



SECONDARY EDUCATION ACTIVITY  
АКТИВНОСТИ ВО СРЕДНОТО ОБРАЗОВАНИЕ

# MODULE 1

## LEARNING IN THE CLASSROOM

### PROJECT

## SECONDARY EDUCATION ACTIVITY SEA PROJECT

### Teacher Development Component

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# MODULE 1

## LEARNING IN THE CLASSROOM

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## I. PURPOSE OF THE MODULE

### *1 Why is this topic important?*

Teachers and researchers agree that to create the best conditions for learning, students need to be prepared to learn (Bean, 2000; Hartman, 1995; Wilkinson & Silliman, 2000). When students are adequately prepared for and actively engaged in learning activities, their enthusiasm increases and their comprehension improves (Brozo & Simpson, 2003). Conversely, adolescent learners who are not interested in learning also tend to have low academic achievement (Guthrie & Wigfield, 2000). These students are at risk for dropping out of school and leading adult lives marked by unemployment.

This module gives general education, gymnasium and vocational teachers the opportunity to develop their competence in active teaching within their secondary school classrooms. Modules II, III, and IV in this SEA series will provide additional strategies for helping students become more active learners in project-based, community-based, or workplace-based teaching.

The strategies presented in this module are based on scientific knowledge about how people learn best and how to enable students to improve their learning, thinking, and communication skills. By studying this module, secondary school professors will learn how to implement effective classroom strategies and assess their students' knowledge and skills objectively. They also will learn how to help students assess their own learning and knowledge development, which is an important key to engaging students in active learning.

***2 How does the approach/perspective in this module compare and contrast with traditional approaches/perspectives?***

In many secondary schools, students have been conditioned to become passive learners. They are often expected to sit quietly while teachers lecture, and they respond only when called upon. With this type of instruction, students may not use any higher-order thinking, such as problem solving. They also may not make connections between theoretical learning in class and practical learning in projects, the community, or the workplace. The strategies developed in this module are designed to help all students become active learners who can learn effectively in any setting. This preparation will assist students in developing the skills necessary for success in their employment and lives as citizens.

Activities in this module differ from traditional approaches in several ways. First, they seek to make *all* students active participants in the classroom. In this active-teaching approach, students learn through organizing and connecting important information, solving problems, and thinking about what they have learned, instead of passively listening to teachers' lectures. Students in active classrooms often work in pairs and groups, which enables them to share their ideas and build cooperative learning skills. In one class period, students might participate in a short lesson for the whole class and also work individually, with a partner or a small group under the guidance of the teacher.

One of the most obvious disadvantages of traditional teaching is that recalling factual information is often the intended outcome, rather than higher-order processing and application to real-life situations. In an active-teaching environment, teachers become facilitators of the learning process instead of being the major source of information for students. For example,

teachers may offer students problems to solve and have them provide solutions according to their own perspectives. They may also require students to conduct research on important questions by using printed materials, the Internet, scientific experiments, observations, or interviews. The overall goal of this type of teaching is for students to create unique understandings as well as self-knowledge related to their own learning. In active classrooms, teachers must continuously assess student learning and develop lessons and assignments based on students' learning needs. Students also are taught to assess their own learning and to set learning goals for themselves and their small groups.

### ***3 How does this topic fit within a quality improvement framework?***

The information in this module fits clearly within the Quality Improvement Framework supported by the Macedonia Ministry of Education and Science.

### ***4 What are the key practical skills and competencies expected to result from participation in this workshop module?***

After the workshop, secondary school teachers will be able to:

- Implement the practiced strategies in their own teaching;
- Plan classroom lessons based on a three-phase framework for teaching and learning;
- Build criteria and create rubrics for both teachers' assessment of student learning and students' self-assessment.

## II. CHARACTERISTICS AND NEEDS OF THE ADOLESCENT LEARNER

The information in this module is consistent with research on the needs of the adolescent learner. Understanding the needs of the adolescent learner is essential for developing effective instruction that meets their needs.

Adolescents are at a stage of life where they are undergoing many changes. These changes are physical, social, emotional and intellectual. Piaget (1969) described the progression in cognitive processes as a change from **concrete operations** to **formal operations**, a change from a concrete to an abstract way of thinking about the world.

With their ability to manipulate and understand abstract concepts, adolescents can formulate general rules about the world and then test them against available facts. They can speculate about alternative possibilities, reason in hypothetical terms, and understand analogies and metaphors. However, numerous studies have shown that a sizable percentage of adolescents don't reach the stage of formal operation. As Cowan (1978) points out, because the majority of secondary-school students have not fully reached formal operational thought, it would be a mistake to assume that hypothetical, logical instruction should entirely replace the use of concrete examples and personal experiences. Thus, active-learning environments are essential for this age group.

Each youth is a unique individual, yet also a member of one or more groups (Sturtevant and Linek, 2004). For example, each young person is part of a family and may also belong to a club or religious organization. He or she may also identify with other youth who have interests such as dance, woodworking, or electronics. All youth need to learn many new social and academic skills in preparation for the future.

## LEARNING IN THE CLASSROOM

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As part of their growth toward adulthood, all adolescents need to consider many life vocations and opportunities. They need to develop skills and attitudes that will help them grow into responsible adult family members, workers in a market economy, and citizens in a democratic society. School programs that help adolescents develop skills in collaboration, communication, problem solving / decision making, self-assessment, critical thinking, research skills, and leadership abilities are very important.



### III. DEMONSTRATION ACTIVITY 1

## Developing Critical Thinking Using the Discussion Web and Debate

#### Overview:

#### SUMMARY: Developing Critical Thinking Using the Discussion Web and Debate

##### *Phase 1. Activate background knowledge*

- *Teacher* introduces the topic.
- *Teacher* asks individuals to reflect on Macedonian traditional food and to list five traditional dishes.
- *Participants* make lists of traditional foods individually.
- *Teacher* asks volunteers to share their lists.
- *Teacher* makes a cumulative list on the flip chart

##### *Phase 2. Constructing meaning*

- *Teacher* distributes text and instructs participants to read it individually. First he/she asks for predictions about what the text will say about the topic. He/she writes predictions on the flip chart.
- *Participants* read the text. As a group, they then compare what was in the text to the predictions on the flip chart.
- *Teacher* introduces the Discussion Web by presenting a binary question and instructing participants on what to do.
- *Participants* in pairs list reasons that support affirmative and negative positions and write these reasons on their grids.
- *Teacher* asks pairs to join other pairs.
- *Quartets* share reasons for and against the issue.
- *Teacher* asks individuals to reflect on their personal position about the issue and write their conclusions on the grid.
- *Teacher* assigns the locations for two groups of participants ("yes" and "no").
- *Participants* share within the groups their reasons for a particular position.

##### *Phase 3. Evaluate and Apply*

- *Teacher* sets the rules for debating.
- *Teacher* invites representatives from each side to state group arguments.
- *Teacher* permits participants to change sides, if they have been persuaded.
- *Representative* from each side makes a final statement.
- *Teacher* asks each student to write a summary of his or her own position, as a review and self-evaluation.

**Objectives:** Participant will

- Be able to implement Discussion Web / Debate strategies
- Experience and reflect upon the following module themes:
  - ✓ Collaboration
  - ✓ Communication
  - ✓ Problem Solving / Decision Making
  - ✓ Self-Assessment
  - ✓ Critical Thinking
  - Research
  - ✓ Leadership

**PHASE 1: Activating Background Knowledge**

In this phase, participants will recall their personal experiences and comparing that with the experiences of other participants. Tell participants: *The topic of this lesson is the potential connection between nutrition and heart disease. First, I want you to think about traditional Macedonian foods. Ask participants: Make a list of five Macedonian traditional dishes. You will have 3 minutes to do this. Then you will be able to share your lists with the class. After 3 minutes, invite a volunteer to read aloud his or her list. Write the foods the volunteer names on the flip chart. Then ask: Who has another food to add to this list? Take one contribution from each member of the group, until no more foods are named. Make a cumulative list on the flip chart.*

## **PHASE 2: Constructing Meaning**

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### **Part A: Reading the text**

Tell participants: *In a minute you will get a text on nutrition and heart disease. I will ask you to read it individually and then we will discuss it together. Before we begin, I wonder what you think it will say about the connection between food and heart disease?* Then, for about 2 minutes, let participants contribute what they predict the text will say. Write three or four predictions on the flip chart for all to see.

Next, tell participants: *Read individually for 7 or 8 minutes.* Distribute to each participant a copy of the text titled “Nutrition and Heart Diseases” (Appendix 1–A). Ask participants to raise their heads and turn the paper over when they finish so that you can tell when everyone is done.

After participants have finished reading, ask them to look at the predictions they made (on the chart paper). Go through the list and ask if each prediction was correct or incorrect.

### **Part B: Introducing the Discussion Web**

Key components of this strategy include working together, evaluating information, and applying general information in specific context. Trainers can find more information on this strategy in Appendix 1–B.

YES		NO
	<b>Does traditional Macedonian food contribute to heart disease?</b>	
	<b>Conclusions</b>	

**Figure 1. Discussion-Web Grid**

First, present on an overhead or on the chalkboard a grid like the one in Figure 1. Put participants in pairs and tell them: *The text you have just read showed you that there is connection between nutrition and heart disease. On the chalkboard you can see a question. Please, read it and then, with your partner, list on the grid reasons that support affirmative and negative positions on that question. The reasons that support the position that the Macedonian*

*traditional food contributes in the risk of heart disease should be listed on the left side on the form, under "Yes." The reasons that support the position that Macedonian traditional food does not contribute in the risk of heart diseases should be listed on the right side on the form, under "No." You have 6 to 7 minutes to accomplish this task.*

Next, ask pairs to join other pairs and say: *Now you will work in quartets, and in next 5 minutes you should share reasons you have listed under "Yes" and "No" positions. During the discussion you can come up with additional reasons on both sides and add them to the list.*

At this point, this lesson moves to the Debate activity; however, the Discussion Web can also be used without Debate by following the instructions found in Appendix 1-A.

### **Part C: Debate**

Key components of this strategy include learning to build arguments on a statement and obey rules while debating.

Now that participants have listed all arguments for and against the issue, they must take a position. You may say something like this: *Now you can decide individually what your conclusions about this issue are. Please do this in 3 minutes. Write your position in the space on your grid marked "Conclusions."* When participants finish their task, give them the following directions: *Now, I invite all of you who personally believe that the Macedonian traditional food does contribute to the risk for heart disease, to please move to the left-hand side of the room. All of you who personally believe that Macedonian traditional food does not contribute to the risk of heart disease should move to the right-hand side of the room.* Tell participants that even if they are not certain, or if they think some foods do contribute to the risk for heart disease and others do not, they should take a position in order to participate in the debate.

As all participants move to their locations, ask them to share their arguments within their own groups. You may say: *For the next 7 to 8 minutes, please share with your group reasons that support your position. Together, decide on which reasons are the strongest and make a list of these reasons. Keep in mind that you will use these reasons in defense of your position against the other group. When you finish discussing your reasons, make a list of the most important reasons and select one person to represent your group in the debate. Your representative will have 5 minutes to present your group's position.* While participants are working within the groups, the trainer should walk among the groups, listen to what they are discussing, and answer questions.

### **PHASE 3: Evaluating and applying information**

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At this point the trainer will invite participants to debate: *Now, we may start debating. Each group should send their representative to the front of the room. During the debate you must obey two rules: One, listen to the speaker without interrupting him or her; two, be polite to members of both groups. Is this clear? Now let's hear the arguments that support the "Yes" group's position.* Repeat the procedure with the representatives from the other group. Provide 5 minutes for each representative to present his or her group's position.

Next, invite participants to change their position if they have been persuaded by an argument from the other side, and to join that group. Allow 12 minutes more for debating. During this time an additional two representatives from each group can speak, for 3 minutes each. The groups will take turns presenting their positions. As a final activity, ask the original representative from each group to make a one-minute final statement.

