure 5.1 Lack of preparation leads to waste of pupil's valuable time.

Comment

Teachers are trained in order to be able to provide leadership and guidance in the class on what is to be learned during the year. We mentioned that children depend on the teacher for guidance for learning. The children come to school because the teacher is there. These children are young and learning at school with a teacher's help could be even better. At this age children need a lot of facilitation in order to learn. They need help to learn concepts and the necessary skills that they need. In this process the teacher plays a central role.

At this stage, children depend on the teacher in order to benefit from schooling. Some children are slow learners and they need a lot of time, many activities and use of various materials in order to learn. If the time is wasted, children will not sufficient acquire the knowledge, skills and attitudes required.

The teacher should be a good role model for Children needs to be good at organising and planning. The children will imitate what they see. They develop organisation and planning strategies by watching and learning from those around them including their teachers.

Let us now look at the importance of planning for the teacher.

Why do you think planning is important to teachers?

Comment

When you have a class of 100 pupils rather than 50 you are likely to have mixed developmental levels. You have to plan the group work according to the learning needs. We need more groups with different group activities. We may also have children with special needs and these require consideration. They will require special planning so that they are able to benefit with the others. In a class of a hundred and above, we will require more time to assign and supervise the group activities. This underscores the importance of planning for effective teaching and learning

Today we are experiencing a lot of shortage of teaching staff in schools. This shortage causes us to combine classes. Sometimes the classes are too large for effective teaching, as they won't fit into one classroom. The teacher moves from one classroom to the other classroom and back again. The teacher is literally like the juggler tossing up the various balls in the air at once. The teacher can only succeed in keeping the learning effective in both classrooms by planning clearly what is to be accomplished by which dates and how. The teacher has to plan for the two classes or the children are not going to learn what they need to learn.

These challenges make our work stressful and demanding. In order to cope with the situation, we need to plan carefully. That way we are able to withstand the pressures and demands of these new situations.

Now we are going to look at the different types of plans that we make.

What do you think are the different Types of plans that we make?

Comment

Schemes of Work and lesson plans are key documents in preparation for teaching and learning. In addition, we need to maintain records of the work covered. The other important record is progress records for the learners.

C. What have we learned?

We have discussed the importance of planning. We have seen that head teachers require teachers' plans to assist them to fulfil their duties as head of the school.

We also saw that the children require us to plan carefully what they will learn and when they will learn it because they are not capable of that planning. They are dependent on you because they don't know the syllabus and they don't have the capacity to plan.

We also learned that we need to plan because of the numerous challenges of Free Primary Education

We have come to the end of this section. In the next section, we are going to discuss how to use syllabus/guidelines and textbooks in our planning.

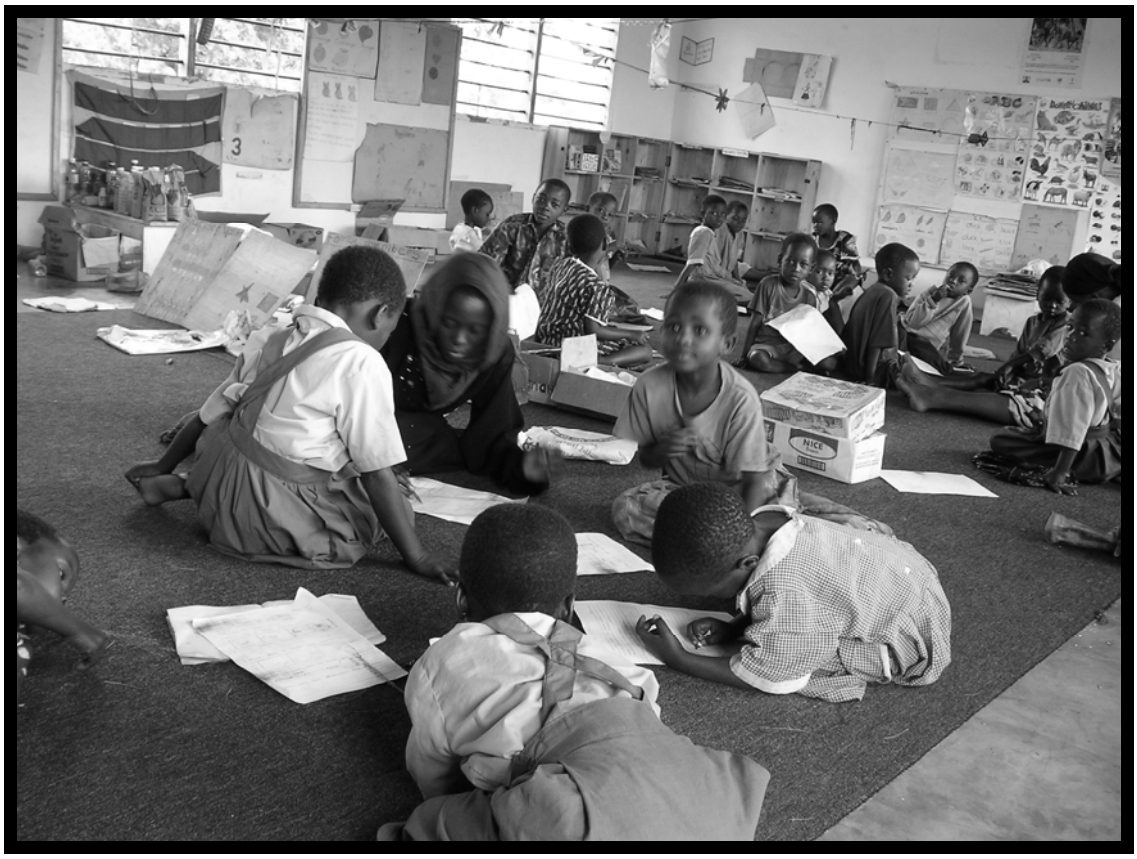


Figure 5.2 Sharing space or congested space requires teachers to plan carefully

UNIT 5 Section 2

Using syllabus guidelines and text books in planning

A. Introduction

In the last section we saw the importance of planning and identified that you should be writing Schemes of Work and lesson plans. In this section we are going discuss some resources in your school that will help you in writing these important plans. There are two guides in every school that are to assist the you in preparing their Schemes of Work and lesson plans. The one for primary school is the Primary Education Syllabus that is in two volumes. The second is the Guidelines for Early Childhood Development in Kenya from Kenya Institute of Education-NACECE.

In this section we are going to see how you could use these resources. We hope that this section will encourage you to use them regularly as you plan.

B. Purpose of primary education syllabus and ECD guidelines

The Primary Education Syllabus and the Guidelines for Early Child-hood Development are Government documents. They state what the Government of Kenya want to teach. They also suggest to those setting exams what concepts and competencies should be assessed in examinations.

Why do you think the Government has prepared the Primary Education Syllabus and the Guidelines for Early Childhood Development?

Comment

The Government is concerned about equity in education. It wants all children to have equal opportunities in school.

The syllabus and guidelines are written to ensure that children across the country learn similar concepts and skills. Teachers are supposed to cover what is in these books for the level of their children. In this way, children are more likely to have equal opportunities on the national examinations at the end of primary education.

Also, the primary school syllabus guides those who set the K.C.P.E. examinations. The questions in the exam are set with the syllabus content in mind.

Thus, the major purpose of these documents is to ensure equity by guiding the teaching and setting of examinations for children in Kenya.

The Government wants teachers use these documents in planning their teaching and assessments. That is why the Ministry of Education has ensured that every primary school has these documents. If you use these documents, you will help the Government to enhance equity in education in Kenya. Every child will have learned what is expected.

C. Organisation of the syllabus / guidelines

Before we can see how to use these documents, we need to understand how they are organised. We are going to explore some important topic areas of each of these documents in this section.

In the activity below, you will need a copy of the 2002 version of the Primary Education Syllabus Volume One and Two as well as the 2000 Revised Edition of the Guidelines for Early Childhood Development in Kenya (or more recent reprints). Do not begin the activity before you have these books in front of you.

Activity 22

For this activity you will need a paper to write on and Part 1 Guidelines for Early Childhood Development in Kenya

Table 5.2 Familiarisation Activities For Pre-School Guidelines

Examples of Activity Questions:	**Example of Answers**
a) On the Table of Contents what page has the "National Goals of Education in Kenya"?	Page iii
b) On the Table of Contents which section has the "Learning Development Needs and Curriculum for Children 3 – 6 Years"?	Section III
Your Activity Questions to Answer:	***Your Answers:***
1. From Page 43 what are three general objectives of language activities for children 3-6 years old?	
2. From Pages 45-46 what are two activities for children 5-6 years that go with the objectives you wrote to the question above?	
3. From page 47 what are three general objectives of mathematics for children 3-6 years old?	

4. Prom Pages 48-51 finish listing the major content areas for mathematics for children 3-6 years.	1. Classification, 2. Number Counting 3. 4. 5. 6.
5. From Pages 52-53 what are two activities for children 5-6 years in measurement?	
6. From Pages 52-53, what materials are suggested for those activities?	

For this part of the activity you will need a paper to write on and Volume One and Two of the Primary Education Syllabus.

Table 5.3 Familiarisation Activity For Primary Education Syllabus

Examples of Activity Questions:	**Example of Answers**
a) On the Table of Contents in Volume One, on what page are the General Objectives for English?	Page 4
b) On the Table of Contents in Volume Two, on what page are the General Objectives for Science?	Page 38
Your Activity Questions to Answer:	***Your Answers:***
1. From Page 7 in Volume One Standard One English, look at the Theme "Our Body". What are two general objectives and what are two specific objectives?	
2. Also from Pages 7 in Volume One, what are five vocabulary words that the children are to learn in that thematic area?	
3. From Page 6 in Volume Two, what are two specific objectives in Measurement for Standard One Children?	
4. Prom the same page, what are two content areas that match/ correspond to the objectives you listed in question 3 above?	
5. Turn to Page 72 in Volume Two: Social Studies. What are two general objectives for Social studies listed on that page?	
6. From Pages 73 in the same volume, what are two specific objectives from Unit "2.0 Our Family"?	

Comment

We are very happy, Teacher, that you have made the effort to complete the activity by answering the questions on these tables. It is important for you to be familiar with the Guidelines and syllabus. For the Guidelines in Early Childhood Development (ECD) in Kenya, there are general objectives written for each activity area and there are lists of general activities and materials. There are not specific objectives.

The presentation of information in the Primary Education Syllabus is different from that in the Pre-school Guidelines. Also, in the primary syllabus each content area uses a different format and style of writing. You need to look for the content area, the standard level and then look for the objectives and content.

If you are not familiar with these books It may seem complicated, but it's not. Continue looking through these references as you plan and you will soon become an expert. It is worth the effort.
Let's look at the way we may use the syllabus and the guidelines for planning.
In the last section we explored the structures of the syllabus and lesson plan.
In this section we are going to review the information in these documents that you will use in planning. We are going to remind ourselves the types of information from the syllabus /guidelines that we need for our Schemes of Work and lesson plans.

What specific information for your Schemes of Work and your lesson plans is contained in the Primary Education Syllabus and the Guidelines for Early Childhood Education?

Comment
This question is not so easy to answer. To answer this question you also had to remember the structure and parts of the Schemes of Work and lesson plans. You may recall that the Schemes of Work have these parts written across the top of the table:

- Week Lesson Date
- Topic/Sub Topic
- Objectives
- Resources
- Teaching/Teacher/s Activities
- Learning/Learner's Activities

Now you have to think about these areas. You now have to consider which of these are in the syllabus and guidelines. The topic and subtopics are in both of the syllabus and guidelines. The general objectives are in both documents, but the 2000 version of the Guidelines for Early Childhood Development (ECD) in Kenya does not have specific objectives. The 1999 version has the specific objectives. Refer to it if it is available. The resource listed in the primary education syllabus is not complete, but the list of teaching and learning materials within the guidelines is more extensive. The Guidelines include ideas for teaching and learning, but those are not contained in the primary education syllabus.

What we have discovered is that these books contain extensive information that you need for planning for your Schemes of Work, but that you will you also need to refer to other references. Let us consider what these documents contain for the lesson plans.

As you may remember lesson plans are detailed information written by the teachers on how they will conduct a specific lesson. The lesson plan is more specific than the Scheme of Work. It requires the specific objectives and teaching and learning activities as well as techniques of assessing the pupils' learning in the conclusion of the lesson. Specific objectives are contained in the primary syllabus, but you will need to use other resources for writing your lesson plans. For primary classes one of the other important resources you will want to use in writing your lesson plans are the teacher books for each subject that your are now receiving with free primary education (FPE).

What we are saying teaching is that the syllabus and guidelines are very useful for your writing your Schemes of Work. For your lesion plans you will also want to refer to other materials, including the teachers' text books that the schools are now purchasing.

D. Using relevant text books in planning

In the section above we looked at how we could use the contents of the syllabus and guidelines for writing our Schemes of Work and our lesson plans. We saw that other resources are needed, particularly for the lesson planning. The text books in the schools, particularly the teachers' versions, will be very useful for our planning. Let us investigate this so you will understand how to use both the syllabus/guidelines and the teachers' textbooks without confusion.

E. What have we learned?

We have been exploring the relationship between the syllabus, textbooks, our Schemes of Work and lesson plans. You did a number of activities so that you could become familiar with the organisation of the Primary Education Syllabus and Guidelines for Early Childhood Development in Kenya. You learned that the syllabus and Guidelines have most of the information you require for the Schemes of Work. These are important documents for planning effectively. Your knowledge of children in your class will assist you on how to use these documents in planning.

We have come to the end of this section. In the next section we are going to discuss how we go about preparing comprehensive schemes of work.

UNIT 5 Section 3

Writing effective schemes of work

A. Introduction

In the previous sections we discussed why teachers need to plan. We also identified the types of plans that teachers make. In this section we are going to look at one of those plans: the Scheme of Work. The Scheme of Work is a long term plan by the teacher. Its shows the content to be covered, teaching and learning resources, and the objectives for each lesson objectives to be taught. It is an important planning document.

Let us begin by looking at the importance of schemes of work.

B. Purpose of Schemes of Work

What do you think is the purpose of Schemes of Work?

Comment

It is difficult to begin teaching without a Scheme of Work as it

- Breaks the syllabus into units easy to teach
- Rearranges the content so that closely related topics are put together and arranged in a logical manner
- Shows in advance what will be taught and when and will help you to arrange the necessary teaching and learning resources.
-

Let look more closely at why we do or won't write Schemes of Work.

Why do you think we should prepare schemes of work?

Comment

We have agreed that a Scheme of Work is a plan for a specific period of time, such as a term. It is an important guide for the teacher and tells the teacher what will be taught when. The purpose of the Scheme of Work is to organise the teacher's activities so that teaching and learning are effective. Consider the case study below and why teachers don't write Schemes of Work.

Case Study

Mrs. Duba was an effective teacher and leader. Her Schemes of Work were carefully completed every year. The lesson plans were very detailed. She used a variety of materials and her children

learned very well. Recently, Mrs. Duba was selected as a Key Resource Teacher in her school. She was asked to assist other teachers to develop better Schemes of Work. She decided to show the teachers in the school why they need Schemes of Work and they can write more effective ones.

Mrs. Duba brought the Tac Tutor to the school. Together they discussed with the teachers why the Schemes of Work are necessary. Mrs. Duba and the Tac Tutor showed the teachers various Schemes of Work and how they relate to the syllabus and the teachers' textbooks. They carefully demonstrated how a Scheme of Work prepares a teacher for the term and helps the teacher to do daily planning. They reviewed with the teachers their Schemes of Work and helped them to assess their strengths and weakness.

The teachers reorganized and expanded their Schemes of Work. They were grateful. They had not really understood why they were so important. They promised to take their Schemes of Work more seriously and to write them carefully.

Activity 23

On a paper list down some reasons why the teachers may not have been careful in the past in writing their Schemes of Work. Do you think that this happens very often?

Comment

Some of the reasons you may have written include that the teachers' don't know or remember how to write a Scheme of Work. You may have also written that they don't understand why they are necessary. You may have also written that the teachers do not have the time to write them because they have many pupils to teach and many papers to mark. In addition, you may have said that no one in the school reads them or comments on them so it is a waste of the teachers' time.

Of course, Teacher, you realise that the Schemes of Work are very important. Teachers must be guided on how to make appropriate schemes. Even if no one looks at them they are of value to the teachers. If they are made during the holidays prior to the opening of school the teacher will not have so many other duties to do at the time. We hope that you can be like Mrs. Duba and encourage other teachers to write Schemes of Work.

In order to be able to write a Scheme of Work you have to know its parts. That is what we will discuss in the next part of this section.

C. Structure of a Scheme of Work

The Schemes of Work for pre-primary and primary classes are very similar. In fact, the Ministry is trying to harmonize them so that they are the same. In the table below you will see the various parts of both types of schemes.

Table 5.4 Part of Schemes of Work

Parts Of A Thematic ECD Scheme of Work	Parts Of A Primary Class Scheme of Work
▪ Day ▪ Week ▪ Theme/ sub-theme ▪ Content areas ▪ Objectives ▪ Activities for 2-4 years ▪ Activities for 5-6 years ▪ Resources ▪ References ▪ Remarks	▪ Week ▪ Lesson ▪ Date ▪ Topic/ Sub Topic ▪ Objectives ▪ Resources ▪ Teaching/Teachers' Activities ▪ Learning/Learner's Activities ▪ Remarks

As you can see by reading both of these lists, the structures within the schemes for work for ECD and for primary are almost identical. The differences are very few and they are not important.

Let us look at each of these structures. (This information is from the SPRED Core Module. You may find the entire unit useful.)

(i) Time

This is the time when the content planned is to be taught. It appears usually in the first column of the Scheme of Work specifically as week, lesson and date. This is the week when the lesson will be taught. We also indicate whether it is the first, second, third or fourth lesson in that subject in the week and the specific date. For example, Week 3, Lesson 2 to be taught on 3/10/99.The organisation of these Schemes of Work is also similar.

(ii) Topic and sub-topic

Topic is the broad content, while the sub-topic is the specific content to be discussed in the lesson. For example, place value, two digit numbers. They appear in the 2nd column of Schemes of Work for primary teachers and will help you formulate your instructional objectives

(iii) Objectives

These are the objectives of the lesson. That is what the learner should be able to do by the end of the lesson. Instructional objectives appear in the 3rd column of

the Scheme of Work for primary teachers. They help you in plan the learning activities.

(iv) Teaching/ Learning resources

The aids and reference materials you use in class are the teaching and learning resources. The resources should be well thought out to cater for the learners' needs. You may recall from earlier units that these resources include reference books, apparatus, materials, chalkboard and chalk, film projectors, pictures, charts, television sets, video cassette players, video tapes, audio cassettes and many others. They are listed in the 4th column.

(v) Teaching activities

In the 5th column you list down, in chronological order, the activities that you, the teacher, will carry out during the lesson. These are your activities, which should stimulate, challenge and encourage the children so that they carry out the planned learning activities during the lesson.

(vi) Learning activities

The 6th column of the primary Scheme of Work contains the activities which the children will be expected to do during the lesson. As you know we list down activities in a chronological order. In fact they are the corresponding activities to the teacher's activities in the previous column. That is, for every teaching activity think and write a corresponding learning activity. The importance of listing both the teaching and the learning activities is for you to anticipate the flow of your lesson well in advance.

(vii) Remarks

This final column of the Scheme of Work is the evaluation remarks. In this column you are expected to write your evaluation remarks in regard to the lesson. You indicate whether the lesson was taught or not, and if taught whether it was successful or not. It is important to justify your opinion. That is explain why you think you lesson was a success or not and what you intend to do in the future about it.

Now consider the Scheme of Work formats for pre-primary and primary. The next two tables give you samples of Schemes of Work for pre-school and primary. Compare them. The have similar structures.

Table 5.5 Example of a Thematic ECD Scheme of Work

Week Day	Theme/ sub-theme	Content areas	Objectives	Activities for 2-4 years	Activities for 5-6 years	Resources	ref	Re-marks
One Mon.	Theme: Family Sub-theme: Family Members	Language Mathematics Outdoor play Science Social studies Music Creative act.	Children should be able to: - 1) Identify the sounds of letters f, m, b, s … 2) Say names of family members 3) Recognize the symbols of numerals 1-10 4) Match number of family members with appropriate numeral 5) Recognise roles of family members 6) Learn song about family 7) Demonstrate movements of family members, 8) Describe how mother washes the baby's body parts 9)Demonstrate how mother uses soap and water to wash baby	Singing Listening to sounds Reading picture books, sorting, grouping,	Readings sounds of words, matching and pairing words, tracing, writing, symbols of numerals, letters, sorting and grouping according to sounds and numbers according to their values, reviewing pictures of family members, acting out family members roles, singing, Naming body parts, role playing mother bathing baby	Flashcards Pick a bow books Picture books Number cut outs Stencils Pencils Bottle tops Seeds, bocks Toys of various type etc.	**Guidelines**	

Table 5.6 Example of a Scheme of Work for Std. One English Subject, Term One 2006

Week Lesson Date	Topic/ Sub Topic	Objectives	Resources	Teaching/ Teacher/s Activities	Learning/ Learner's Activities	Remarks
Week: 6 Lesson Date: 3-5/3/06	Farm Animals and Tools in the Home	<u>General</u>: To enable the learner to develop further vocabulary <u>Specific:</u> d) Form noun plurals from the singulars given (Vocabulary to be used: *tool, hoe, spade, shed, chicken house, animal, dog, sheep, goat, hen, cock, pig, duck, cat, doge, bird, egg, meat, milk*)	Primary Education Syllabus, Volume One Teacher's Text Book in English Flash cards of singular and plural vocabulary word forms Pictures of objects in vocabulary list Pupils Exercise books Chalkboard and chalk	Singular and plural word forms written on chalkboard in columns for use in lesson Demonstration of pictures Demonstration of word cards (singular /plural forms) Matching of pictures and word cards Demonstration of singular and plural word forms on chalkboard Singular and plural word forms with missing letters written on board for pupils to complete	<u>Groups activities</u> Match singular and plural word forms Match singular word form with pictures Match plural word forms with pictures <u>Individual Activities</u> Copy from chalk board in exercise book the plural word forms for each singular word Copy from chalkboard both singular and plural word forms in exercise books Copy from chalkboard the missing word forms (singular/ plural) for vocabulary	

These formats can be adjusted for all subjects. Usually a Scheme of Work covers at least one week. It can cover a term.

A Scheme of Work may be similar from one school to another but it will be different. It will even differ from one year to another. Schemes of Work differ because they reflect the teaching styles of teachers, the different facilities in schools and most importantly, the different learning needs of the children.

When writing a Scheme of Work it is important to consider the intellectual ability and age of your pupils. The learning activities in your Scheme of Work are adjusted to the ability levels of the children. These activities will be simplified or made challenging depending upon the children's abilities. Also, activities for younger children are usually more simple than those for older pupils.

D. Writing effective Schemes of Work

In the earlier parts of this section we looked at the parts of lesson plans and how they are organised. We noticed that they are very detailed so that lesson plans are properly guided. In this part we want you to improve your own Schemes of Work.

Activity 24

For this activity you will need to have your own Schemes of Work, the Primary Education Syllabus or Guidelines for Early Childhood Development (ECD) in Kenya, teacher and pupil textbooks and additional paper. You will also need a pen. Go and get those materials before you begin.

When you have collected these materials you may begin the activity.

Take your Scheme of Work for one content area or for one theme if you are teaching thematically. Carefully identify your objectives, resources (including references and materials) and teaching and learning activities. Use the samples to guide you in rewriting your schemes.

Comment

We are certain that if you are a primary school teacher as you needed to go to the content area and look up the general and specific objectives in the syllabus. Then we believe that you referred to the teacher's and pupils' text books to get the appropriate activities. That is what is needed to make an effective Scheme of Work for primary.