During the debate, it is important to keep accurate time. Group members may tend to go over their time and should be stopped exactly at the end of the minutes they are allowed. This is important for the fairness of the debate.

### **Reviewing the Discussion-Web Activity**

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Have participants recall the steps of Discussion-Web Activity. You might begin with: *What did I ask you to do at the very beginning of the model lesson? Did your concept about Macedonian traditional food differ in a way from other peoples' definition? What do you think was the point of this activity?* Then, you can continue reviewing the procedure by using questions like this: *What did you do after seeing the question on the overhead (chalkboard)?* After recalling the steps, name the technique and write it on the flip chart.

Next, review with participants the effects of the activity. Mention that, as educators, they can reflect in two ways: (a) as participants in the activity, in relation to how the strategy affected their own participation and learning, and (b) as educators, in relation to how the activity might affect their students' learning, especially compared with more traditional teaching methods.

While you should focus on the benefits of this strategy, also encourage participants to share any concerns they have. Ask them: *How might it be difficult for you to use the strategy? What are some ways you might be able to overcome these obstacles?* For example, if a participant mentioned that his practical vocational class does not generally use textbooks, you might discuss the benefits of obtaining an article from a newspaper or the Internet that was related to something in the practical area of study for use with this strategy.

Other questions you may ask include: *What does the teacher need to think about while formulating the question for Discussion-Web strategy? What are the benefits of working in pairs and in quartets? How does the Discussion Web help you organize your thinking about the topic? What is the point of asking participants to give reasons for and against the issue, regardless their personal opinion?*

### **Reviewing the Debate Activity**

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Begin the review by asking participants to recall the steps of the strategy. Ask a question like this: *What did you do after reflecting on your personal position? What did I ask you after you were divided into groups according to your position on the issue?* After recalling the steps, name the technique and write it on the flip chart. Then, discuss the role of the teacher in the Debate activity. Ask participants: *Does the teacher intervene in participants' discussion?* Then, raise the discussion about the benefits of the strategy. Ask: *Are all participants actively engaged? Does this strategy promote critical thinking? Does it promote leadership? How?* Point out that there is no right or wrong answer to the question that is debated, but the quality of the debate can be assessed. Ask anyone who changed sides to explain why.

### **Guided Practice**

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Divide the whole group of participants into small groups according to subject areas. Ask them, as a group, to select one topic from their textbooks and to create a plan that they might be able to use with their own students using the demonstrated strategies. Of particular importance

for this strategy is the ability to write an appropriate question for the Discussion Web. Tell participants: *Please write several questions and discuss them in your group before selecting one to share with the other groups.* Trainers should move between groups and assist in developing appropriate questions. Distribute flip-chart paper or overheads and markers to each group and give them 20 minutes to accomplish this activity. Then, invite one spokesperson from each group to present their group's plan to the entire group.

### **Evaluation**

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Debrief with the whole group at the end. Ask them to anticipate how the Discussion Web and the Debate strategies would work in their specific schools and with general, gymnasium, and vocational subjects. Encourage participants to note the benefits of the strategies for student learning, and ask them to discuss any issues or concerns they might have about whether the strategies are appropriate for their own courses or in their own situations.



## IV. DEMONSTRATION ACTIVITY 2

### RAFT: Designing Authentic Writing Assignments Through Role, Audience, Form, and Topic

#### Overview:

RAFT is tool for designing authentic writing assignments. Writers take perspectives different from their own and use alternative discourse modes. RAFT enables students to gain a different point of view on the same topic. This tool allows creative, enriched, and innovative usage in practice.

#### SUMMARY: RAFT: Designing Authentic Writing Assignments Through Role, Audience, Form, and Topic

##### *Phase 1. Activate Background Knowledge*

- Display types of writing assignments and ask participants how teachers differ within each subject.
- Collaboratively examine the differences between Conventional (Teacher A) and Authentic (Teacher B) writing assignments.

##### *Phase 2. Constructing meaning*

- Explain how RAFT directs attention to four key dimensions of writing assignments: Role, Audience, Form, and Topic.
- Collaboratively examine how the RAFT dimensions contribute to authenticity.
- Describe a process for designing writing assignments using RAFT.

##### *Phase 3. Evaluate and Apply*

- Have participants design an authentic writing assignment on the topic of non-infectious diseases.
- Have participants share and compare their assignments in pairs or small groups. Nominate a few participants to share their assignments with the entire group. Publicly debrief their process as well as their product.
- Have participants select a course topic they normally teach and design a conventional and an authentic writing assignment on the topic.
- Have participants share their assignments with pairs or in small groups. Nominate a few participants to share their assignments with the entire group. Publicly debrief their process as well as their product.
- Have participants copy their writing assignments on a separate paper, collect them, and assess them for workshop effectiveness.

**Objectives:** Participants will

- Design authentic writing assignments
- Vary writing assignments according to their role, audience, and form
- Experience and reflect upon the following module themes:
  - ✓ Collaboration
  - ✓ Communication
  - ✓ Problem Solving / Decision Making
  - ✓ Self-Assessment
  - ✓ Critical Thinking
  - ✓ Research
  - ✓ Leadership

### **PHASE 1: Activating Background Knowledge**

Display the following Types of Writing Assignments (reprinted in Appendix 2-B), and read it aloud. Ask participants: *How do Teacher A and Teacher B differ within each subject?*

Then explain that for the purpose of this workshop the differences will be summarized as Conventional (Teacher A) and Authentic (Teacher B).

### ***Geography***

**Teacher A** asks students to research cities and other locations in Brazil and write reports that describe the places.

**Teacher B** asks students to pretend that they work for the Brazilian Office of Tourism and produce a brochure promoting cities and other locations in Brazil to potential tourists.

### **Technical Arts**

**Teacher A** asks students to copy from the board steps to follow when operating a certain machine.

**Teacher B** asks students to pretend they work for a manufacturer and produce a training sheet with illustrations for entry-level workers to follow when operating a certain machine.

### **Mathematics**

**Teacher A** asks students to display their mathematics homework. If they can not complete a problem, they should leave it blank and finish it later.

**Teacher B** asks students to display their mathematics homework. If they can not complete a problem, they must write what they do not understand before being allowed to finish it later.

## **PHASE 2: Constructing Meaning**

Explain how RAFT directs attention to four key dimensions of writing assignments: Role, Audience, Form, and Topic. Return to the Types of Writing Assignments display and highlight the RAFTs of each assignment, noting how they differ within each subject. Explain that Topics come from any discipline and do not affect how conventional or authentic writing assignments are; however, Roles, Audiences, and Forms determine whether or not writing assignments about the Topic are conventional or authentic.

**R— Role of the writer.** The part the writer is playing while composing a particular paper.

Who the writer is functioning as.

**A— Audience for the writers.** The people who read the paper. Who the writer is addressing.

**F— Form of the writing.** The type of written expression. The paper's genre.

**T— Topic to be addressed in the writing.** What the paper is about. The subject of the paper.

*Display the following Examples of RAFTed Assignments (reprinted in Appendix 2-C).*

Collaboratively examine how the RAFT dimensions contribute to authenticity.

### Examples of RAFTed Assignments

#### Mathematics

**Assignment:** For your future reference, explain in your class notebook (a) at least two situations that call for each measure of central tendency (mean, median, mode) and (b) how you compute the measures.

<b>Role:</b> Student as self-learner	<b>Form:</b> Journal entry
<b>Audience:</b> Student in the future as self-learner	<b>Topic:</b> Measures of central tendency

#### Social studies

**Assignment:** Select one role you will play relative to proposals to dam the Colorado River inside the Grand Canyon. Produce a brochure (for classroom display) that portrays your position.

<b>Role:</b> Park service officer, farmer, environmentalist, housing developer	<b>Form:</b> Brochure
<b>Audience:</b> citizens, those concerned about water issues, those concerned about the outdoors, and classmates	<b>Topic:</b> Resources in the U.S. West

#### Science

**Assignment:** Select one element from the Table of Periodic Elements and compose a magazine advertisement promoting its value

<b>Role:</b> element	<b>Form:</b> magazine advertisement
<b>Audience:</b> imagined chemical buyers	<b>Topic:</b> Table of Periodic Elements

**Literature**

**Assignment:** You have witnessed what Hester Prynne experienced. Recount her experiences in either a poem, news account, sermon, or letter.

<b>Role:</b> unseen witness	<b>Form:</b> poem, news account, sermon, letter
<b>Audience:</b> varies according to form	<b>Topic:</b> Novel <i>The Scarlet Letter</i>

Next, display the Example of a Writing Assignment that Varies according to its Role, Audience, and Form (reprinted in Appendix 2-D). Collaboratively examine how the RAFT dimensions can vary. Explain that teachers can brainstorm possibilities, then select the single best combination; have students do the same; or permit students to choose a particular combination they find most engaging.

Example of a Writing Assignment that Varies  
according to its Role, Audience, and Form

**Topic:**  
Chemistry, organic or non-organic reactions

Role	Audience	Form
<ul style="list-style-type: none"> <li>• Chemistry scientist (or a scientist from a specific chemistry area)</li> <li>• Chemistry specialist in the area of organic or non-organic reactions</li> <li>• Journalist</li> <li>• Business person</li> </ul>	<ul style="list-style-type: none"> <li>• Other scientists</li> <li>• Students</li> <li>• TV public</li> </ul>	<ul style="list-style-type: none"> <li>• Scientific book</li> <li>• Report</li> <li>• Instructional guide</li> <li>• Memo</li> </ul>

When participants generally understand how RAFT works as a tool for designing authentic writing assignments, explain a process for designing them. You might say: *When you first start RAFTing writing assignments, you always start with the Topic. Many teachers have found that Form is the most flexible dimension, so they begin with it once the topic is established. After deciding the Topic and the Form, attaching Roles and Audiences that are consistent with the Topic and Form is relatively simple.*

Display the Possible Forms (reprinted in Appendix 2-E), review them briefly. Compare a few with conventional essays, collaboratively examine how various forms contribute to authenticity (and not trivial entertainment). Finally, elicit other possible writing forms from the participants.

### Possible Forms

book jacket	news report
Brochure	notes
children's picture book	pamphlet
commercial/advertisement/promotional	picture dictionary
Diary	play
Directions	poem
Editorial	position paper
encyclopedia entry	poster/flyer
Essay	PowerPoint presentation
Fable	review/critique
interview (written)	script
Journal	sermon
Letter	speech
Lyrics	story
magazine article	storyboard
Memo	summary
mind map/concept map	translation into everyday language

### **PHASE 3: Evaluating and applying information**

Now have participants (individually or in pairs) examine the article “Non-Infectious Diseases” in Appendix 2-G. Have participants design an authentic writing assignment on the subject of non-infectious diseases. (Remind them to begin with the Topic and Form, then add the Role and Audience.) Then have participants share and compare their assignments in pairs or small groups. Nominate a few participants to share their assignments with the entire group. Publicly debrief the process they followed to produce the assignment, then offer feedback on their process as well as their product (i.e., the RAFTed writing assignment).

Ask the participants to go back through the lesson, recalling everything they did. You might ask: *What was the first thing you did when designing the writing assignment?* Be sure participants have included a Role, Audience, and Form in their writing assignment. Always help the participants develop a deeper understanding of the Roles, Audiences, and Forms that best fit the Topic.

### **Reviewing (and Developing) the Activity**

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After participants have attained basic competence designing an authentic writing assignment on non-infectious diseases, move on to a more advanced level of RAFT by focusing on Role.

When focusing on role, writers should ask themselves several questions. You might say to participants: *Ask yourself, why do I care about this particular topic? What information or parts of the individual stories, textbooks, newspapers, and writing materials do I need to examine carefully for my role? What emotions might I be feeling as I think about this topic? How*

*can I give my role some personality? What perspective would my role have on the assigned topic?*

Have each of the participants examine the role they generated for the non-infectious diseases writing assignment by writing their thoughts from the perspective of that role in a Role Definition Matrix (reprinted in Appendix 2-F). Have participants share and compare their role definitions.