If you are an ECD teacher you used the Guidelines and moved from the section on the general objectives to the activities areas. You had to made your own specific objectives and clarify the activities since those in the guidelines are general. These activities are what you have to do each time you write your Schemes of Work.

We believe that as you practice writing your Schemes of Work you will become faster and faster. In future years you may not even need to rewrite them completely, but may only have to make minor changes. You have begun to make effective schemes that like an architect's plan can be reused. Congratulations for your success!

E. What have we learned?

In this section we explored Schemes of Work. We identified that they are important because they guide teachers to know when to teach specific topics and concepts. We also learned about the parts of Schemes of Work. We saw that there is not much difference between the Schemes of Work of pre-primary and those of primary classrooms. They both have a time frame, theme or content area, objectives, resources, activities and remarks sections. We also saw samples of detailed Schemes of Work. As you tried to rewrite your Schemes of Work you realised that you need to refer to the syllabus (or Guidelines) and the appropriate texts for your class level.

We believe you learned again how to go back and forth between the different sections. We know with practice you will develop effective Schemes of Work that will properly support and enhance children's learning. You will be ensuring their academic success.

We have come to the end of this section. In the next section, we are going to discuss preparation of lesson plans.

UNIT 5 Section 4

Preparation of lesson plans

A. Introduction

In the last section learned more about Schemes of Work and how they are organised. We were guided I on how to write better Schemes of Work using various references available to us in the school. In this section we are going to discuss how we can prepare lesson plans.

What do you think is a lesson plan?

Comment

A Lesson plan may be defined as "a set of learning/teaching activities for the pupils to be carried out within a defined time". A lesson plan usually covers a single or double lesson and the learning activities are arranged in a chronological pattern and defined by steps.

B. Purpose of lesson plans.

Let's think about why we have lesson plans.

What do you think are the purposes of lesson planning?

Comment

You may have said that the purpose is to remind the teacher the objectives. The lesson plan identifies what the children at various levels should learn during the lesson. You are right. In fact, once the teacher has identified the individual learning needs of their pupils they need to write these as objectives on the lesson plan.

You may have also said that it reminds the teacher of what materials to gather and preparations to make prior to the lesson. You are right again.

You perhaps said that it also guides the teacher on how to introduce the lesson. Once again you are correct.

If you said that it also reminds the teacher on the each of activities the teacher and the children should engage in, you are correct again. You appear to know a great deal about lesson plans.

The lesson plan also tells the teacher how to conclude the lesson. It indicates how the teacher will assess the children's learning during the lesson. Thus, in the conclusion of the lesion the teacher will know if the objectives have been met or if she has to use other activities at a later time to ensure the learning has occurred.

Thus, the major purpose of the lesson plan is to provide the teacher with a detailed plan for an effective lesson. These details that have been discussed above guide the teacher in preparing for the lesion, implementing the lesson and drawing conclusions about the effectiveness of the lesson.

Without lesson plans teachers will become less effective. They will forget important aspects and learning will be reduced. Writing and referring to lesson plans is an important aspect of teaching.

Let's now think about the components that are included in a lesson plan. We will now review the structure of the lesson plan.

C. Structure of a lesson plan

Similar to a Scheme of Work, a lesson plan is made up of various elements. Let us consider each of them.

(1) Lesson objectives

As you already know, lesson objectives describe the behavioural change of the learners by the end of the instructional period. The objectives could be in the cognitive domain, the affective domain or the psychomotor domain. The examples below show the differences.

- "By the end of the lesson, pupils in standard one should be able to give the plural form of the singular words given from the vocabulary list." (Cognitive Domain)

- "By the end of the lesson, pupils should have further developed the attitude of co-operation, as they work together in groups." (Affective Domain)

- "By the end of the lesson learning should have developed further the skills of observation and recording as they complete the floating and sinking experiments." (Psycho-motor Domain)

Without clearly stated lesson objectives, it is difficult to measure the level of achievement of the learners. Lesson objectives therefore help you in evaluating your lessons.

(ii) Teaching and learning resources/ materials

It is important that you decide on the appropriate teaching materials or aids well in advance and look for them in readiness for use during the lesson**.** The lesson plan

reminds you of the materials you require. If you are unable to get them, you can either improvise or use a different material.

(iii) Teaching method

Once you have chosen the appropriate teaching materials to help you achieve your objectives, the next thing to consider is how best to use them in order to achieve your desired results. This decision is important for it is possible to have appropriate teaching aids, but unless they are effectively used they do not serve any purpose.

You may recall from discussions in the earlier section in this manual, there are various teaching methods you may employ. Some of these are:

- Discovery or activity method
- Demonstration method
- Discussion method
- Group project method
- Lecture method
- Question and answer method
- Excursion method.

The methods you select are identified on the lesson plan

(iv) Teaching and Learning Activities

These activities are what actually goes on in the lesson. These are influenced by the lesson objectives, the teaching aid/materials available and the teaching method you choose. These activities vary in accordance to the learners and their individual needs.

A lesson has five steps:

1. **Introduction** – to find out what the learners know, remind them of what they have learned or set the scene for the whole lesson
2. **Presentation** – steps where the main teaching and learning activities occur. Could include child centred or teacher focussed activities.
3. **Consolidation** – section where concepts or skills being learned during the presentation are tied together or strengthened.
4. **Summary/Recapitulation** – an important step in which the main points of the lesson are highlighted.
5. **Conclusion** – giving assignments to link the lesson with others to follow it.

Even in a thematic lesson we use these steps, but we blend them together so that sometimes they are not so distinct.

(v) Lesson Evaluation

This is a very important element in the lesson where you are assessing the performance of your class in the concluded lesson. It is important to determine whether the lesson objectives were achieved and the materials used were appropriate. It also helps you to determine whether the content was appropriate for this level of learners and whether remedial classes are necessary and who

needs them? Finally, it helps you to seek solutions to any difficulties faced during the lesson by either you or your pupils.

The evaluation need not be done only after the lesson. As the lesson goes on, you will have asked questions which are answered only by the pupils. You will have observed the learners as they perform various tasks. These will help you to evaluate you lesson and make appropriate professional decisions.

We have been look at the elements of lesson plan. Now let us look a several sample lesson plans. One of these lesson plans is for pre-unit and one is for a primary class.

Table 5.7 Sample of Day Long Thematic ECD Lesson Plan

THEME: Family Members

SUB – THEME: The nuclear family

OBJECTIVES children should be able to:
1. Count six family members
2. Recognize numbers 1- 6 representing the family members.
3. Explain the meaning of tall, taller, tallest etc.
4. Describe duties of family members
5. Demonstrate duties of family member
6. Identify part of the body
7. Describe how to bathe body parts
8. Demonstrate how to bathe body parts

RESOURCES: ECD guidelines, children, chairs, utensils, flash cards, soap, towel baby doll, baby bath tub.

LESSON DEVELOPMENT

TEACHER ACTIVITIES	CHILDREN ACTIVITIES
Introduction Teacher tells the children his name.	The children also tell their names to the teacher, as the teacher shakes hands with them.
Skills development Teacher asks six children to volunteer to be family members. Teacher challenges the children further to identify who in the family has been left unrepresentative.	Children choose among themselves who will be the mother, father, children (daughters and sons) the children continue to name the maid, grandmother, auntie etc
Teacher asks children if you were six in the family how many chairs would you need for the family. What about a visitor? The teacher will encourage the child to each explain the reason for his answer.	Children can workout this question first by starting with a small number of families until six is reached. One child can answer this question at a time.

Teacher teaches children a game of musical chairs. Where else do people scramble for something? Is it good to scramble for something? How can we stop this? How can it be done without scrambling?	Children sit on chairs but less one child. The teacher challenges the children how the problem can be solved; let us try a game of musical chairs. Who has won the game? Can we clap for him/her? Can you all see why each family member needs his/her own chair? People scramble for seats at the matatu, buses, through the door etc. People need to queue or add one more chair.
Teacher introduces sorting activity by height. Teacher asks children to identify from each of the family members who is the tallest; this is repeated each time with a different child.	Children can them arrange themselves from the shortest to the tallest. They can then use flash cards of numbers to represent this in terms of quantity.
Teacher encourages the children to talk about the activities of different family members She has them discuss the differences in duties in extended families, nuclear families and single parent families	Children discuss who does the cooking, bathing of children, story telling, working and other duties Children think about which members do duties in nuclear families compared to single parent and extended families
Teacher selects various children to be family members in a nuclear family and to act out the duties. Teacher changes the children and has them now act out duties in a single parent family and extended families. Teacher asks children to discuss the differences	Children role play family members' duties and activities Children discuss the differences in responsibilities in different types of families

EVALUATION AND CONCLUSION

How many chairs are needed for 2,3,4,5 family members? For children only? For parents only?
How many cups do 4 children in the family need? How many plates are need for all family members if the family has 3 children?
Why is he the tallest or the shortest? Is it bad to be short or tall? (no)
What duties do different members have in nuclear families? How are they different from family members in single parent and extended families? Is any family type better than the other? (no)

REMARKS:

The children liked the lesson. They wanted to continue with the game of musical chairs but time was against them. However the materials need to be increased. The children enjoyed role playing the duties of family members. They thought mothers always had the same roles. The children were interested in families where men cooked. They need more opportunities to role play family roles

Now let us consider a lesson plan for standard 4.

Table 5.8 Sample of Standard Four Lesson Plan

CLASS: 5standard 4 Pupils: 45

TOPIC: Parts of a flowering plant.

SUB-TOPIC: Parts of a flower

OBJECTIVES: By the end of the lesson, Std. 4 pupils should be able to:
a) Name at least five parts of a flower
b) Develop further their observation and recording skills as they study flowers in class
c) Develop the attitude of curiosity and genuine interest as they study the flowers.

TEACHING/LEARNING RESOURCES
- Primary science by KIE pupils book page 35-38
- 23 large flowers with easily visible parts
- 23 razor blades
- Chalk board, chalk, pupils' exercise books, pencils and pens, 4 magnifying glasses for those with poor vision (long-sighted).

LESSON DEVELOPMENT

Step / Minutes	**Duration**	**Teaching/ Teacher's Activities**	**Learning/ Learners' Activities**
1. Introduction	15	Introduce the lesson by asking the class questions related to the day's sub-topic i.e. the parts of a flowering plant. Hold up a flower and point to various parts. Explain to the class that in this lesson they will learn about the flower, as one of the parts of a flowering plant.	Class participates by naming parts of a flowering plant e.g. the flower, stem, roots, leaves, fruits, branches and so on.
2. Presentation	15	Divide the class into pairs, according to the needs of the learners (quick learners together and slow/weak learners together) then distribute the flowers and other resources to the various groups.	Pupils move to their respective pairs and receive flowers for study. The pupils are asked to look closely at the various parts of the flower and share their observations.
3. Presentation	10	Guide the learners in observation, identification and discussion of the various parts of a flower, and their functions. Pay special attention to those with difficulties.	Class participates in the observation, identification and discussion of the various parts of a flower and their functions.
4. Presentation	15	Stop group activities and ask the class to draw the flower carefully and label all the parts. Mark pupils books as they work.	Class stops group activities and draw the flower labelling all parts as required.

5. Summary	15	Go over the main points of the lesson by way of asking appropriate questions. e.g. What is the name of the female part of the flower?	Class answers the questions asked by the teacher, orally. e.g. The pistil.
6. Conclusion	10	Conclude the lesson by asking pupils to observe and study more flowers at home and note which ones are visited frequently by insects and which ones are not,	Learners note down the assignment by the teacher in their note books so that they can do it at home or during their time as the lesson ends and they prepare for the next lesson.
		End of Lesson	
REMARKS: Pupils worked in groups well. Objectives were met. Safety cautions prevented any accidents. Magnifying glasses were helpful.			

D. Writing effective lesson plans

In the last section we considered the components of the lesson plan and the detailed lesson development plans of two different levels of pupils. Now let us compare these to your own lesson plans.

What do you thinks are the strengths and weakness of your own lesson plan?