Role-Definition Matrix

What perspective would my role have on the writing assignment?

<u>Personality</u>	<u>Attitude</u>	<u>Information</u>
How can I give my role some personality? Who am I, and what are some aspects of my character relative to the topic?	Why do I care about this particular topic? What are my feelings, beliefs, emotions, and concerns about the topic?	What do I know that I need to share in my writing about the topic? What resources do I need to examine carefully for my role?

### **Guided Practice**

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Now have participants (individually or in subject-matter pairs) select a course topic they normally teach. Have them design a conventional and an authentic writing assignment relative to the topic. Have participants share their assignments with pairs or in small groups. Nominate a few participants to share their assignments with the entire group. Publicly debrief their writing-assignment design process, then offer feedback on their process as well as their product (i.e., the assignment).

### **Evaluation**

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If needed, have participants copy their writing assignments on a separate paper, collect them, and assess them for workshop effectiveness. For evaluation at the end of the demonstration, ask the following questions: *What new ideas did you learn about designing writing assignments? How do you foresee the RAFT tool working in your specific subjects when designing writing assignments? What questions do you have about using RAFT to design writing assignments?*



## V. DEMONSTRATION ACTIVITY 3

### Developing Active Learning Using *SQPL* (Students Questions for Purposeful Learning)

#### Overview:

#### SUMMARY: Developing Active Learning Using *SQPL*

##### *Phase 1. Activate Background Knowledge*

- *Teacher* creates a thought-provoking statement and presents it to participants by writing the statement on the chalkboard or flip chart.
- *Teacher* divides the participants into pairs
- *Participants* are asked to brainstorm questions they would like to have answered based on the written statement.
- *Teacher* elicits the participants' questions and writes them on the chalkboard or flip chart, making sure each participant pair contributes at least one of their questions.
- *Teacher* highlights questions asked by more than one pair of participants and consolidates questions by combining similar ones.
- *Teacher* states that these are whole-group consensus questions to which participants should give special attention.

##### *Phase 2. Constructing meaning*

- *Teacher* presents participants the information, which might include reading materials such as textbooks and articles, lectures, video, the Internet, or a guest speaker.
- *Participants* listen actively for information that answers their questions, paying particular attention to class consensus questions.
- *Teacher* stops the participants periodically throughout the reading or presentation information to discuss the topic in general and answers to their questions in particular.

##### *Phase 3. Evaluate and Apply*

- *Participants* in pairs determine to what extent their questions were answered by the information source(s).
- *Teacher* gathers feedback from participants on the extent to which *SQPL* questions were answered.
- *Teacher* states that the goal of *SQPL* is to help students become active learners by self-questioning before reading or listening to new information.
- *Teacher* engages participants in a discussion of the strategy and its applicability for VETs.
- *Participants* practice conducting their own *SQPL* lesson with trainer and other participants.

**Objectives:** Participants will

- Learn the teaching procedures used in an *SQPL* lesson
- Learn how the strategy can promote active, independent learning
- Experience and reflect upon the following module themes:
  - ✓ Collaboration
  - ✓ Communication
  - ✓ Problem Solving / Decision Making
  - ✓ Self-Assessment
  - ✓ Critical Thinking
  - Research
  - Leadership

### **PHASE 1: Activating Background Knowledge**

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Write the following statement on the chalkboard or flip chart: *Some scientists think within a few years it will be possible to clone human beings, but many governments have already decided to forbid cloning of people.*

Allow participants to pair up and brainstorm questions they would like to have answered based on the written statement you presented to them. Limit each pair to two or three questions. As participants work together to create their questions, move throughout the room to monitor their progress and help clarify the directions. After 5 to 10 minutes, elicit the participants' questions and write them on the chalkboard or flip chart. Gather a variety of questions, making sure each participant pair contributes at least one of their questions. Highlight or star questions asked by more than one pair of students and combine similar ones. Tell the participants that

finding answers to these questions should be given the most attention. Ask participants to write the final list of questions in their notebooks, leaving space to write answers.

The participants may have many questions about the statement they would like answered. For example, one pair may ask, "Are cloned people more sensitive to certain diseases than other people?" At the same time, another pair might ask, "Is a human clone as healthy as a non-clone?" Notice how similar these two questions are. They can easily be combined or assumed to be essentially the same question. In another example, a question such as, "Is it right for humans to take over the role of the Creator?" is virtually identical to the question, "Isn't God the only one who can make a living being?" In this case, these questions can be combined or assumed to be identical.

## **PHASE 2: Constructing Meaning**

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At this stage the participants are ready for the presentation of the information. Tell them to pay close attention to information that answers their questions, especially the class consensus questions.

Provide each participant the article entitled "A Copying Machine for Living Beings" (in Appendix 3-A). Tell the participants you will be stopping them periodically to remind them to work with their partners on answering the questions. Throughout the reading the article stop the participants and tell them to turn to their partners and discuss answers the questions. Ask participants to share their answers with the whole class. Also ask them to write their answers in their notebooks.

## **PHASE 3: Evaluating and Applying Information**

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When participants have completed reading "A Copying Machine for Living Beings," ask them to discuss with their partners the extent to which they were able to answer the SQPL questions. Next, ask the participants to tell the rest of the class what they learned from the article

and how much information it supplied related to their questions. For any questions participants were unable to answer from reading the article, tell them they can look for answers using other information sources, such as the Internet, science books or expert interviews.

### **Reviewing the SQPL (Student/ Questions for Purposeful Learning) Activity**

Ask the participants to go back through the lesson, recalling everything they did. Allow participants to discuss answers to these review questions with their partners before eliciting responses from the whole group. You might begin by asking: *What was the first thing we did when we started the sample lesson?* This should be followed by questions such as: *How did your questions help you pay closer attention to the article? What are the benefits of working in pairs? How did brainstorming with your partner help you think more about the topic of cloning before you read the article?*

Also, be sure to ask participants: *Did you understand the steps of the SQPL strategy?* If additional clarification is needed, describe the procedure again. Finally, ask the participants: *What is the purpose of this strategy?* As you gather their responses, tell participants why you asked them to do what they did at each step of the activity. Tell participants the overall goal of SQPL is to help students become active learners by creating their own purposeful questions in advance of the information. Say to them that students will pay closer attention to what they read and hear in order to answer their own questions.

It is also important to tell the participants that SQPL questions should not be the only questions asked about the information. This is because student questions may fail to cover critical information. If the participants were teaching about cloning, they would have their own questions for students to answer, in addition to their students' questions, to ensure all important aspects of the topic are covered. Be sure to remind participants that in studying a topic such as

cloning students should have more than one article to read. Students should be provided access to textbooks, the Internet, experts, and any other useful information source on cloning.

### **Guided Practice**

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Divide the whole group of participants into small groups according to subject areas. Ask them, within groups, to select a topic from their textbooks and prepare a demonstration of the SQPL strategy. Distribute flip charts or overheads and markers to each group, and give them 20 minutes to accomplish this activity. While participants are planning their application of the strategy, move throughout the room to provide clarification, answer questions, and suggest ideas. When groups are finished planning, invite a spokesperson from each group to present the application for the whole group.

### **Evaluation**

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Guide discussion with the participants by asking them to anticipate how the *SQPL* technique will work in their specific schools and with general, gymnasium and vocational subjects.

### **Glossary of Terms**

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- S: Student** (the participants in the demonstration activity; students in the various secondary school subject classrooms) in teaching and learning process)
- Q: Questions** (questions from participants based on a thought-provoking statement created by the teacher)
- P: Purposeful** (students' purpose for reading and listening is to answer their own questions)
- L: Learning** (students learn more effectively by actively seeking answers to their own questions)

## VI. DEMONSTRATION ACTIVITY 4

### Creating a Lesson-Plan Format Following Guidelines

#### Overview

#### SUMMARY: Creating a Lesson-Plan Format Following Guidelines

##### *Phase 1. Activate background knowledge*

- *Teacher* asks individuals to reflect on their experience on lesson planning.
- *Participants* work in small groups to outline the lesson-plan format they used to follow in their teaching.
- *Group Representatives* present and record on a flip chart their lesson-plan outline.
- *Teacher* asks participants to point out the main parts of the lesson planning process.
- *Participants* point out strengths and weaknesses in their lesson-plan format.
- *Teacher* raises group discussion on the importance of having meaningful conceptual framework while planning the lesson.
- *Teacher* introduces the three phase lesson plan: Activate Background Knowledge, Constructing Meaning, and Evaluate and Apply.

##### *Phase 2. Constructing meaning*

- *Teacher* introduces the demonstration lesson, providing an overview of what will take place.
- *Teacher* introduces the KWL (Know and Want to Learn) strategy.
- *Participants* brainstorm about what they know and want to learn about Alexander the Great.
- *Teacher* records participants' responses on the KWL organizer.
- *Teacher* provides a biography of Alexander the Great and instructs participants to read and fill in answers in the Learn column of the KWL organizer.
- *Participants* discuss ideas and concepts for the Learn column.
- *Teacher* writes responses in the column.

##### *Phase 3-Evaluate and Apply*

- *Teacher and Participants* review each phase of the Alexander lesson.
- *Participants* engage in a group lesson planning exercise.
- *Volunteers* present their lesson plans outline and point out differences from the previous ones
- *Teacher* raises discussion on link between lesson planning and thematic unit planning

**Objectives: Participant will**

- Identify key aspects of planning process for in-depth elaboration of the lesson
- Understand difference between traditional and active-teaching lesson planning
- Be able to create lesson-plan format applicable for active learning and teaching
- Be aware of link between thematic-unit planning and lesson planning
  
- Experience and reflect upon the following module themes:

- ✓ Collaboration
- ✓ Communication
- ✓ Problem Solving / Decision Making
- ✓ Self-Assessment
- ✓ Critical Thinking
- Research
- Leadership

**PHASE 1: Activating Background Knowledge**

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Begin this demonstration activity by introducing the topic on lesson planning. Ask participants to reflect on their experience and challenges while planning lessons. First ask them to do it individually in 5 minutes and then to share their thoughts in small groups. Give them 10 minutes to outline the lesson-plan format they used to follow in their teaching. You may ask questions like this: *What elements do you emphasize while planning the lesson? Do you use particular format for lesson planning in your subject area?* After 10 minutes, ask group representatives to present and record on a flip chart their lesson-plan outline. Invite participants to point out the main parts of the lesson-planning process on the basis of presented information. Give them some time to reflect on the strengths and weaknesses in their lesson-plan format.

Participants should understand the importance of having meaningful conceptual framework while planning the lesson. For that purpose, it is useful to stimulate group discussion with provocative questions like this: *Why it is important to have a well-designed lesson plan before the lesson begins? Doesn't it restrict the teacher's creativity and spontaneous activity during the lesson? Do teachers with long experience in teaching need lesson plans?*

Next, introduce the concept of a three-phase lesson. Point out that the three demonstration lessons they have been through in the workshop so far have been organized in this format. Emphasize that the format can be used with any presentation form: reading, demonstration, or viewing film or performances. Discuss with participants the purpose of each phase of the lesson:

**Activating Background Knowledge** (often referred to as the “Pre-” phase, as in Pre-reading, Pre-viewing, Pre-demonstration): In this phase you are activating learners’ prior knowledge of the subject. Current research shows that meaningful learning takes place when students relate what they already know to the subject. Teaching should be viewed as building a bridge between students’ knowledge and what the instructor wants them to learn. In this phase of the lesson it is also important to help students develop a purpose for reading and to point out any unfamiliar vocabulary.

**Constructing Meaning** (the “During-” phase of the lesson): In this phase, instruction is aimed at helping students process new information and construct new understandings based on the new information. Instruction should help students maintain their purpose for reading, organize concepts, and connect the new information with their prior knowledge.

**Evaluate and Apply** (the “Post-” phase of the lesson): In the final phase of the lesson, students are helped to evaluate what they have learned and to make applications to their everyday lives.