Comment

Perhaps you have included all of the components but the lesson development plans are not as detailed or in chronological order. Or perhaps you list some, but not all of the resources and materials you require for the lesson. Perhaps you have a conclusion, but the evaluation is not clearly identified. We believe that you have identified at least one area to work on in writing more effective lesson plans.

E. What have we learned?

We have been looking a lesson plans. You reviewed the structure and parts of a lesson plan. You learned that each part is very important for effective teaching. You saw two sample lesson plans and learned how the plans are organised. In assessing you own lesson plans you saw their strengths and weaknesses. Now that you know their strengths and weaknesses you can reflect on how to improve their quality.

We wish you success.

UNIT 6

ENHANCING USE OF MATERIALS

UNIT 6 *Table of Contents*

UNIT 6 INTRODUCTION

Welcome to the last unit of this manual. We congratulate you for having gone through the last five units. In the last unit we discussed the place of planning in the process of teaching and learning. We also discussed how to interpret the Syllabus/Guidelines to plan appropriate teaching and learning activities for our children.

In this unit we are going to discuss the use of materials in our classroom. We will look at how to display materials and how we could use the materials more effectively. We are also going to share some ideas on how we could maintain and store them. These ideas will assist us to make our materials last longer and keep their attractiveness.

This unit is divided into three sections. These are:

- displaying Materials,
- using Materials Effectively and
- maintaining and Storing the Materials.

By the end of this unit, you should be able to:

(a) State how you could display and use materials in various context and content areas
(b) State various ways of storing materials

We hope that you will find this unit interesting and beneficial to you in the process of teaching and learning.

UNIT 6 Section 1

Displaying materials

A. Introduction

In the previous units we have thought about children and how they learn. We have considered the importance of materials and what low cost materials were. We also looked at the importance of planning so that we have the appropriate materials to enhance learning. Now we want to think about what we need to do to enhance our use of the materials.

We are going to begin by looking at how we go about displaying materials.

B. Effective displays for classroom use

Let us think about how we should put our materials in our classrooms.

How do you think we should display our materials?

Comment

There are various things we need to remember as we display our materials in the classroom. Our displays should be:

- attractive,
- well organised for pupil use and
- accessible to the children.

Let us consider each of these in detail. We will begin with the importance of our displays being attractive

Comment

The materials we display in the classroom should be arranged in an appealing manner. The purpose of the teaching and learning materials is to attract the children and in the process of satisfying their curiosity, learning takes place. For this reason whatever we display should be attractive to the eye.

Why do you think the display should be attractive?

We could make our display attractive by using various colours of materials and artistically displaying them on shelves, tables, racks or handing baskets. In the picture below, the clothes for the housekeeping centre are hung on clothes hangers on an open frame down at the children's eye level and within their reach.

Figure 6.1 Displays should be attractive to the eye

Different colours, shapes and sizes attract children. This means that, we need to use various colours in our displays. All the materials don't have to be of different colours, we could harmonise different shades of the same colour to get the desired effect.

A learning area that has different types of materials displayed is also more interesting than one with only two dimensional charts. We need to use assorted materials together. The hanging ones could have different textures. Some of the materials could be three-dimensional objects. For example, in the picture on the below, the area is made interesting and attractive with charts, cups and baskets holding different food items, a collage and various pictures.

Figure 6.2 Diverse materials make learning areas more interesting

Charts can be made attractive by including various natural materials. Making pictures with leaves, bark and rock pasted on or including actual samples in plastic on the chart attracts the children's attention. We hope that the pictures below may give you more ideas.

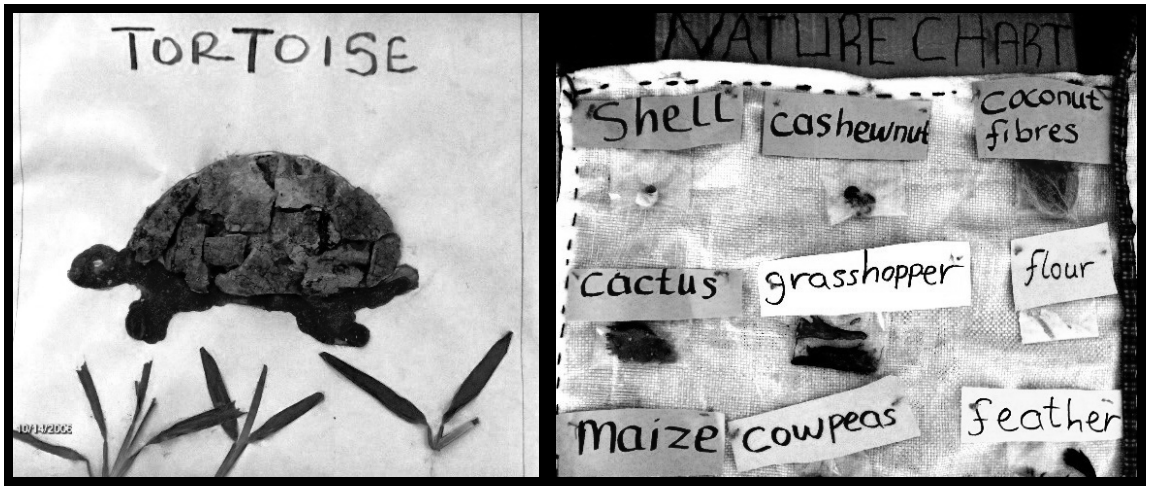


Figure 6.3 Charts made more interesting

We should note that, like all of us, children like order and orderly places. They like being able to find what they need when they require it. When a classroom is arranged well, the children are able to find the materials they need to use.

In the figure below is a picture of a well-organised reading corner. No time will be wasted here. Books are nicely displayed and the chart with the word pockets for individual or group work is out of the way of children who will sit and look at books

Figure 6.4 An organised learning area

Children in class can be encouraged to keep the materials in the classroom on shelves with a little help from us. When we label the shelves with symbols or labels, the children can see where the materials are supposed to be. They are able to put the materials away by matching the symbols/labels to the materials.

However, putting the labels on the shelves is not enough. Children need some initial guidance from us. They need to be shown where the materials are originally before they are removed for use. They also need to be shown the symbols or words for their location. After they use of the materials, they have to be reminded to put them in the correct place. They have to be reminded because they may forget as they put them away.

In the diagram below, the symbols for the various types of blocks are given. Children can use the symbols to guide them in putting the blocks in the correct place after they use them.

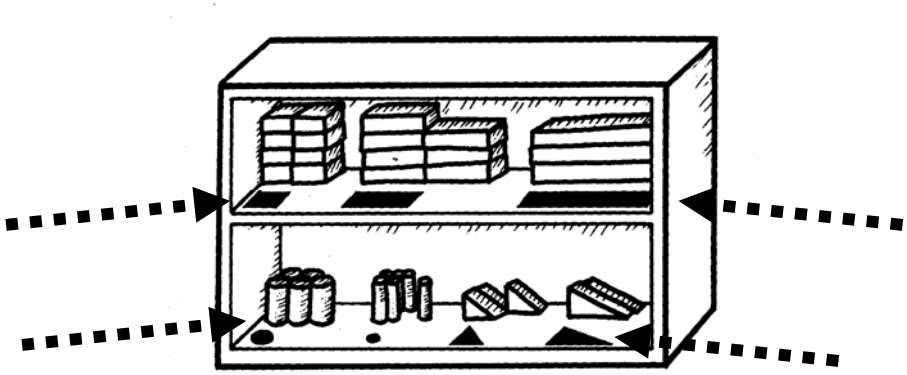


Figure 6.5 Appropriate block storage.
(Source: SPRED Primary Mathematics module p. 190.)

In the picture below, you will notice that shelves have been labelled to show the children where the objects are. Again, this guides the children so to store the materials properly for future use. It also gives the children a sense of responsibility and develops their confidence.

Figure 6.6 -Labelled Shelves

We believe that these pictures have encouraged you. We are now going to do an activity. For this activity you will need some Manila paper or hard cards, glue or tape, clear plastic, and markers. Collect these items and begin the activity when you have the materials. You will also require shelves or table for displaying your teaching learning materials

Activity 25

Look at the materials you have been making. Organise them for display and storage.

Cut the manila or card stock into pieces 2.54 cm by 11cm. Write an appropriate word label or symbol on each piece of manila. Write is clearly so that it can easily be read by the children. Cover each label with plastic. Attach it securely with either glue or tape at the front of the shelf where the materials will be stored or displayed. Arrange the materials neatly on the shelf. Step back and admire your work

Comment

The activity you just did will help organise your classroom for more effective learning. The children should respond to the new sense of orderliness and will begin to read the labels. Then they can be guided in materials clean up more efficiently. You have reduced your workload. The children can help you to clean up the classroom materials.

Now let us look at how we can go about displaying the children's work.

C. Displaying children's work

Why do you think is important to display children's work?

Comment

It is very important that the children's work is displayed. Children like to see their work displayed. The best artwork of the children could be displayed as models and motivation for them. It is also important that, every child's work is displayed at some time. Let us consider various methods of displaying children' work.

We could hang selected samples of the children's work at the learning centres and change them frequently. The frequent adding of new and removing of old samples stimulates interest and learning so that there is something new every day.

The children' work could be hung using strings tied from the rafters (beams) across the classroom. They could be either be attached by pegs or if they are then too high to see, they could be attached by individual strings to the cross strings. In this case they hang like mobiles. This is demonstrated in the figure on the next page.

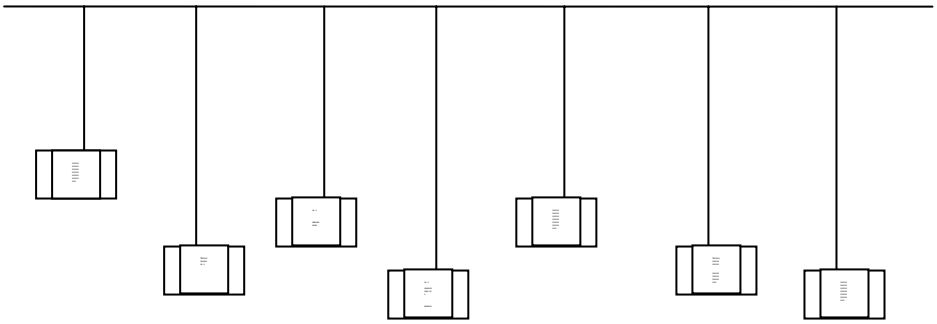


Figure 6.7 Display of Children's Work Hanging From Cross String

The paper that the children write on is fragile and will tear easily. It is best to mount children's work on pieces of manila sheet tied to the cross string. Then, attach the children's work to both sides of the manila with pieces of tape rolled into a flat circle. The tape will be sticky on both sides.

Let's hang some of your children' current work.

Activity 26

Look at your classroom carefully. Identify a place you could tie a string that is high enough. Now look for another space where you could also attach the other end of the string. It should be about the same height as the first one.

Measure how long your string needs to be for this cross string. Add about 20cm extra for tying it and cut it. Measure and cut off between thirty to fifty strings that will be used for attaching the manila. These strings can be of slightly different lengths. Tie one end of each of these strings to your cross string at equal distances.

Go on and cut the same number of pieces of manila as hanging strings. Cut each manila paper slightly larger than the children' papers. Place a piece of tape at the top of the manila in the centre. The tape should be put on both sides to reinforce the manila so it won't tear. Make a small hole in this reinforced taped area for the string. Tie each of the manilas to each of the hanging strings.

Tie your cross string carefully and securely. You can adjust the height of the manila papers if necessary by cutting and retying the handing strings or by pulling up the string and knotting it. Attach each of the selected papers done by your children to the manila papers. Use the tape rolled in a circle to attach them. Usually, for an A4 paper one piece of tape at each length is sufficient.

Step back and admire your work. Well done!

Now let us look at how we could display children's work according to **themes.**

D. Displays in thematic approach

We have just looked at how we may display and use materials in learning centres in a way that that attractive to the learners. Now we would like to consider how to display and use materials in classrooms using the thematic approach.

The classrooms where teaching is done using thematic approach look a little different from the others. In both of them display materials and children use the materials in various activities. However, the materials displayed in a classroom that uses thematic approach all relate to the theme. The theme is seen in every display in all learning centres.