**PHASE 2: Constructing Meaning**

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Explain that we are now going to engage in a reading lesson that uses the three-phase lesson plan. Ask them to place themselves in the role of students. Say: *Today we are going to read a biography of Alexander the Great. We will use a strategy to help us understand the text more thoroughly. It is called KWL. The "K" stands for what you KNOW, the "W" for what you WANT to learn, and the "L" for what you've LEARNED. We'll use this organizer (either use an overhead or draw the KWL organizer on the flip chart):*

KWL on Alexander the Great

What do you already <b>KNOW</b> ?	What do you <b>WANT</b> to know?	What did you <b>LEARN</b> from reading the biography?

Ask the participants to brainstorm about everything they currently know about Alexander the Great. Write down central ideas in the first column. When they have finished (or after a reasonable amount of time), ask what they would like to learn about Alexander. Write down their comments in the middle column. When they have finished, hand out the article "Alexander the

Great” that appears in Appendix 4-A. Instruct them to read the article to answer questions from the middle column and to write answers that can be placed in the third column. Tell them they can include any information they find interesting. Ask them to raise their hands when they have finished. Quickly mention, but do not discuss, that they have now finished the first phase of the lesson.

When participants have completed the reading, point out that they have finished phase two of the lesson. Then, immediately move to a discussion of “What did you learn?” Write student comments in the third column. When they are finished, ask them what they still don’t know and would like to learn, and where they could find more information about Alexander the Great. When the discussion ends, point out that they have just completed the final phase of the three-phase lesson plan.

### **PHASE 3: Evaluating and Applying Information**

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Review each part of the Alexander the Great lesson. Ask participants to comment on the discussion that took place in the first phase as the K and W columns were filled in. What were they thinking about? Were they becoming more interested or curious? In the second phase, did the KWL activity affect the way they read the article? In the final phase, did they feel like they had learned from the article, and were they interested in finding out more about Alexander? Throughout the discussion, focus on what they were thinking as the lesson progressed.

Explain that the quality of classroom teaching and learning depends on how well prepared the lesson was. Tell participants that next they will be involved in the lesson-planning process. For that purpose, they will work on a sample lesson on taxes. You may say: *Each of you will receive a copy of the text "Taxes: The Price that Should Be Paid for 'Civilized Society'?" [Appendix 4-B] and this will be the topic for your lesson plan.* Break the participants into small

groups of four to six. Tell them to read the article then brainstorm what they would do in each of the three lesson-plan phases. Have each group appoint a spokesperson to report back to the group when they have finished.

In closing, spend some time on discussion about planning thematic units. Lead participants to understand the links between thematic-unit planning and lesson planning. You may ask questions like these: *How do you consider a range of possible topics for a unit? Do you involve students when choosing topics within a unit? In what way? Do you keep in mind the goal of the unit while setting lesson-plan objectives? Are you aware of connections between unit-plans and lesson plans regarding assessment?*

### **Reviewing the Activity**

---

It is time to lead participants to review the procedures they have just experienced. First, let them recall what happened at the very beginning of Demonstration Activity 4. You may say: *Who will remind us what we did first? Why is it important to begin the topic on lesson planning with recalling your personal experience with this issue? Was it difficult for you to explain to your colleagues the lesson-plan format you used to follow? What was the point of letting you know your colleagues' lesson-plan formats?* Point out that it is helpful to start with old experience before learning new information.

Then, analyze the three-phase lesson plan. Ask them to explain what was done in each phase of the Alexander lesson. Explore the way the activities in each phase affected the way they think. Ask participants to compare their current lesson-planning format with the three-phase format: How are they alike and how are they different? How do they see the three-phase lesson plan fitting into their teaching?

Finally, stress that sometimes teachers miss the fact that a particular lesson is part of the bigger thematic unit. Explain why it is important to be aware of connection between unit plans and lesson plans.

### **Guided Practice**

---

Divide the whole group of participants into small groups according to subject areas. Give them 30 minutes to select a topic from their curricula and to plan an ordinary 45-minute lesson according to the three-phase lesson format. When they are finished, ask them to present their plans. Invite all participants to comment their work.



## VII. DEMONSTRATION ACTIVITY 5

### Designing Rubrics for Classroom-Based Assessment

#### Overview:

#### SUMMARY: Designing Rubrics for Classroom-Based Assessment

##### *Phase 1. Activate background knowledge*

- *Teacher* introduces discussion of relationship between lesson planning, teaching and classroom-based assessment.
- *Teacher* asks individuals to reflect on their experience with assessment and to write questions on that issue.
- *Participants* individually write their questions about assessment and challenges with it.
- *Volunteers* share their questions and display them on the flip chart.
- *Teacher* adds relevant questions to the list and gives each group a chart for recording types of questions.
- *Group Members* share questions first with a partner and then with the small group.
- *Groups* put generated questions into the chart categories.
- *Group Members* assign individual roles in the group as follows: leader, recorder, summarizer, timekeeper, whole-group speaker.
- *Teacher* raises discussion on the basis of written information.

##### *Phase 2. Constructing meaning*

- *Teacher* explains that participants will look at “rubrics” as a form of meaningful student assessment.
- *Teacher* asks individuals to make a list of priorities for making decision when buying a new sort of cookie.
- *Participants* share list of priorities with a partner, then with the small group.
- *Each group* determines which five criteria are most important to the group.
- *Volunteer* from each group puts criteria on flip chart.
- *Each group* selects four most-important criteria from the list.
- *Teacher* asks representatives to “vote.”
- *Teacher* sums up and announces five items with the most votes.
- *Teacher* gives each participant three sorts of cookies and asks them to evaluate the cookies on a four-point scale, according to selected criteria.
- *Participants* compute arithmetic mean for each cookie and select the best one.
- *Participants* discuss reasons for any differences in scoring.
- *Participants* discuss their understanding of the characteristics of rubrics.
- *Teacher* puts these on flip chart.
- *Teacher* refers to definition in Appendix 5-A and other examples of rubrics in Appendix 5-B.

***Phase 3. Evaluate and Apply***

- *Participants* look at authentic student essay in the Appendix 5-C.
- *Participants* individually assess the essay using the “Writing to Inform” rubric in the Appendix 5-D.
- *Participants* share their reasons for their scores with group members.
- *Teacher* refers back to initial questions participants had about assessment and discusses how the rubric answered those questions.

**Objectives: Participants will**

- Learn how to create rubrics for classroom-based assessment
- Be aware of the importance of students' involvement in the process of building criteria for assessment or, at least, of informing them what are they expected to know to get particular mark
- Experience and reflect upon the following module themes:
  - ✓ Collaboration
  - ✓ Communication
  - ✓ Problem Solving / Decision Making
  - ✓ Self-Assessment
  - ✓ Critical Thinking
  - Research
  - Leadership

**PHASE 1: Activating Background Knowledge**

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Begin the workshop by pointing out a tight relationship between lesson planning, teaching and classroom-based assessment. Then, stimulate discussion about assessment in order to get a picture of the present situation. Ask participants to take few minutes and write down questions they have concerning student assessment and assessment challenges they have faced.

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After the designated time, ask volunteers to share their experience with the whole group and to write them on a flip chart. If some relevant questions do not appear, you may add questions, such as:

- *What are some purposes of assessment? Who needs to know how students are doing? Why?*
- *What kind of assessment do you usually carry out? Do you prefer multiple-choice or open-ended questions? Why?*
- *Do you follow particular guidelines or standards for assessment given by the Ministry of Education or other authorities? What are they like?*
- *Have you tried any strategy to make the assessment process more objective? What was it?*
- *What kind of problems do you face with classroom-based assessment?*
- *Do you involve students' opinions in the process of assessment? In what way?*

Invite participants to share their questions first with a partner and then with a small group. Provide each group member with a copy of the chart below. The group will work together to put generated questions into the chart categories. Questions should be refined as they go along. Individual roles in each group should be self-assigned as follows: leader, recorder, summarizer, timekeeper, whole-group speaker. Give the group 10 minutes for this part of the activity.

**QUESTIONS ABOUT ASSESSMENT**

<b>Reasons / Purposes for assessment</b>	<b>Strategies for assessment</b>	<b>Challenges</b>	<b>Students' involvement</b>

Next, have participants work in pairs for 10 to 15 minutes to answer the questions. After that, invite them to write their answers below the questions on the flip chart. Then discuss their written information, with the 'whole group speaker' from each group sharing the group's ideas.

### **Constructing Meaning**

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The trainer says: *Now we will take a look at some ways to make student assessment more meaningful and that address your concerns. There are a number of ways this can be done. We will start by working with rubrics. (Put the term "Rubric" on a flip chart.) The meaning of this term will become clear as we go through the next activity.*

Ask the participants: *Are you fond of cookies?* Then, ask participants to imagine that they are to decide what sort of cookies to buy. You may say: *In next 2 minutes make a list of your individual priorities that guide you when you are deciding what sort of cookies to buy.* When time is up, ask them to share their responses with a partner. Next they should share their responses with a group. Ask each group to determine which five criteria are most important to the group.

Afterwards, invite a representative from each group to list the five criteria on a flip chart. Explain the next step: *Now, each group should select four criteria from the list which are, according to your group's opinion, of the greatest importance in making this decision.* After a few minutes, invite group representatives to vote. As they announce their choices, you can record the number of votes for each criterion. When all are finished, total the votes for each criterion and announce the five with the most votes. Then say: *These will be the criteria we will use for judging cookies.*

Tell participants: *All of you will now get three different cookies—assigned A, B and C—to evaluate on the basis of the five selected criteria. For each cookie, I will give you whatever information I have about the selected criteria (price, date of production, ingredients, etc.).*

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Please, keep notes in your notebooks. Additionally, you can taste each cookie. You will each evaluate each cookie using a four-point scale (1-bad, 2-good, 3-very good, 4-excellent). Do this by yourself; afterwards, you will have a chance to compare your response with your group.

To make sure that your instruction is clearly understood, it is useful to draw a chart like this and to ask participants to copy it in their notebooks:

criteria / cookies	Cookie A	Cookie B	Cookie C
• ingredients	4		
• price	3		
• date of production	5		
• taste	4		
• brand	4		
Mean	4		

1	2	3	4
bad	fair	good	excellent

Distribute cookies to all participants, one by one. Participants should individually evaluate the cookies and record ratings on the chart. Then, demonstrate on the sample chart how to compute the final mark, which means arithmetic mean. Ask them to compute all three and to find out which one has received the best mark. Next, ask them to share their responses with their group. Did they agree on the scores? What might have caused some differences?

Next ask the group: *Based on what we have done, what are some characteristics of a rubric?* As they brainstorm this concept, write their responses on a flip chart. Then show them the definition in Appendix 5-A. Also show them the other examples of rubrics in Appendix 5-B and discuss the criteria detailed in each rubric.

### **Evaluate and Apply**

---

Now ask each participant to look at the authentic student essay that appears in Appendix 5-C. Each participant should assess the essay according to the “Writing to Inform” rubric that appears in Appendix 5-D. Allow 20 minutes for this activity. When they have completed their individual assessment, ask them to share with their group their reasons for giving a particular mark. Ask: *Have you evaluated the essay in a similar way? What is the reason for any disagreement?* Allow 10 minutes for this. Invite a few participants to share their comments with the whole group, discussing how using a rubric in this way facilitated scoring the essay.

Finally, ask participants: *In what ways do rubrics address some of the questions and concerns you initially had about assessment?* If someone initiated a question about criteria for assessment during the Activate Background Knowledge activity, it could be your starting point for discussing this aspect of the assessment process. You may ask: *Do rubrics increase objectivity when assessing students’ essays? How?* Point out how important it is for students to know in advance what—and at what level—they need to achieve in order to earn a particular grade. Ask participants: *How useful is the feedback students receive when rubrics are used?*

### **Reviewing the Activity**

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Lead participants to review activities they have experienced during Demonstration Activity 5. As they recall that at first they had to share their present experiences with assessment, you may ask: *Why did I ask you to generate questions about assessment? Why did we list them in categories? Was it difficult for you to answer the questions?*

Discuss the activity of creating rubrics for selecting cookies and ask: *Do you find this “sweet” strategy as a useful way to understand how to design rubrics? Why or why not?* Then,

spend some time analyzing the process of creating rubrics. You may ask: *How skilled do you feel you could be designing rubrics for assignments in your subject area? How might you involve students in this process? How would having students involved in the design benefit them?*

Ask participants: *What did we do after the “cookie” activity? How did this activity help you to comprehend the concept of a rubric? How did having everyone work with the same student essay increase your understanding of rubrics?*

### **Guided Practice**

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After reviewing the Demonstration Activity, participants are prepared for the next activity. Ask them to sit in groups according to their subject areas. Give them this assignment: *Now, you will try to create rubrics for assessment of students' knowledge and understanding of the subject content that you teach. You will need to decide what type of activity the rubric will be used for. It could be a research paper, a test with open-ended questions, a presentation to the class, a project or something they create, or a debate. While creating your rubric, use your experience from the cookie activity and from evaluating the student essay to assist you. The rubrics you are going to produce should be adjusted for your subject and should contain elements that are specific to it. You may revert to lesson plans you developed during Demonstration Activity 4 and design a rubric for that particular lesson. Give participants 45 minutes to accomplish this assignment.*

After the designated time, invite volunteers to share their rubrics. Give them some time to reflect on several questions: *Do you think that rubrics improve the quality of assessment? How do they assist teachers? How do students benefit from them? What are some other things that you do in your classes that might be assessed with rubrics?* Show them the Rubric for Cooperative Learning in Appendix 5-B and ask: *How does using a rubric help with creating goals for instruction, defining objectives for lessons, and designing lesson plans?*

If time permits do the following with the material in Appendices 5-A through 5-G:

1. Ask the participants about other forms of assessment they use: *How might these compare with the typical assessments used by other educators? What indicators did you have that students were learning?*
2. Discuss self-assessment and peer assessment. Refer to the Rubric on Collaborative Learning, Self-Assessment, and Tam and Self-Evaluation in Appendix 5-B. Ask participants: *Would these be useful? How might they affect student learning?*
3. Discuss the usefulness of open-ended questions and multiple-choice questions. Refer them to Appendices 5-E and 5-F for guidelines for creating each of these types of assessments.
4. Provide information about the use of portfolios. Refer to Appendix 5-G for questions to consider when using portfolios for assessment. To encourage discussion, ask: *What kinds of artifacts might you include for the subjects you teach?*
5. Discuss classroom observation: *What are some things you observe about students when you are teaching? How might observation of students contribute to your overall assessment of a student? What are some ways you can record your observations?*

Then say: *Now that we have discussed various forms of assessment, we will create a set of guidelines for selecting and designing assessments. The entire group should brainstorm this. Put their ideas on a flip chart.*

If time allows, the group can debate the following question: *Should professors' salaries be determined on the basis of student outcomes?*

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**IX. G l o s s a r y o f T e r m s**

<b>Activating Background Knowledge</b>	First phase of framework for learning and teaching in which people recall their prior knowledge on a topic
<b>Constructing Meaning</b>	Second phase of framework for learning and teaching in which people construct meaning from new information
<b>Evaluating and Applying Information</b>	Third phase of framework for learning and teaching in which people think over what they have learned, re-examine and evaluate new information
<b>Discussion Web</b>	A cooperative-learning strategy that uses a graphic organizer for managing discussion on a binary question
<b>Debate</b>	A cooperative-learning strategy that enables people to argue ideas with each other, according to formal or informal rules
<b>Lesson-Plan Format</b>	An outline of main aspects that should be considered while planning a lesson
<b>Assessment</b>	A system of checking and evaluating students' achievement
<b>Rubrics</b>	Explicit criteria that serve as a basis for assigning marks to students' products or performances

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## X. APPENDIX

### Appendix 1-A

Resource: *INA* (Macedonian weekly magazine), 23.12.2003, no. 14, p. 37 (about 350 words in Macedonian language).

#### **Nutrition and Heart Diseases**

Cardio-vascular diseases are the main causes for mortality in our country. Coronary diseases occur as a result of narrow coronary arteries that provide weak nurture of the heart muscle.

The most frequent causes of coronary diseases are: arteriosclerosis (fatty deposits on the walls of arteries), constitutional infirmity, or narrow arteries. There are two coronary diseases: angina pectoris (when arteries become narrow) and infarct (necrosis of a part of the heart muscle as a result of a weak blood flow through coronary arteries).

**Symptoms:** The patient usually suffers from pain behind the chest bone that sometimes expands toward the left arm and neck. The pain usually occurs after hard work, excitation, or exposure to low temperatures without a period of adaptation, or a combination of several factors. The patient is pale, frightened, and sweating.

**Nutrition:** Nutrition is the crucial factor that determines the level of damage in arteries. People who don't suffer from cardio-vascular diseases use food-stuff listed below:

- *Fish* rich with Omega-3. The risk for cardio-vascular diseases decreases by 30 to 50% by eating fish, 30 g. daily or several portions weekly.
- Nations that traditionally use *garlic* in their menu show the lowest rate of heart disease. Garlic contains about 15 antioxidants.
- *Nuts* are rich in fiber, monounsaturated fat, vitamin E, and selen(?), which protect arteries from damage caused by cholesterol. Because of high calorie value, the optimal daily dose is 30 to 50 g., depending on the individual's weight.

It is recommended that individuals eat fewer foods of animal origin, especially fats. These foods should be replaced in the diet with corn, fruits, and vegetables.

Many studies have shown that people who use quercetin(?) and flavonoides(?) in their nutrition have more protection from heart diseases than those who do not.

## Appendix 1-B

### Discussion Web

Classroom discussions are an important way of encouraging students to think. But sometimes teachers fail to provoke passionate discussions on relevant issues. In addition, often a few students may be willing to contribute while the rest of the class sits passively. To avoid teacher-dominated instruction or discussions monopolized by a few students, Donna Alvermann (1991) developed the *Discussion Web* strategy.

#### Description

Discussion Web is a classroom strategy that helps teachers involve all students in thinking critically on an issue. After reading, viewing, or listening, students work with a partner and use a graphic organizer to record their own ideas on an important question. They later share their ideas with another pair of students in a structured way. This strategy includes having students work in both pairs and quartiles; it allows them to share their ideas and to build communication skills.

#### Procedure

When using the Discussion Web strategy, a teacher would follow these steps:

1. Prepare students for discussion by activating relevant background knowledge.
2. Assign students to read the text from their textbooks or use another resource (reading an article, watching a video, listening to a lecture). Choose a selection that develops opposing viewpoints. It is helpful if students take notes during this phase.

3. Introduce the Discussion Web and a central question that goes to the heart of the concept that students are studying. Be sure the question is one that has two possible correct answers (see example).
4. Ask students to work in pairs to discuss their points of view on the central question. The partners should take turns writing down their reasons in two opposite columns. Remind students to write the strongest possible arguments on both sides.
5. Group each pair with another pair and ask them to work toward a consensus on the question. Have them compare the reasons listed on their Discussion Webs.
6. Ask the group of four to write a conclusion at the bottom of the Discussion Web. If the group does not reach total consensus (if one or more disagree with the group's conclusion), they should make note of this to share later.
7. Have each group decide which three reasons best support their conclusion and select a spokesperson to present to the whole class (this can take the form of debate, as recommended in Demonstration Activity 1 in this module).
8. It is also recommended that during a follow-up discussion or debate, students who have dissenting views be allowed to express their opinions (in a debate, they can be invited to join the other side). In addition, students benefit greatly from a follow-up exercise; each student "responds to the central question in writing and provides reasons for their conclusion" (Sturtevant & Linek, 2004, p. 135).

### **Benefits of this strategy**

The teacher can reach several objectives in an active-learning process by using a Discussion Web in the classroom:

- All students participate actively in discussion.
- The teacher encourages an atmosphere of collaborative inquiry.

- Students practice four language skills: reading, writing, speaking, and listening.
- Students think critically by evaluating both sides of an issue and are encouraged to process opposing evidence before asserting their viewpoints.
- Students have a visual representation of the thinking process they go through during the discussion.
- By working in pairs and in groups of four, students refine their thinking, acknowledge alternative ideas and develop cooperative learning skills.
- Students can get credit for good thinking.

### **Application and Illustration**

The strategy can work well in any class with appropriate modifications. For example, literature teachers might use the strategy to discuss whether a story character made a good or bad choice; a history teacher might use the strategy to discuss whether an historical figure made a good decision; and a mathematics teacher might use the strategy to help students to consider relevant and irrelevant information when solving story problems (in the mathematics case, the teacher will pose “relevant” and “irrelevant” instead of “yes” and “no” positions to an issue).

Figure 1 provides an illustration of a Discussion Web for the Industrial Revolution.

YES		NO
Machines now did most of the heavy work.		Workers received very low pay, and could barely make a living.
The Industrial Revolution provided jobs for many people, especially immigrants.		Mass-production work in a factory dehumanized the worker, who was just a cog in a machine.
More products were now affordable for the common people.	<b>Did the Industrial Revolution help working people?</b>	Working conditions were often unhealthy or dangerous.
The cost of living dropped, which helped working people.		Workers had to work long hours, with very little time off for their families.
Labor saving devices became available and were used in factories and homes.		Workers were no longer skilled laborers and could not look forward to owning their business.
Many people had a tough existence under an agricultural economy.		Workers had less control over their working conditions.
		Workers were crowded into cities and lived in tenements
	<b>Conclusions</b>	

Figure 1. Discussion Web for the Industrial Revolution (adapted from Alvermann, 1991).

## Appendix 1-C

### Debate

Students learn and remember best when they participate in the dialog about class topics. Teachers can choose debate as a productive classroom strategy when there is a topic that allows students to take different viewpoints.

#### Description

Debate is a learning strategy that enables students to create arguments and counter arguments, argue ideas with each other, and try to persuade opponents. One goal of debate is to encourage student-student interaction rather than student-teacher interaction. Debate can be used after reading a text, watching a video, or listening to a lecture.

The role of the teacher in this strategy is to prepare the students for the debate and to keep it on track once it begins. If necessary, teachers can ask questions to keep the debate moving smoothly. Teachers also should follow the debate with an activity, such as writing a summary, that will help students remember what they learned from it.

#### Procedure

When using Debate, teachers should follow these steps:

1. Select an issue and write a statement or question about which students can take positions. For example, such a statement might be, "It is beneficial to attend university after secondary school." Provide students with information on the issue through reading material, a video, or a lecture.
2. Ask students to consider at least two stands on the issue (a Discussion Web strategy can be used for this purpose).

3. Ask students to take a personal stand on the issue and to write arguments in support of their position.
4. Point out locations in the classroom where students will move according to their position on the issue. Students will join a group in this location of the room.
5. Ask students within the groups to review the reasons for their positions. The groups should also select a spokesperson.
6. Call for the debate by inviting the spokesperson from each group to present major reasons that support their view. Before starting, set rules for debating.
7. Encourage other group members to participate in the debate with extra arguments.
8. Allow students who have changed their minds by listening to arguments from other groups to join the group they now agree with.
9. Ask groups to summarize their positions, and ask one representative from each group to make a final statement.
10. Follow up by asking students to write a summary of their own position after the debate.

### **Advantages**

This strategy is valuable in several ways:

- It combines individual and group work.
- It enables students to make an in-depth exploration of a topic.
- Students listen carefully to others and learn to respect other people's viewpoints.
- Students use group processes to create arguments.
- Students learn to make decisions on the basis of well-constructed arguments.

- Being encouraged to change their minds publicly, students understand that thinking is continuous process that can lead to different conclusions. Changing opinions is natural process and does not indicate an unstable personality.
- Students learn to articulate their thoughts in ways that are meaningful and clear to others.
- By encouraging students to defend their opinions and beliefs in public, they understand that they are responsible for them.