Let us look at this more detail. We will now explore how content areas support the theme and the diversity of materials in every learning area.

In the thematic approach, all the activities and materials relate to a specific theme, such as family, home or our body. Within the theme there are sub-themes that we focus on.

The materials that are displayed relate to the theme and a specific sub theme. Everything in the classroom focuses on that topic area. All the materials and teaching activities should be on that area.

Let us assume we are teaching a topic in Standard Two theme on "wild animals". In the thematic classroom, the teaching and learning activities in all content areas (English, Social Studies, Creative Activities, Science and Mathematics) would focus on wild animals. Even the materials we would use for teaching and learning would all have wild animals. All the learning areas will have displays and activities that relate to wild animals. In the language corner, science, mathematics, etc, will have pictures of wild animals, models, activity sheets, and charts. The classroom is transformed into the study of wild animals in all areas of the curriculum. The specific objectives in the syllabus are met through the study of wild animals.

We have to collect a wide range of materials relating to the theme and sub-themes. We have to have materials in English and Kiswahili that not only relate to the theme, but also to our objectives, what we want children to learn. We could gather materials for every content area for use by groups and individuals, demonstrations and for displaying. Once we have the materials we could organise our classroom for the theme.

At this point we want you to try to think about what steps we would take to change our classrooms from learning centres to the ones using thematic approaches.

How do you think you could prepare a thematic approach class display?

Comment

It is not difficult to change a classroom with learning centres into a thematic approach classroom when we have the materials. At every learning centre we need to place, hang or arrange the materials relating to the theme and the learning objectives for that content area in an attractive manner.

Let us again consider the theme of "Wild Animals" for Standard Two.

We need many materials on wild animals, including labelled pictures such as those below and those in the Appendices of this manual.

At the language corner we will have picture books, early readers and other printed materials that are on wild animals. We could also have various charts on the wall with:

- singular and plural vocabulary for names of wild animal,
- pictures and animal names for matching and
- poems or songs about a wild animal.

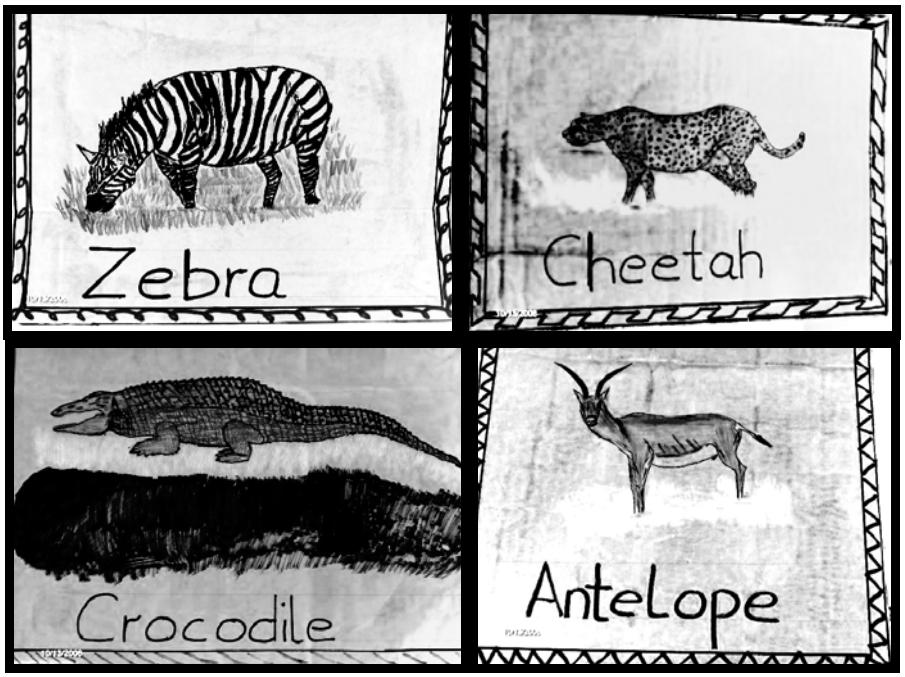


Figure 6.8 Clearly labelled pictures

We could also have samples of children's work, like short stories about wild animals.

At the creative arts corner we could paintings, models, drawings and other materials for art activities related to wild animals.

Remember to include pictures of animals moving and doing various activities and in different positions. Children can also be given letters of the alphabet drawn on paper and they try to make each of them into pictures of wild animals.

For the social studies corner, children are to identify wild animals and where they live in the area. For this we could have a chart showing the type of habitat of each type of wild animal. Flash cards for matching animal and habitat could be included.

Children are also able to learn which animals are useful. For this we would focus on the benefits of wild animals to the economy. Tourists come to see them and they spend money at the game parks, hotels and airline companies. Because of the tourists coming to Kenya the country gets more money and people get jobs. We could organise the corner with materials for role-play. The children can act as tourists and various others who benefit from the tourists coming to see the wild animals.

We could also discuss the dangers of wild animals. There could be charts showing the dangerous animals and also some giving children guidance on what they need to do to be safe.

For the Mathematics corner we could have them again role-play as tourists bringing in money to various businesses. One activity could involve the use of play currency and the children who are tourists have to give the amounts required while the others will receive and give change as required. There could also be charts with multiplication sums showing how a single pair of lions multiplies after each generation to produce various different prides of lions.

Various objects for measurement could also be included, such as a: string or rope representing a giraffe's neck, zebra's stripes, lioness's jump and others. These would be used in measurement activities.

We need only to display the materials relevant for the specific learning objectives for that day and that sub theme. In a day or so, we could change the materials when we are going to give other learning activities for different objectives or a different sub theme. Different objectives and different sub themes will require different materials.

E. What have we learned?

In this section, we discussed how to display materials. You learned that your displays should be attractive and also functional. You learned that you have to have plenty of different kinds of materials for children to interact with and learn from. You learned that it is important to display the children's work. You were guided on how you might display children's work in your classroom.

We hope that your classroom will look quite different from now on.

We have come to the end of this section. In the next section, we are going to discuss the effective use of materials.

Figure 6.9 Attractive pocket charts have many uses

UNIT 6 Section 2

Using materials effectively

A. Introduction

In the last section, we discussed how to display various materials. We hope that your classroom is already looking beautiful. However, it is also important to understand how to use materials during the teaching and learning process. We will begin with the children's materials.

Now we want to look more closely at pupil and teacher use of materials for teaching and learning. First, we will look at how we could get children to use materials for group activities.

B. Children's use of materials

Let's reflect on what we need to do as we have children use materials.

What do we need to do in having children use materials during group activities?

Comment
Perhaps you may have thought of some of the following things.

(i) Preparing materials
You may have thought that we need to prepare the materials ahead of time for group activities. That is correct. We need to have the materials ready for use and put in the appropriate place.

You also may have said that we need to have the right number of materials. You are correct again. We must match the quantity of materials for the number of children in each of the groups. When we have a shortage of materials, we can give improvise the materials or give the groups different activities.

(ii) Selecting groups
You may have considered how we group the children and once again you are right. We have to consider the purpose of the activity when we make our groups.

We usually put children in small groupings of about five to seven. More than this number means that some will be passive and will not benefit from the activity. Small groups enhance active learning and participation.

If we have a very large class we could divide the class into groups of 5-7 and then assign the same activity to 5 small groups. In that way organise the children into manageable working groups. For example, for a class of 100 children we could divide the children the children in the following way:

Activity 1: 7 groups of 5 children = 35 children
Activity 2: 7 groups of 5 children = 35 children
Activity 3: 6 groups of 5 children = 30 children

You may have considered that we could change the groups for different activities. You are right again. We don't have to have children always in the same groups. In fact it is better to change the grouping since groups are formed for different reasons:

- ability levels or mixed ability levels,
- social groupings and friendships,
- specific learning needs of the children,
- gender, keeping boys and girls separate
- randomly assigning of children to a group.

You may have thought of a group leader who is responsible for the materials. This is valuable as it encourages social development and responsibility.

(iii) Selecting appropriate workplace

If you considered where the materials are and where the children will work, you are doing very well. We need to tell children where they will be working. They have to know the location within the classroom or where outside you want them to work.

Group work needs space. The groups need enough space for movement and manipulation. If the classroom is congested, children need to know where outside of the classroom they can do the work. Sometimes groups can work outside on walkways.

If children are too crowded some will not be able to do the activity and other groups may distract them. Groups crowded together are not conducive to learning and some may become disruptive to others.

(iv) Monitoring movement

Some of you may have thought of how children get to the work place and that is true. Confusion can result if children are not guided on how to move to the place where they will work. They can create disruptions and waste time if movement is not controlled.

(v) Facilitating learning

Some of you may have mentioned the role we would have during the group activity. We need to look at what we should be doing. As the children work in small groups we would move from group to group assisting them.

As we move from group to group, help the groups to maintain appropriate standards of group behaviours. We make sure they understand the activity and encourage the groups that are working properly and handling the materials as expected. This encouragement will reinforce their working well in the future.

(vi) Cleaning up

If you considered how we clean up after groups you are very right. Children can be trained to clean up the materials used during group work. We have learned how we can organise our classroom to help the children do this properly. We do have to remember children need time and our patience as they learn this valuable life skill.

(vii) Reviewing group learning

Some of you may have remembered that at the end of our lessons we need to remember to assess what the children learned in the activity. You are absolutely correct. we need to have all the groups discuss what they learned.

We also would benefit as teachers if we have the children reflect on how well their group worked,. Even the young children can tell you the problems and make suggestions for improvements. Such discussions encourage their feeling of belonging in the class and their willingness to cooperate in the future.

Now let us now look at how we could use the materials with individual children.

What do think we need to do as we give individual assignments and materials to children?

Comment

Occasionally we give individual materials and activities to individual children. These may be children who are above average and will require extra or more challenging work or they might get bored.

Again, we also give individual work to slow learners. They require special consideration so they don't get frustrated by work that is too difficult. These children require a lot of assistance and more time with you.

As you reflected on the question, you may have suggested that when we have special work for these individual children we must make sure we don't interfere with the learning of the other children. That is correct. We must not make the entire class wait as we give out these assignments unless the directions are brief.

You may have also suggested that we have to the materials and assignments ready for the children. That is correct. As with the group work, we would be prepared and have the materials ready.

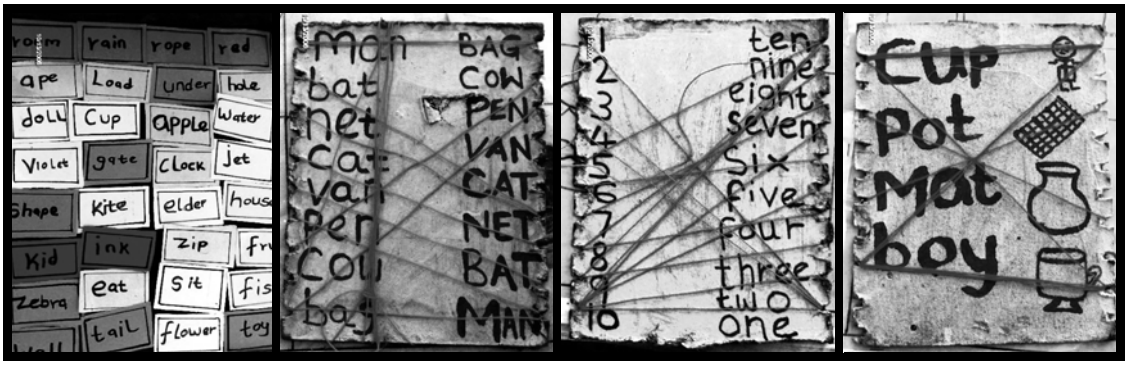


Figure 6.11 Mango Tree materials suited for individual or small group work

Now let's reflect on our own classroom group activities as we do an activity.

Activity 27

Copy the check list below. After you have made the checklist and organised for group work activities, conduct your lesson. This should be a lesson with various groups using different materials. Try to conduct the group activities remembering the practices mentioned above. After the conclusion of the lesson assess yourself on checklist.