### **Application and Illustration**

This strategy is applicable in all teaching subjects, especially in literature and social sciences. It doesn't work on topics that ask for exact knowledge (for example, you can't ask students to consider whether  $2 + 2 = 4$  or whether Paris is capital of France).

## Appendix 2-A

### RAFT Strategy

#### Description

RAFT addresses many teachers' concerns with students' ordinary, mundane writing. This tool stimulates students to learn how to infuse not only imagination, creativity and motivation into an authentic writing assignment, but also how to be an independent and critical learner. RAFT involves writing from a viewpoint other than that of student-as-test-taker, to an audience other than the teacher-as-examiner, and in a form other than a standard theme or written answers to questions.

#### Procedure

##### Phase 1. Activate Background Knowledge

- Display types of writing assignments and ask participants how teachers differ within each subject.
- Explain the differences between Conventional (Teacher A) and Authentic (Teacher B) writing assignments.

##### Phase 2. Constructing meaning

- Explain how RAFT directs attention to four key dimensions of writing assignments: Role, Audience, Form, and Topic.
- Describe how the RAFT dimensions contribute to authenticity.
- Explain a process for designing writing assignments using RAFT.

### **Phase 3. Evaluate and Apply**

- Have participants design an authentic writing assignment relative to infectious diseases as a topic.
- Have participants share and compare their assignments in pairs or small groups. Nominate a few participants to share their assignments with the entire group. Publicly debrief their process as well as their product.
- Have participants select a course topic they normally teach and design a conventional and an authentic writing assignment relative to the topic.
- Have participants share their assignments with pairs or in small groups. Nominate a few participants to share their assignments with the entire group. Publicly debrief their process as well as their product.
- Have participants copy their writing assignments on a separate paper, collect them, and assess them for workshop effectiveness.

### **Advantages**

With the RAFT tool, participants have the opportunity to be motivated and to learn independently not only the new but also the unfamiliar. During the RAFT process the participants are in different positions and assume different viewpoints on the topic. Sharing and comparing knowledge, thoughts, and experiences from the viewpoint of pedagogy and psychology is a very important aspect of the educational process.

### **Application and Illustration**

RAFT applies to all subjects, and all topics within subjects.

## Appendix 2-B

### Types of Writing Assignments

#### Geography

Teacher A asks students to research cities and other locations in Brazil and write reports that describe these places.

Teacher B asks students to pretend that they work for the Brazilian Office of Tourism and produce a brochure promoting cities and other locations in Brazil to potential tourists.

#### Technical Arts

Teacher A asks students to copy from the board steps to follow when operating a certain machine.

Teacher B asks students to pretend they work for a manufacturer and produce a training sheet with illustrations for entry-level workers to follow when operating a certain machine.

#### Mathematics

Teacher A asks students to display their mathematics homework. If they can not complete a problem, they should leave it blank and finish it later.

Teacher B asks students to display their mathematics homework. If they can not complete a problem, they must write about what they do not understand before being allowed to finish it later.

Appendix 2-C

Examples of RAFTed Assignments

Mathematics

Assignment: For your future reference, explain in your class notebook (a) at least two situations that call for each measure of central tendency (mean, median, mode) and (b) how you compute the measures.

<u>Role:</u> Student as self-learner <u>Audience:</u> Student in the future as self-learner	<u>Form:</u> Journal entry <u>Topic:</u> Measures of central tendency
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Social studies

Assignment: Select one role you will play relative to proposals to dam the Colorado River inside the Grand Canyon. Produce a brochure (for classroom display) that portrays your position.

<u>Role:</u> Park service officer, farmer, environmentalist, housing developer <u>Audience:</u> citizens, those concerned about water issues, those concerned about the outdoors, and classmates	<u>Form:</u> Brochure <u>Topic:</u> Resources in the U.S. West
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Science

Assignment: Select one element from the Table of Periodic Elements and compose a magazine advertisement promoting its value.

<u>Role:</u> element <u>Audience:</u> imagined chemical buyers	<u>Form:</u> magazine advertisement <u>Topic:</u> Table of Periodic Elements
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LEARNING IN THE CLASSROOM

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Literature

Assignment: You have witnessed what Hester Prynne experienced. Recount her experiences in either a poem, news account, sermon, or letter.

<u>Role:</u> unseen witness	<u>Form:</u> poem, news account, sermon, letter
<u>Audience:</u> varies according to form	<u>Topic:</u> Novel <i>The Scarlet Letter</i>

**Appendix 2-D**

Example of a Writing Assignment that Varies  
according to its Role, Audience, and Form

**Topic:**  
Chemistry, organic or non-organic reactions

<b>Role</b>	<b>Audience</b>	<b>Form</b>
<ul style="list-style-type: none"><li>• Chemistry scientist (or a scientist from a specific area of chemistry)</li><li>• Chemistry specialist in the areas of organic or non-organic reactions</li><li>• Journalist</li><li>• Business person</li></ul>	<ul style="list-style-type: none"><li>• Other scientists</li><li>• Students</li><li>• TV public</li></ul>	<ul style="list-style-type: none"><li>• Scientific book</li><li>• Report</li><li>• Instructional guide</li><li>• Memo</li></ul>

**Appendix 2-E**

**Possible Forms**

book jacket	news report
Brochure	notes
children's picture book	pamphlet
commercial/advertisement/promotional	picture dictionary
Diary	play
Directions	poem
Editorial	position paper
encyclopedia entry	poster/flier
Essay	PowerPoint presentation
Fable	review/critique
interview (write up)	script
Journal	sermon
Letter	speech
Lyrics	story
magazine article	storyboard
Memo	summary
mind map/concept map	translation into everyday language

**Appendix 2-F**

**Role-Definition Matrix**

What perspective would my role have on the writing assignment?

<u>Personality</u> How can I give my role some personality? Who am I, and what are some aspects of my character relative to the topic?	<u>Attitude</u> Why do I care about this particular topic? What are my feelings, beliefs, emotions, and concerns about the topic?	<u>Information</u> What do I know that I need to share in my writing about the topic? What resources do I need to examine carefully for my role?

## **Appendix 2-G**

### **Non-Infectious Diseases**

**Textbook – Health Education (Hygiene)**

#### **VI THE MOST COMMON DISEASES IN STUDENTS**

##### **6.1. Non-infectious diseases**

The most common illnesses of school-age children are listed according their visits to the doctor, diagnosis and other research conducted. Currently there are found many diseases that are characteristic for school-age children. With regard to the nature of these diseases, teachers and educators should have general knowledge, and when they see these symptoms, teachers should advise pupils to visit a doctor.

Aiming to help teachers, we will give some information for these diseases.

The most common diseases that affect school-age children are divided in two groups: non-infectious and infectious diseases.

##### **6.1. Non- Infectious Diseases**

Some of non-infectious diseases that appear in school-age children are:

###### **6:1.1 Malnutrition**

Food is necessary for all life functions, for growth and development of the body. Choosing a food is of great importance because health and working capabilities rely on it. That is why one

needs to know the specifics and nutritive ingredients of the food one eats and to pay attention to hygiene, even from early childhood. Food should be mixed, fresh, and clean, and should be taken at certain times and in certain amounts. The food itself should consist of all ingredients needed for growth and development, including fats, proteins, carbohydrates, vitamins, mineral salts and water.

Students affected by malnutrition get tired very quickly, can't concentrate, look pale, have no wish to do things, are delicate, with low biologic resistance and get ill very often.

Malnutrition disorders are classified in two groups:

- a) Disorders caused by low caloric consumption
- b) Disorders caused by lack of some specific ingredient, proteins, vitamins, etc.

Misbalanced nutrition appears when the body consumes unsatisfactory quantities of food, or when the quantity is satisfactory but the body doesn't allow it to be used efficiently.

In both cases, because of the lack in nutrition, the body starts to use its own reserves, which provokes biochemical disorders, resulting in functional and anatomical changes. In this way growth and body development stops and at the same time illnesses and disorders begin to appear.

If the body doesn't consume food with satisfactory quantities of essential proteins, then disorders of protein synthesis appear.

Decrease quantities results with pathological changes such as low weight, anemia, decreased immunity, slow healing of wounds, and a decrease in the quantity of hormones and enzymes.

### 6.1.2 Obesity

This appearance is noticed very often during adolescence. External and internal factors influence this situation.

**Internal factors** include: genetics, overeating and using mechanisms especially the metabolism of nutritional ingredients.

**External factors** include: the food and its characteristics, psychology, and social situations. Emotion and stress influence the appetite-regulating system. Influence of the family and the society are the cause for these emotions.

Obesity has a negative impact on adolescents. Because of their appearance they feel unlucky, become introverted, and skip physical activities and by doing so they make the situation even worse. This situation may cause chronic problems that can appear later.

Today, much importance is given to this problem by undertaking measures for its elimination, such as dieting, eating low caloric food with needed proteins and vitamins, and physical exercise. Parents and teachers have a very important role in this situation.

### 6.1.3 Rachitis/ rickets

This disease is caused by vitamin D deficiency or if everyday food lacks calcium and phosphorus. Vitamin D has a very important role in calcium and phosphorus metabolism in the blood. High calcium rate in the beginning is normal but afterwards it decreases. In this case the excretion of calcium and phosphorus is very high.

Pathological-anatomical basis of this disorder is a low capability of the body to strengthen the bones. In rachitis, bones have more organic than mineral components and that is why they are soft and flexible.

This disorder is more present in children of age 1 or 2 (**Fluoric rachitis**) or older children (**Late rachitis**). In children of age 6 to 14 **Renal rachitis** appears.

Signs of this illness are: softness of the bones of the top of the head, which in children appears in the fourth month of illness, and lack of ossification in the area of epiphysis and bones that are in the border between the bone and gristle of ribs.

Fig.61 Rachitis-forms of children's legs caused by vitamin D deficiency, which as a result of inadequate nutrition causes the illness called rickets (Rachitis).

During this disorder, besides the lack of ossification, mineralization and demineralization of bones as a result of decrease of the concentration of inorganic substances, there are also general disorders that affect organs and systems like the muscles, the nerve system, immune-biologic system, etc.

To stop this disorder, preventive measures should be undertaken even during the intrauterine life, when the pregnant women should consume food rich with calcium, phosphorus, proteins, and vitamin D.

#### 6.1.4 Scurvy

This is an old disease which occurs with bleeding in the skin, mouth, and pain in gluteus, etc.

Scurvy is caused by vitamin C deficiency (Ascorbic acid). It appears in people who live in closed dormitories and institutions, where the food mainly consists of milk, sugar and bread.

In newborns, it appears in the period of 6 to 15 months of age, usually during the spring when the fruits and vegetables are not available.

Signs of this illness are: fatigue, low physical and physiological energy, bleeding from the mouth, especially after washing teeth and during mastication of hard food, feeling thirsty, loose teeth, etc.

Often it's associated with the appearance of other malnutrition disorders. Resistance to infectious diseases is reduced, especially for influenza and tuberculosis.

### Appendix 3-A

Retrieved from the WWW: <http://www.probe.org/docs/humclon2.html>

April 29, 2004

#### Can Humans Be Cloned Like Sheep?

Dr. Ray Bohlin

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##### Why Is Cloning So Difficult and How Did They Do It?

The genetic material is the same in all cells of an organism (except the reproductive cells, sperm and egg, which have only half the full complement of chromosomes). However, differentiated cells (liver cells, stomach cells, muscle cells, etc.) are biochemically programmed to perform limited functions and all other functions are turned off. Most scientists felt that the reprogramming was next to impossible based on cloning attempts in frogs and mice.

So what did the scientists in Scotland do that was successful? Well, they took normal mammary cells from an adult ewe and starved them (i.e., denied them certain critical growth nutrients) in order to allow the cells to reach a dormant stage. This process of bringing the cells into dormancy apparently allows the cells' DNA to be deprogrammed. Apparently most if not all of the programming for specific functions of the mammary cells were turned off and the DNA made available for reprogramming. The starved mammary cells were then fused with an egg cell

that had its nucleus removed. The egg cell was then stimulated to begin cell division by an electric pulse. Proteins already in the egg cell somehow altered the DNA from the mammary cell to be renewed for cell division and embryological functions.