Table 6.1 Checklists on Use of Materials During Group Work

Teacher's Group Work Activities	Needs Improve-ment	Good	Excellent
All materials were prepared and ready for use			
Class was divided into small groupings with group leaders			
Sufficient space is available for group work			
Children guided on how fast they have to work			
Children told who they are working with and where they will be working			
Children guided on how to do the activities within their groups			
Children guided on how to handle the materials			
Groups work independently on activities with minimal teacher guidance and facilitation			
Clean up was managed with minimal problems			
Review of learning of groups was completed for each activity			

You may complete your checklist, conduct your lesson and assess your group work.

Comment

Group work is challenging, but it allows children of various levels to learn from each other. If you scored 8-10 you have done very well. If you only have 1-3 that are good/ excellent, ask your Key Resource Teacher to observe you and give you additional guidance.

Now let's look at how we could demonstrate using the materials. In the last section we looked at some important points to remember when using materials for group work and for individual children. Now let us see how we could use materials in class.

Let us first consider how we could use materials during demonstrations

C. Effective demonstrations

We want you to consider what is important in doing demonstrations.

What do you think you need to remember so as to effectively use materials in your lesson?

Comment

We need to look at various things when we demonstrate during our lessons. The materials for demonstration need to be strategically placed so that the children can see them clearly. Sometimes the class might be too large for the children to see what we are demonstrating so they don't benefit.

In this situation, we could take the materials and repeat the demonstration in various parts of the classroom. We take the equipment or materials and do the demonstration for children over and over again. We move with the materials being used in the demonstration from one part of the room to another so that all of the children benefit.

If it is not possible to move the equipment or materials, then the children could move in groups to see the demonstration. Again, we repeat it until all groups have seen the demonstration.

We also encourage the children to do the demonstration using the materials. We have learned in earlier units that children are active learners and benefit most by interactive learning environments. They learn by doing, so they need to do the demonstrations whenever possible. We would facilitate the children' interaction with the teaching as well as the learning materials.

We also motivate the children by giving them a problem to solve or asking them a question. These motivators get children to pay attention and to begin getting them to think before the demonstration. These motivators also encourage the children to continue thinking during the demonstration. They are trying to find out the answer. Thus, these problems or questions are excellent learning techniques to use in demonstrations.

At the end of the demonstration the children would describe what happened during the demonstration. They are to describe the process and conclusion. If the children are able to do this, the demonstration was successful.

Sometimes, children cannot describe what happened during the demonstration and make conclusions about why it happened. They may be confused or might not understand the language used we used. We would repeat the demonstration and try to use other words.

Let ‘s now look at story telling.

D. Magical story telling and book reading

Story telling and reading of storybooks are supposed to be magical times for children. They are times in which the children’s imagination is stimulated. They are invited to the world of fantasy. Interesting experiences from both animal and human are shared.

Story telling session can be enhanced by use of objects and use of other materials. Materials help to create the mood required. We may wear some special clothes, carry some objects and use them in the process of story telling. We may even use puppets to tell the story. It is great fun for the children, and it helps to make the story memorable.

Now let consider how materials are used in reading of books.

How do you think we could enhance learning during a reading lesson?

Comment

You may have suggested that reading is like story telling. It is supposed to be interesting. This is true. We should read the story in an animated manner. If we don’t like a book, we could choose another one so that the reading session is enjoyable for all.

We read the story before the actual lesson. Reading ahead helps us to know the words in the story. At this time we decide where we change our voice or do an action using materials. We also decide where we will slow down and speed up.

Before the class reading we identify where we want to stop and involve the children. We think of questions we will ask them. Questions are useful because they assist in helping the children to focus on what we want them to learn.

We decide how we will show the pictures. Showing pictures in the process of story reading is sometimes difficult, especially with the large classes and small pictures. Children at the back of the class might not see the picture at all.

With large classes we could divide the children into smaller groups for the reading time. The figure below shows one arrangement. We sit at the centre or at one side, but we leave four aisles for us to move down among the children to show materials. Using this method we move easily to show pictures to each group of children even in a large classroom.

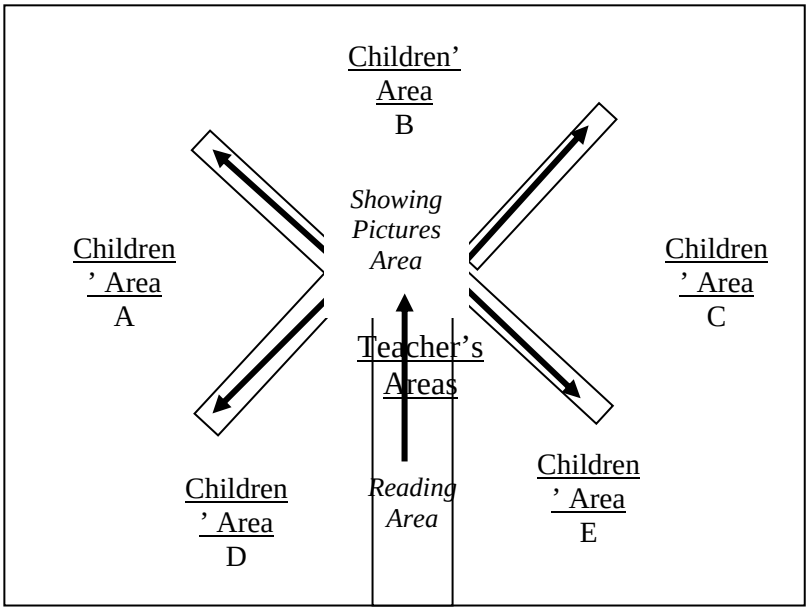


Figure 6.10 Appropriate arrangements for showing pictures in a reading lesson

E. What have we learned?

In this section, we have discussed various ways of using materials to enhance children's learning. We learned that for group work we need to ensure that there are enough materials for the groups. We have also learned that, for the individual child, we need to select materials that correspond with the child's level. We also learned that when the class is large, smaller groups could be used.

We also explored some ideas of how materials could be used in demonstrations, story time and reading. We have come to the end of this section. We believe you have more ideas about how to use materials to effectively enhance learning.

In the next section, we are going to discuss how we could maintain our teaching and learning materials.

UNIT 6 Section 3

Maintaining and storing materials

A. Introduction

Teacher you have made beautiful materials that your are using in your classroom. The children are motivated by them and you know that their learning is enhanced. We have learned that the materials you have in your classroom need to be changed periodically. We want you to keep them nice for years to come, to preserve them so that you do not have to keep remaking the same materials over again. In this section we are going to look at how we can care for our teaching and learning materials. First we will discuss how we could involve the children in this exercise.

B. Involving children

Let's think about how the children can help us to protect our materials.

How do you think we could involve children in maintaining and storing the materials?

Comment

You may have thought of many ways that we could involve the children and you are correct. The children should be involved in helping us to maintain and store our materials.

We, we need to introduce the children to the materials at the very beginning and give guidance on how to use them. We could:

- start with limited learning centres since too many new materials can over stimulate the children.
- demonstrate how to use the materials at every learning centre,. We need to explain and show the children how to handle the materials.
- have the children also demonstrate how to handle the materials.

For example, at the language centre we could put our only a few books. We could demonstrate how to hold the book and turn the pages so that they don't tear the pages. Also, when we want them to use the pocket charts, we could demonstrate how to put the things in the pockets so that the children don't tear the chart.

We could also have a repair section in the classroom where children bring materials for repair: There is always the need for repairing materials since some of them can easily be damaged. In this situation we could:

- advise them what to do if some materials get damaged
- allow some children to help in repairing some materials, using glue, masking tapes or other appropriate repair instrument,
- train group leaders in guiding other children in handling and care of materials.

We can also train the children on how to clean up and store the materials. Children can spoil materials accidentally by not putting them away properly. We have learned that if we organise our rooms, children find it easier to put the learning materials away safely.

Now let's see how we ensure that the materials are hygienic and thus safe for use.

C. Ensuring hygiene and safety

Teacher, we have been suggesting that children can help in putting materials away for proper storage. They also can assist in identifying those that need repair and older children may help in the repairs. It is also important that the materials be kept clean. Hygiene must be maintained or children may be exposed to bacteria that can make them sick.

All teaching and learning materials that are washable need to be washed periodically. Clothes for the housekeeping area, utensils, play objects, dolls, and many, many other objects. They need to be washed with soap.

Sand and water play areas also can be very unhygienic, especially if they are outside. Animals like to use the sand for depositing their sold waste and they drink from the water play areas. These are wonderful learning areas, but they can make children sick. Children can get impetigo, a very contagious skin infection, from a dirty sand pit. Children also can get other infections from a dirty water play area.

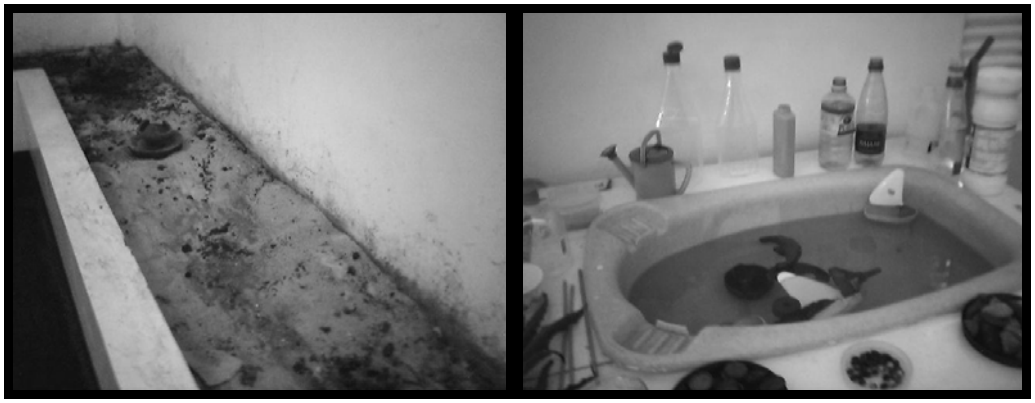


Figure 6.11 Hygienic Sand and Water Play Areas

What do you think teachers need to do to keep sand and water play areas hygienic?

Comment

In water play areas the water has to be changed frequently and the basin, bucket or container should be washed out at least once a week with soap and a disinfectant if possible.

In sand play area; sand has to be cleaned using a strainer (sieve) to remove leaves and other waste. The sand play area should be covered when not in use. If possible, the sand should be changed every 2-3 months.

Let's look at how we protect our materials and prevent damage.

D. Preventing damage

Our materials are important resources. We need to take care of them. If we don't try to protect our books, charts, pictures and other objects nicely they will get spoiled. All our efforts in making materials will be wasted.

Let's look at how we can prevent them from being damaged.

How do you think we could prevent damage on our materials?

Comment

When you reflected on how to protect your materials you may have mentioned covering your charts and flash cards with plastic. That is true. Covering them with plastic is a very good way of preventing them from tearing and also getting dirty.

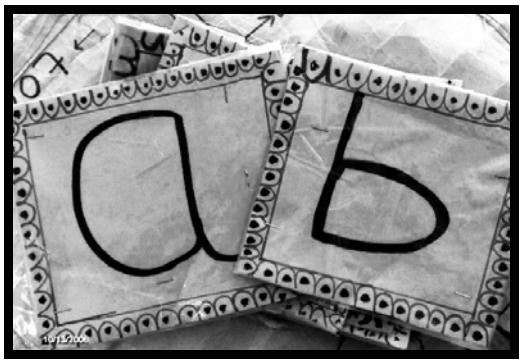


Figure 6.12 Flash cards protect by polythene

You may have also mentioned other things that we can do to protect our materials. We are only mentioning a few.

Let us see how we may protect our materials from rats and termites. These pests can do extensive damage. They eat through entire books and piles of paper. Their waste stains other materials. The resources are not reusable when these pests are through with them.

Activity

Look at the picture below. List some things you and other teachers can do to protect your materials from these pests.

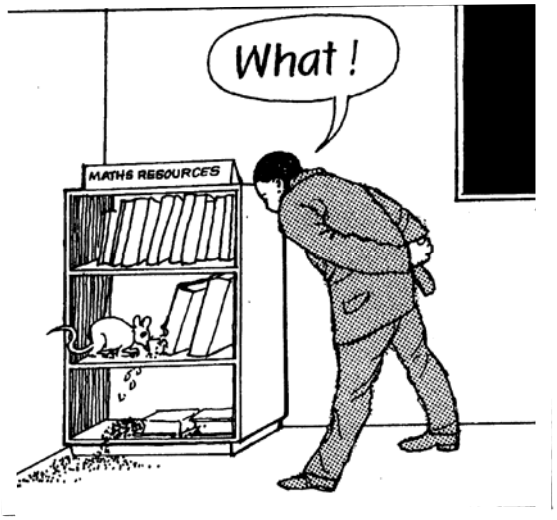


Figure 6.13 Termites and rats can destroy teacher/ learning materials

Comment

Termites and rats can spoil most paper materials and other resources also. Even materials that are stored in cupboard are not safe from these pests. Below are some of the thing you may do to prevent damage.

- Place the cupboard legs in tins containing sand and a mixture of paraffin and water to keep off ants.
- Put moth balls (available from most supermarkets) in the cupboards to keep off moths and mice.
- Spray the storage facilities with insecticide to prevent termites and other insects.

And how do you think we could protect our materials from dust and dump air?

Comment

Often materials can be spoiled by the environmental conditions. Dust fades and dries materials. Dampness causes mold, rot and pages sticking together. To protect our materials from these conditions, we should:

- Keep the resources in tied polythene bags to keep off dust and prevent moisture
- Put a cover on books to protect them on the shelves. Use brown paper, or a transparent one as a cover
- Put a cover over the front of open shelves in evenings/weekends to protect the materials from dust.

You may have had suggestions on how we can prevent others who use our classrooms from spoiling our materials. Frequently, our classrooms are shared with other groups. We could use a lockable bookshelf as in the figure below. It closes and our materials are safely locked inside.

Figure 6.14 Lockable shelving unit.

Another idea when we share space is using wallboard that is two sided. It flips downward to be a display board with attractive charts. Then it flips upward to be a blackboard. When it flipped upward the charts are hidden safely against the wall. In the figure below it is flipped downward showing mathematics, health and science charts.

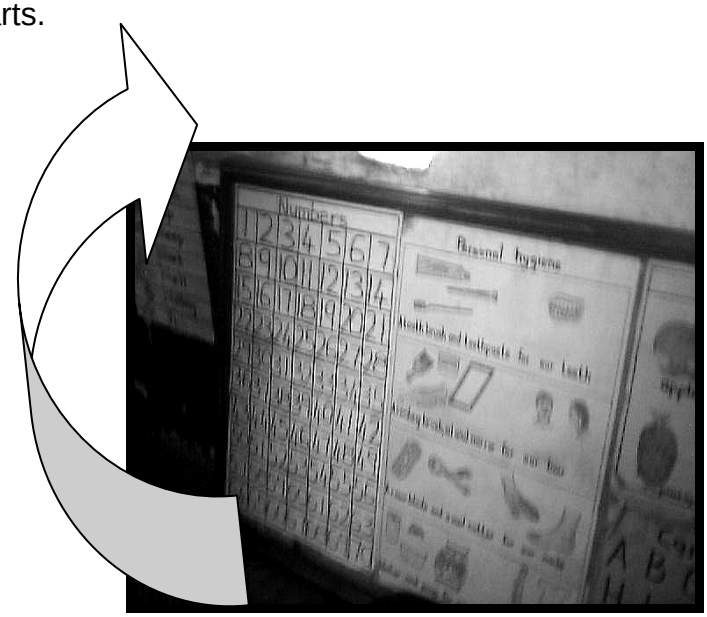


Figure: 6.15 Two sided wall display

Now let's consider how we can store our materials so that we preserve their quality.

E. Storing materials properly

To preserve the quality of your teaching and learning materials, we store them in an appropriate place and in a suitable way. A cupboard like the one on the right is a suitable place for storing many of your teaching and learning materials.

However, this teacher did not organise them well. She can't find what she is looking for. They are even falling out onto the floor. This teacher has many materials, but she can't find what she wants when she needs it.

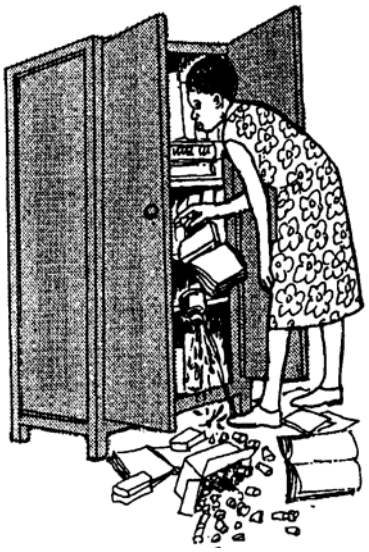


Figure 6.16 Poorly Organised Resource Materials

Let's consider this problem of storing our materials in more detail.

How do you think you should organise and store your teaching and learning materials?

Comment

Teacher, if you thought that our materials should be organised so that we are able to find them easily, you are correct. After we have prepared our Schemes of Work and our lesson plans, we want to quickly find the materials we need for teaching. We store them so we won't waste time looking for them next time they are needed.

If we teach thematically, the materials should be organised by themes. If the materials are not being used for thematic lessons we should organise the material by content area.

(i) By themes

When materials are organized by themes, they are easy to retrieve. They are put safely in containers or large plastics bags, which are labeled with the name of the theme. All charts for sub-themes are stored together while the other materials for the theme will be stored together in labeled bags or containers.

When we want to prepare for a particular theme, the materials are ready and waiting. Each type of materials for a theme is together. Organizing the materials in this way makes it easier to find all that is required for teaching and learning next time.

(ii) By content areas

We could also organize our materials according to content area. The content areas correspond to learning area and learning centers in the classroom. Selecting material according to its subject area will help teachers to develop new learning centers as well as enrich already existing learning centers in their classrooms.

Materials for mathematics may be divided according to the topic areas, such as measurement, mathematical operations, and geometry. They need to be put into containers or bags and labeled appropriately.

Materials for the other content areas could also be organized by topic areas. They also would be put in containers or bags that are labeled.

When we want specific materials, we can go to the content area where those materials are and then look for the topic. It is not difficult to find the materials when they are properly organized.

The following are dos and don'ts regarding storing the teaching and learning materials:

1. Do store charts and similar-sized materials flat in large bags. Do not roll charts or store them vertically since they will be damaged.
2. Do store small materials in manila folders, large envelopes or small containers that are labeled.
3. Do put the materials from each bulletin board display in separate envelopes for easy storage and reference. Do label each envelope with the bulletin board caption.
4. Do use small painted cardboard boxes for storage but clearly label the outside of the box what is contained inside.
6. Do not store teaching and learning materials on the floor if possible. After use do put them in baskets and hang the basket from the beams across the ceiling or store them on shelving units or in cupboards.

By following these guidelines, we will be able to keep our materials for years. We also will be able to locate them easily when we want to use them.

Let's think about some space saving storage ideas.

What are some ways we can store materials when we have no storage facilities in the classroom?

Comment

When we have a shortage of storage space problem we really have to be innovative. We have to find other ways of improvising storage facilities. If we think of **over**, **behind** and **inside** we could find ways to store a few materials

Let us consider these in more detail.

As we just discussed we could put some materials in baskets and hang them from beams. We could also put charts behind other charts on our boards.

Another idea is to make sack charts that are reversible. They have charts drown on both sides. We could store several other charts inside it. These reversible sack charts could be hung carefully to beams or pinned securely on our board...

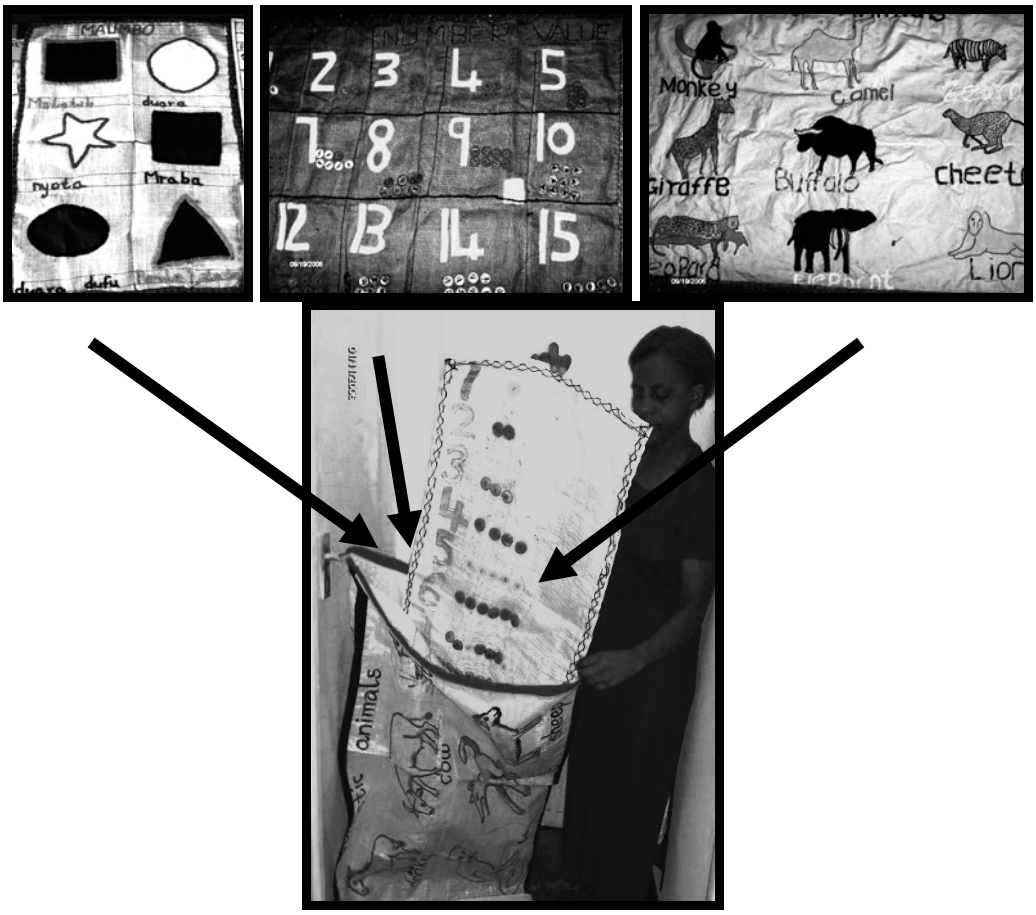


Figure 6.17 Reversible cloth chart pillow case

What we are saying is that we have to be creative on how to store our materials so that they are safe and protected.

Perhaps in the future you will be able to store your materials in a room within the school With the School Empowerment Programme every school is to develop a resource room. That room should be the store for the teaching and learning materials for the school. It will require shelves of various depths and width.

In the figure below you will see a resource room that has various materials stored in it. You will notice, that the materials are stored in plastic to preserve them. You may also notice that some of them are hung while others are flat on the shelves.

Figure 6.18 Resource Room with Materials Stored in Plastic

F. What have we learned?

We have been discussing various ways of maintaining and storing our materials. We learned how to ensure they are kept repaired and clean so that they are safe and hygienic for use by children. We learned how to prevent damage to them from pests, climatic conditions, dust and other things. We also learned that for safekeeping they should be stored in an organised way so we can find them when we want to use them. We can look forward to a resource room in the school in the future, but in the meantime let us protect them carefully.

Using these precautions, the teaching and learning materials will stay nice for years and years. Many children will benefit and we won't have to make new materials every year.

Teacher, we congratulate you on working hard to complete this manual. We encourage you to put into practice what we have been learning. Best wishes for your continued success in enhancing children's learning.