As might be expected, the process was inefficient. Out of 277 cell fusions, 29 began growing as embryos *in vitro* or in the petri dish. All 29 were implanted into 13 receptive ewes, yet only one became pregnant. As a result of these efforts, one lamb was born. This translates to a success rate of only 3.4%, and the success rate is even less (.36%), when you calculate using the 277 initial cell fusions attempted. In nature, on the other hand, somewhere between 33 and 50% of all fertilized eggs develop fully into newborns.

Altogether the procedure was rather non-technical, and no one is really sure why it worked. The experiments still need to be repeated. Previously, all attempts to clone mice from adult cells have failed. But clearly, an astounding breakthrough has been made. You can be sure that numerous labs around the world will be attempting to repeat these experiments and trying the technique on other mammalian species. Can this procedure be done with humans? Should we try it with humans? I'll be dealing with these questions later in this discussion.

### **Why Clone Anything?**

Before proceeding to deal with the question of human cloning, a more basic concern needs to be addressed. Some, for example, may be asking, "Why would anyone want to clone anything in the first place, but especially sheep?"

The purpose of these experiments was to find a more effective way to reproduce already genetically engineered sheep for production of pharmaceuticals. Sheep can be genetically engineered to produce a certain human protein or hormone in its milk. The human protein can then be harvested from the milk and sold on the market. This is accomplished by taking the human gene for the production of this protein or hormone and inserting it into an early sheep embryo. Hopefully the embryo will grow into a sheep that will produce the protein.

This is not a certainty, and while the process may improve, it will never be perfect. Mating the engineered sheep is also not foolproof because even mating with another genetically engineered sheep may result in lambs that have lost the inserted human gene and cannot produce the desired protein. Therefore, instead of trusting the somewhat unpredictable and time-consuming methods of normal animal husbandry to reproduce this genetic hybrid, cloning more directly assures that the engineered gene product will not be lost.

There may be other benefits to cloning technology. Reprogramming the nucleus of other cells, such as nerve cells, could lead to procedures to stimulate degenerating nerve cells to be replaced by newly growing nerve cells. Nerve cells in adults do not ordinarily regenerate or reproduce. This could have important implications for those suffering from Parkinson's and Alzheimer's.

If the process can actually be perfected to the extent that production costs are reduced and the quality of the eventual product is improved, then this would be a legitimate research goal. The simplicity of the technique, though still inefficient, makes this plausible. But there are still questions that need to be answered.

One critical question concerns the lifespan of Dolly. All cells have a built in senescence or death after so many cell divisions. Dolly began with a cell from a ewe that was already six years old. A normal lifespan for a ewe is around 11 years. Will Dolly live to see her seventh birthday? Actually most cell divisions are used up during embryological development. Dolly's cells may peter out even earlier. This is critical because a 10-year-old sheep is considered elderly, and lambing and wool production decline in sheep after their seventh year. My guess though is that since Dolly's genes were reprogrammed from mammary cell functions to embryological functions, that the senescence clock was also reset back to the beginning. I expect Dolly to live a normal lifespan.

It is also uncertain as to whether Dolly will be reproductively fertile. Frogs cloned from tadpole cells are usually sterile. It is possible that while Dolly is normal anatomically, the cloning process may somehow interfere with the proper development of the reproductive cells. If this were the case, there may be other problems not immediately detectable. This will be answered this summer when Dolly reaches sexual maturity.

### **Can We Clone Humans?**

While we have established that animal cloning may be permissible and even scientifically useful, what about cloning humans? First of all, is it feasible? Secondly, just because we can do it, should we? Should we even try?

At this point it is reasonable to assume that because the procedure works with sheep and possibly with cattle (the experiments with cattle are already underway), it should be perfectible with

humans. This does not mean, however, that there may not be unique barriers to cloning humans as opposed to cloning sheep.

Some suggest that by using the particular procedure developed by the researchers in Scotland, sheep may be easier to clone. The reason is that sheep embryos do not employ the DNA in the nucleus until after 3 to 4 cell divisions. This may give the egg cell sufficient time to reprogram the DNA from mammary cell functions to egg cell functions. Human and mouse cells employ the nuclear DNA after only the second cell division. This may be why similar experiments have not worked in mice. Therefore, human cells and mouse cells may not be capable of being cloned because of this difference.

If this barrier does indeed exist, it is not necessarily insurmountable. The news of a cloned sheep was surprising enough that no one, including me, is now going to step out on the same sawed-off limb and predict that it **can't** eventually work with humans. I mentioned earlier that the procedure is so startlingly non-technical that there are numerous laboratories around the world that could immediately begin their own cloning research program with a minimum of investment and expertise. While I fully expect that many labs will begin studies on cloning other mammalian species besides sheep, I'm not so sure about humans.

Many countries have already either completely banned experimentation in human cloning or at least imposed a temporary moratorium so that the ethical questions can be properly investigated before stepping ahead. Even the researchers in Scotland responsible for Dolly have plainly stated that they see no reason to pursue human cloning and are personally repulsed by the idea.

There are some in the scientific community, however, who feel that the ability to do something is reason enough to do it. But in this case, I believe that they are the minority. For example, molecular biologists imposed a moratorium of their own in the 70s when genetic technology was first being developed until critical questions could be answered. Also, while nuclear weapons have been produced for over 50 years, only two have been used and that was 52 years ago. Many are now being dismantled. These cases show us that human restraint, though rare, is possible.

So while it is reasonable to believe that humans can be cloned, and that someone, somewhere may try, the overall climate is so against it that I don't think we will see it announced anytime soon.

### **Why Clone Humans?**

Let's explore some of the reasons why people have suggested that human cloning is a worthwhile proposition and deal with some of the questions people are asking.

*There is much that can be learned about human embryonic development by researching human cloning.* While this is true, this is precisely the reasoning used by Nazi Germany to justify experimentation on Jews. Experiments were performed on exposure to cold, water, and other extreme conditions with human subjects, frequently to the point of death, because data on human subjects was deemed indispensable. Of course, we know now that animal models work just as well; consequently, there is no need to use human models to gain this type of data.

*Will humans be cloned for spare parts?* A few writers have suggested that some individuals may want to establish an embryonic clone to be frozen and put away. Then, in the event of a childhood disease requiring a transplant, the embryo can be thawed, implanted in a surrogate, and raised to a sufficient age for the spare organ to be harvested and transplanted. While this is certainly possible, I consider it very unlikely that these practices would be sanctioned by any government because it completely tosses aside the uniqueness of humanity and trashes the concept of human dignity. That doesn't mean, however, that someone won't try.

*Will human cloning be used to replace a dying infant or child?* This is certainly a possibility, but we need to ask if taking such a course of action is an appropriate way to deal with loss. Unrealistic expectations may be placed on a clone that would not be placed on a normally produced child. The cloned child may be the same genetically, but different in other respects. This could create more frustration than comfort.

*Will humans be cloned to provide children for otherwise childless couples?* This is the reason most often given for human cloning, yet the argument is unpersuasive when there are so many children that need adoption. Also, this devalues children to the level of a commodity. Also, if *in vitro* fertilization seems expensive at \$5,000-8,000 a try, cloning will be more so.

*Will human clones have souls?* In my mind, they will be no different than an identical twin or a baby that results from *in vitro* fertilization. How a single fertilized egg splits in two to become two individuals is a similar mystery, but it happens.

*Does cloning threaten genetic diversity?* Excessive cloning may indeed deplete the genetic diversity of an animal population, leaving the population susceptible to disease and other

disasters. But most biologists are aware of these problems, and I would not expect this to be a major concern unless cloning were the only means available to continue a species.

*If the technique is perfected in animals first, will this save the tragic loss of fetal life that resulted from the early human experimentation with in vitro fertilization? In vitro fertilization was perfected in humans before it was known how effective a procedure it would be. This resulted in many wasted human beings in the embryonic stages. The success rate is still only 10 to 20%. The success rate of normal fertilization and implantation is around 33 to 50%. While animal models will help, there will be unique aspects to human development that can only be known and overcome by direct human experimentation which does not respect the sanctity of human life.*

*Cloning provides a means for lesbians to have children as a couple. One supplies the nucleus and the other provides the egg. The egg does contain some unique genetic material in the mitochondria that are not contributed by sperm or nucleus. One cell from each partner is fused together to create a new individual, though all the nuclear genetic material comes from only one cell.*

*Are human clones unique individuals? Even identical twins manage to forge their own identity. The same would be true of clones. In fact, this may argue strongly against the usefulness of cloning since we can never reproduce all the life experiences that have molded a particular personality. The genes will be the same, but the environment and the spirit will not.*

All together, the prospect of animal cloning is potentially useful. But I wonder if the procedure is as perfectible as some hope. It may end up being an inefficient process to achieve the desired result. Human cloning is fraught with too many possible difficulties, from the waste of human

fetal life during research and development to the commercializing of human with far too little potential advantage to individuals and society.

**Appendix 4 – A**

**Alexander the Great**

or **Alexander III**, 356–323 B.C., king of Macedon, conqueror of most of Asia.

**Youth and Kingship**

The son of Philip II of Macedon and Olympias, he had Aristotle as his tutor and was given a classical education. Alexander had no part in the murder of his father, although he may have resented him because he neglected Olympias for another wife. He succeeded to the throne in 336 B.C. and immediately showed his talent for leadership by quieting the restive cities of Greece, then putting down uprisings in Thrace and Illyria. Thebes revolted on a false rumor that Alexander was dead. The young king rushed south and sacked the city, sparing only the temples and Pindar's house.

**Conquests**

Greece and the Balkan Peninsula secured, Alexander then crossed (334) the Hellespont (now the Dardanelles) and, as head of an allied Greek army, undertook the war on Persia that his father had been planning. The march he had begun was to be one of the greatest in history. At the Granicus River (near the Hellespont) he met and defeated a Persian force and moved on to take Miletus and Halicarnassus. For the first time Persia faced a united Greece, and Alexander saw himself as the spreader of Panhellenic ideals. Having taken

most of Asia Minor, he entered (333) N Syria and there in the battle of Issus met and routed the hosts of Darius III of Persia, who fled before him.

Alexander, triumphant, now envisioned conquest of the whole of the Persian Empire. It took him nearly a year to reduce Tyre and Gaza, and in 332, in full command of Syria, he entered Egypt. There he met no resistance. When he went to the oasis of Amon he was acknowledged as the son of Amon-Ra, and this may have contributed to a conviction of his own divinity. In the winter he founded Alexandria, perhaps the greatest monument to his name, and in the spring of 331 he returned to Syria, then went to Mesopotamia where he met Darius again in the battle of Guagamela. The battle was hard, but Alexander was victorious. He marched S to Babylon, then went to Susa and on to Persepolis, where he burned the palaces of the Persians and looted the city.

He was now the visible ruler of the Persian Empire, pursuing the fugitive Darius to Ecbatana, which submitted in 330, and on to Bactria. There the satrap Bessus, a cousin of Darius, had the Persian king murdered and declared himself king. Alexander went on through Bactria and captured and executed Bessus. He was now in the regions beyond the Oxus River (the present-day Amu Darya), and his men were beginning to show dissatisfaction. In 330 a conspiracy against Alexander was said to implicate the son of one of his generals, Parmenion; Alexander not only executed the son but also put the innocent Parmenion to death. This act and other instances of his harshness further alienated the soldiers, who disliked Alexander's assuming Persian dress and the manner of a despot.

Nevertheless Alexander conquered all of Bactria and Sogdiana after hard fighting and then went on from what is today Afghanistan into N India. Some of the princes there received

him favorably, but at the Hydaspes (the present-day Jhelum River) he met and defeated an army under Porus. He overran the Punjab, but there his men would go no farther. He had built a fleet, and after going down the Indus to its delta, he sent Nearchus with the fleet to take it across the unknown route to the head of the Persian Gulf, a daring undertaking. He himself led his men through the desert regions of modern Baluchistan, S Afghanistan, and S Iran. The march, accomplished with great suffering, finally ended at Susa in 324.