APPENDICES

PATTERNS FOR TEACHERS' USE

BASIC BLOCKS

1/2 Unit = 2.54 cm

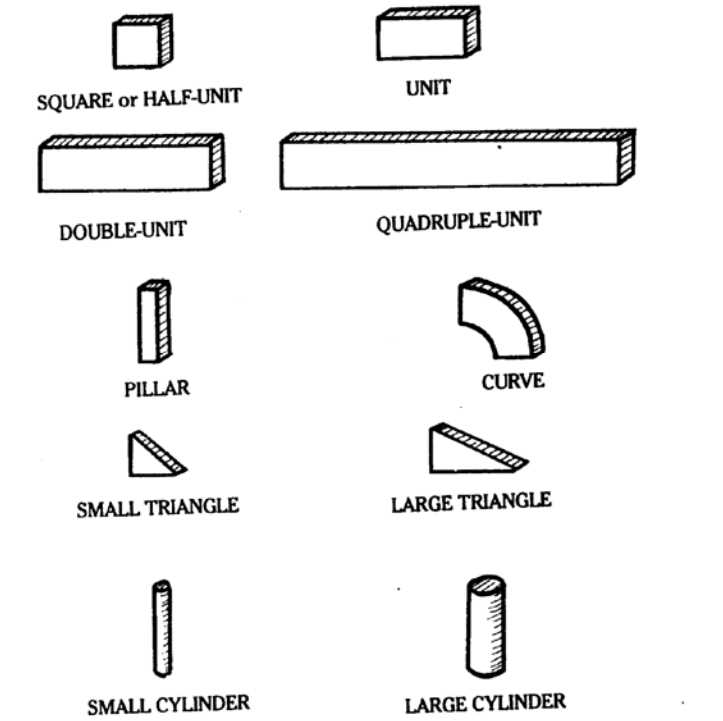


Figure A.1 Unit block shapes to be made

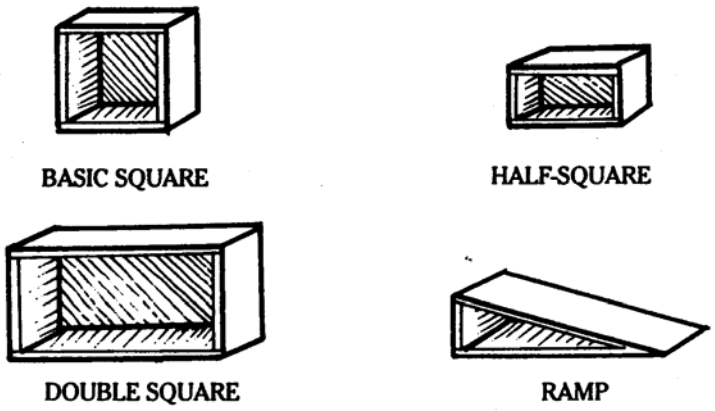


Figure A.2 Hollow black shapes to be made

PUPPET DESIGNS AND PATTERNS

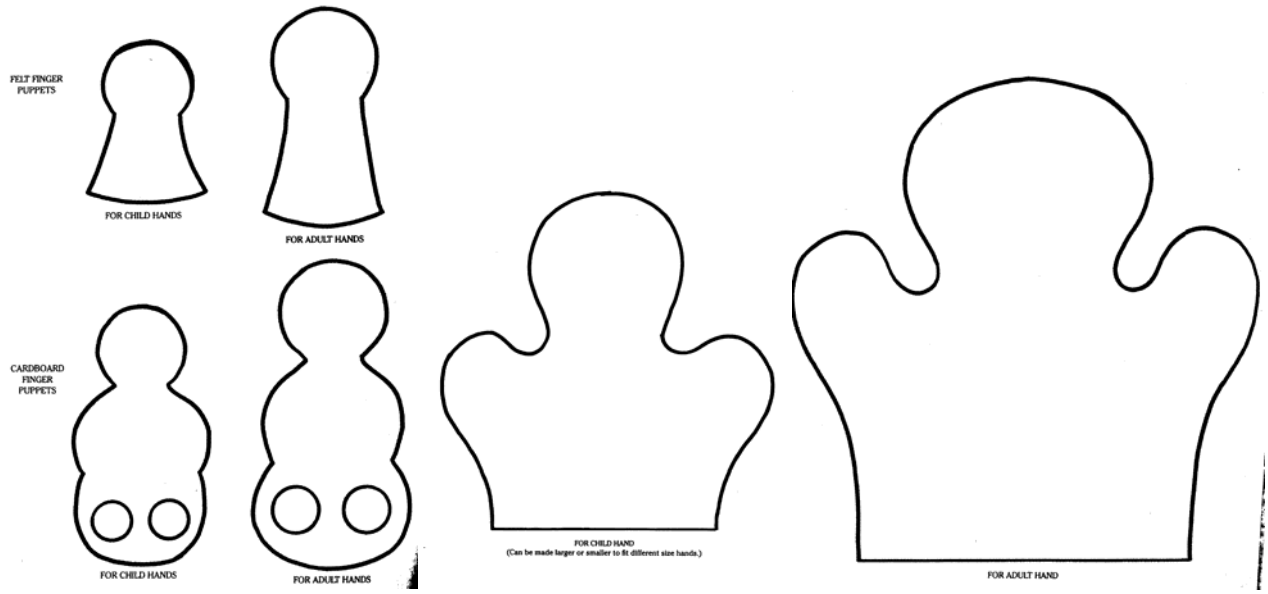
Directions for Paper Mache Puppet

These are step-by-step instructions for constructing each material. Refer to the photographs, patterns and illustrations on the attached pages for additional information.

STEP 1: Cover ball in paper strips soaked in flour paste.	STEP 2: When dry cut in half to remove ball. Then glue halves together. decorate,	STEP 3: Cut a hole for finger. make a body and attach to head.

Figure A.3 Round ball headed hand puppet

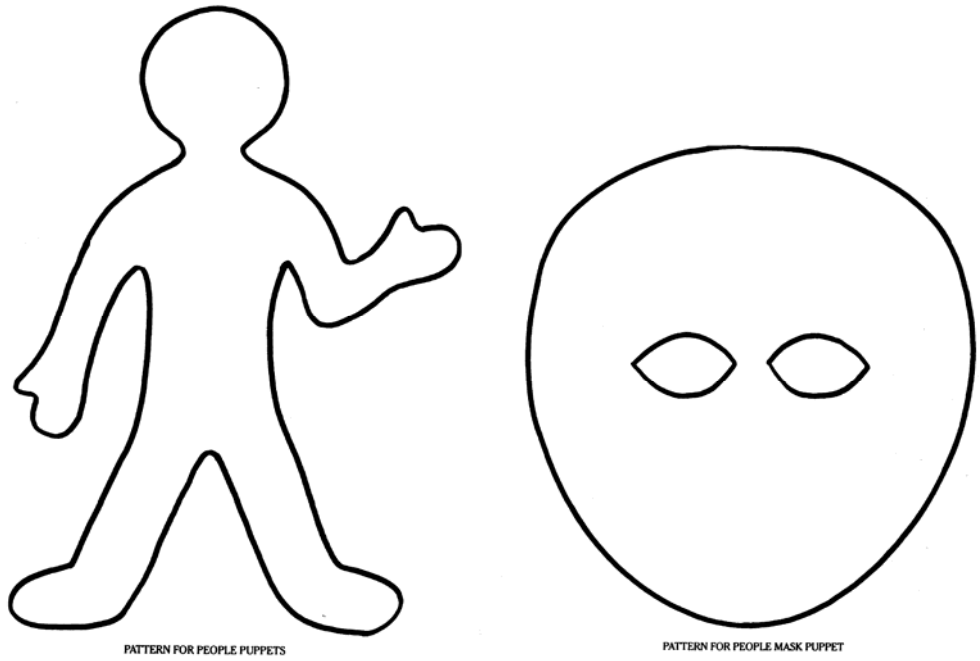
Pattern for Soft Cloth Hand Puppets



Single and Double Finger Puppets **Hand Held Soft Cloth Puppets**

Figure A.4 Patterns for finger and hand puppets

MORE PUPPET PATTERNS



Person for Stick Puppet **Face Mask Pupper**

:

Figure A.5 Patterns for other puppets

EXAMPLES OF DESIGNS FOR PAINTED HANDS PUPPETS

Figure A.6 Patterns for hand designr puppets

EXAMPLES OF DESIGNS FOR SOCK PUPPETS

Figure A.7 How to make sock puppets

DESIGNS OF BROWN PAPER BAG PUPPET

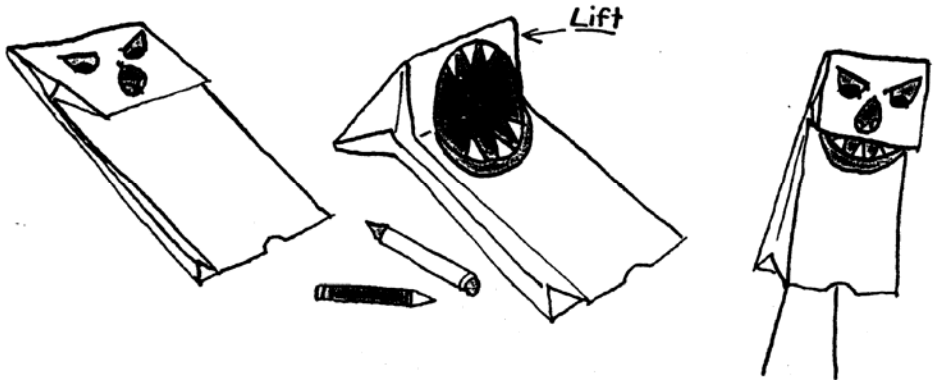


Figure A.8 How to make paper bag puppets

DESIGN OF ANIMAL PINS MADE FROM SEA SHELLS

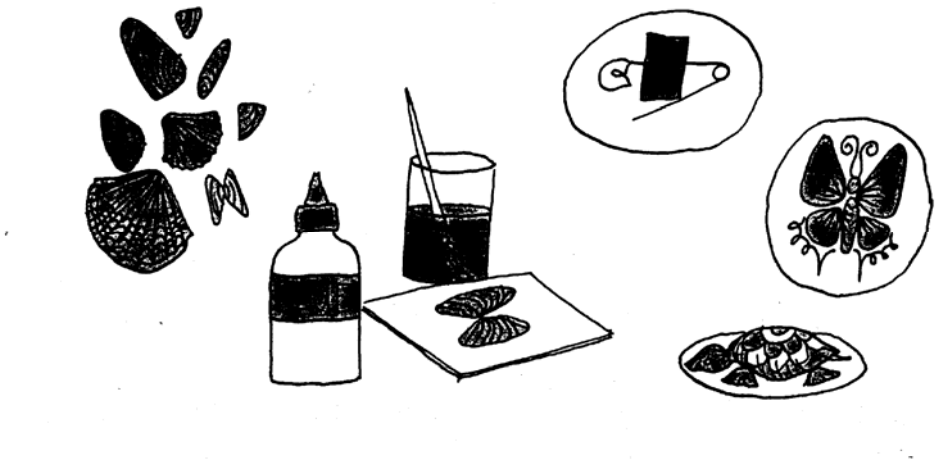


Figure A.9 How to make sea shell animals

IDEAS FOR LOW COST MUSICAL INSTRUMENTS

FIGURE 9.3 Drum.

FIGURE 9.4 Tambourine.

FIGURE 9.5 Woodblock tambourine.

Figure A.10 How to make low cost musical instruments

MULTIPLE USES OF EGG TRAY

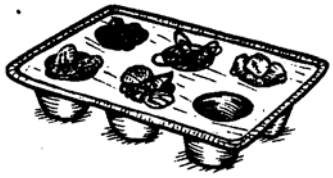


Figure A.11 A egg carton seed bed

CARROT TOP GARDEN

CARROT TOP GARDEN

(Other fruit / vegetable may be substituted)

Figure A.12 Greens spouting from plant tops

WILD ANIMALS PICTURES

On the following pages are pictures of wild animal and their habitat. These are animals that live on Kenyan plains and information about each them. Their habitat is a four page picture of a plains area. These can be enlarged for your use in the classroom. Use them as you want in the themes concerning wild animals. Many different activities can be carried out using these pictures and information.