### **Discord and Death**

At Susa Alexander found that many of the officials he had chosen to govern the conquered lands had indulged in corruption and misrule. Meanwhile certain antagonisms had developed against Alexander; in Greece, for instance, many decried his execution of Aristotle's nephew, the historian Callisthenes, and the Greek cities resented his request that they treat him as a god. Alexander's Macedonian officers balked at his attempt to force them to intermarry with the Persians (he had himself married Roxana, a Bactrian princess, as one of his several wives), and they resisted his Eastern ways and his vision of an empire governed by tolerance. There was a mutiny, but it was put down. In 323, Alexander was planning a voyage by sea around Arabia when he caught a fever and died at 33. After his death his generals fell to quarreling about dividing the rule (see Diadochi). His only son was Alexander Aegus, born to Roxana after Alexander's death and destined for a short and pitiful life.

### **Legacy**

Whether or not Alexander had plans for a world empire cannot be determined. He had accomplished greater conquests than any before him, but he did not have time to mold the government of the lands he had taken. Incontestably, he was one of the greatest generals of all time and one of the most powerful personalities of antiquity. He influenced the spread of Hellenism throughout the Middle East and into Asia, establishing city-states modeled on Greek institutions that flourished long after his death. There are many legends about him, e.g., his feats on his horse Bucephalus and his cutting of the Gordian knot. The famous Greek sculptor Lysippus did several studies of Alexander.

### **Bibliography**

Arrian and Plutarch wrote biographies of him in ancient times, and the literature of the Middle Ages romanticized his life. See also study by D. W. Engels (1978); modern biographies by C. B. Welles (1970), R. L. Fox (1974), N. G. L. Hammond (1981), and A. B. Bosworth (1989).

<http://www.bartleby.com/65/al/AlexGreat.html>

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**Appendix 4-B**

**Taxes: A Price to Pay for a “Civilized Society”**

“We pay taxes in order to create a civilized society”

(Statement on the Federal Tax building, Washington D.C.)

The Governments claim that taxes are displeasing yet necessary- a price one has to pay for a “civilized society”. Whether you agree or disagree with this opinion, the fact that they are too high remains obvious.

Taxes can be divided into two categories: direct and indirect taxes. The profit tax, the corporate income tax and the property tax are *direct* tax examples. The profit tax is probably the most disturbing one of all. This is especially the case in countries where profit tax is progressive- the more one earns, the higher the tax rate is. The critics remark that progressive taxes are a punishment for the hard work and success.

*OECD Observer*, a booklet published by the Organization for Economic Cooperation and Development states that in addition to the taxes one pays to the central governments, “those with profit might be required to pay a municipal, regional, district or state profit tax in addition to the profit tax paid to the central government. This is the case with Belgium, Ireland, Japan, Canada, Korea, the Scandinavian countries, United States of America, Switzerland and Spain. “

The income tax, the spirits and tobacco tax and the duty are *indirect* taxes. They are not as apparent as the direct taxes but still can exist as financial burden, especially to the indigent. The writer Giale Gosh for the Indian magazine *Frontline*, argues that the claim of majority of taxes in India being paid by the middle and high-class tax payers is misleading. Gosh says: "The profit raised by the Government for each Indian state through indirect taxes is 95% of the overall profit tax...It seems that contrary to the wealthy ones, the impoverished are those who contribute greater part of their profit to pay taxes". The discrimination is obviously a result of the mass consumption goods high taxes such as the soap and food.

What exactly do the governments do with the money they collect?

**Where do the money go?**

It is acknowledged that governments invest substantial sum of money in order to function well and provide necessary services. For example, in France every fourth individual is a public sector employee. The public sector includes teachers, postal workers, employees in museums and hospitals, in police and other civil servants. Taxes are necessary in order to pay salaries. Also, owing to the taxes we have roads, schools and hospitals and thus compensate for services such as: refuse disposal and mail delivery.

Military provisions are still a valid reason for introducing tax. Profit tax was first imposed on rich British in order to finance the war against France in 1799. However, during the Second

World War, the British government requested profit tax to be paid by the working class too. Today, even during peace time, a lot of money is required in order to “grease” a nation’s military machinery. According to the analysis of the Peace Research International Institute in Stockholm, the world military expenses in year 2000 were approximately 712 billion Euro.

### **Social engineering**

Taxes serve as instruments for “social engineering”- a way to motivate or distract people from action. For example, excessive drinking should be decreased by the alcohol tax. In many countries, 35% of the retail beer price is intended for tax purposes.

Tobacco also is submitted to high taxes. In South Africa, 45%-50% per cigarette pack is submitted to tax. However, the government is not always driven by selfish reasons when imposes taxes like this. As Kenneth Warner remarks for the *Foreign Policy* magazine, the tobacco industry is “a great economic power, delivering an annual profit of hundreds million dollars of sales money, and a billion dollars of tax money”.

A remarkable example of a social engineering was noted at the beginning of the 20<sup>th</sup> century. The law makers in United States of America explored a way to stop the creation of rich family dynasties. How? By imposing a heritage tax. When a rich man dies, the taxes take a huge part of the person’s acquired wealth. The authors of the proposal say that this tax “diverts the finances

from family and aristocrat society circles to civic and democratic circles". Maybe so, however the rich tax payers have invented million strategies to soften the impact of the tax.

Taxes continue to be used in order to finance various social programs, such as the programs related to the environment. *The Environmental Magazine* informs: "Nine west-European countries recently imposed taxes on environment protection mainly to reduce air pollution". The progressive profit taxes, previously mentioned, are another attempt for social engineering; the objective is to reduce the gap between the rich and the poor. Some governments allow tax reduction for those donating money to charities or to married couples with children.

### Why is it so complicated?

Whenever a new tax is imposed, the law makers try to seal all potential holes in the law. Do not forget: We are talking about a huge sum of money. What is the result? The tax laws are usually very complex and filled with expert terminology. An article in the *Time* magazine explains that the complexity of the United States of America tax legislation "lies in the definition of profit", i.e. determining all that is submitted to taxation. Further complication emerge due to the endless regulations "which allow various reductions and tax deduction". However United States of America is not the only one with complicated tax legislation. One recent publication of the tax legislation of the United Kingdom contained 9.521 pages in ten volumes.

The Tax Policy Research Service under the Michigan University informs: "Every year the United States of America tax payers spend around 3 billion hours filling out profit tax forms...The overall amount of time and money spent by the United States of America tax payers (while filling out tax forms) is 100 billion dollars per year, or somewhere about 10% of the collected tax. A large number of these expenses as a result of respecting the law, are due to the impressing complexity of the Law on profit tax." Ruben, already mentioned in the first of the series of this type of articles, says: "First I have tried to calculate the tax by myself, but it was time-consuming and often I felt I was paying more than necessary. That is the reason why today I have a book-keeper to calculate my taxes".

#### **Paying, evading and concealing taxes**

Majority of people at least half-heartedly will accept the benefits the society has from taxes. The Chief of the British Tax Service once explained: "No one enjoys paying profit tax, but a very small number of people will argue that we will be better off without it". Some would estimate that 90% of the tax payers in the United States of America pay taxes. One tax area expert argues: "A great part of the tax evasion is due to the difficulties regarding the law itself, rather than the intentional concealment."

Still, a lot of people identify ways to evade some tax payment. For example, consider the *U.S. News & World Report* article regarding taxes paid by the corporations: "A lot of companies

legally evade paying taxes- and sometimes completely ignore them- through tax reduction and modifications of the account books.”.

Providing an example of such cunning affair, the article further states: “A United States of America corporation establishes a company in a foreign country with a very favorable taxation system. Then, in the United States of America the company is placed under the foreign company’s ownership”. Thus, the company is not committed to pay the taxes in USA- which could be up to 35%- even though “the home office can be nothing more then just an archive room and a mailbox.”

Then there are examples of total concealment of taxes. In some countries tax concealment is considered to be a “state sport activity”. According to a research in the United States of America, only 58% of males of 25 to 29 years of age considered it inappropriate to account for the profit partially. Those conducting the research acknowledge that :” The report did not exactly give high marks on our society moral and ethical behavior”. It is estimated that around 35% of the tax payers in Mexico conceal tax.

Generally, people acknowledge the necessity of taxes and do not object to paying their share. However, the famous words of Caesar Tiberius still stand: “A good shepherd should shear and not skin his flock”. What would be one’s attitude towards paying taxes if one appears as a victim of an unjust and too- complex system?

Source: “ *Taxes: The Price that Should be Paid for ‘Civilized Society’?*”

Resource: *Awake!* 8 March 2004, pp 5-8 ( Macedonian language version available; for English version consult : *Awake!*, c/o Watchtower, Wallkill, NY 12589)

## Appendix 5-A

### Defining a Rubric

What is a rubric? It can be a guide for critiquing the effectiveness of media projects and for planning project designs, a tool for assessment used by teachers and students, and a process of establishing the essential goals and assessment criteria of multimedia projects in your class.

A rubric is a set of categories which define and describe the important components of the work being completed, critiqued, or assessed. Each category contains a gradation of levels of completion or competence with a score assigned to each level and a clear description of what criteria need to be met to attain the score at each level.

As an assessment tool, rubrics allow for complex critiques of multimedia projects, presentations, written reports, and other classroom work. Since the criteria for assessment is clearly defined, teachers and students share a common understanding of the project goals and criteria, and the various levels of completing the defined criteria. Rubrics also allow for various modes of assessment. Using the rubric, teachers can assess projects, student groups, or individual students; and student can use the rubric for self-assessment as individuals or in groups, and also for peer assessment.

Rubrics can also be used to critique current media productions, existing web pages, advertisements, etc. by students and teachers trying to develop greater media literacy. By breaking down the media components into different categories and defining various levels of

competency in each category, students will have a structure for uncovering and analyzing the various components of the media. They will also have a guide for creating their own media designs and a tool assessing the effectiveness of their projects as they design, review, and revise their projects.

While using an existing rubric for assessing, critiquing, and planning media projects may be quite appropriate, there are additional benefits to creating a rubric with the class. Students will not only understand, but be actively engaged in the process of determining the criteria used for their assessment. It is also a great opportunity for a discussion of what makes for effective and interesting media projects and for the creation of a collaborative, student directed set of essential criteria. And finally, since multimedia projects are usually integrated into an on-going subject-based curriculum, the standard for "what makes a good one" may need to be adapted to fit the individual set of goals of each project.

Retrieved 4/11/04 from: <http://pblmm.k12.ca.us/PBLGuide/ThoughtPieces/Rubric.html>

Appendix 5-B

Additional Rubrics for Classroom Use

Example 1. Collaboration Rubric

Name \_\_\_\_\_

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
<b>Contributes</b>					
<b>Researches and Gathers Information</b>	Does not collect any information that relates to the topic.	Collects very little information—some relates to the topic.	Collects some basic information—most relates to the topic.	Collects a great deal of information—all relates to the topic.	
<b>Shares Information</b>	Does not relay any information to teammates.	Relays very little information—some relates to the topic.	Relays some basic information—most relates to the topic.	Relays a great deal of information—all relates to the topic.	
<b>Punctuality</b>	Does not hand in any assignments.	Hands in most assignments late.	Hands in most assignments on time.	Hands in all assignments on time.	
<b>Takes Responsibility</b>					
<b>Fulfills Team Role's Duties</b>	Does not perform any duties of assigned team role.	Performs very little duties.	Performs nearly all duties.	Performs all duties of assigned team role.	
<b>Participates in Conference</b>	Does not speak during the conference.	Either gives too little information or information which is irrelevant to topic.	Offers some information—most is relevant.	Offers a fair amount of important information—all is relevant.	
<b>Shares Equally</b>	Always relies on others to	Rarely does the assigned	Usually does the assigned work—	Always does the assigned	

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	do the work.	work—often needs reminding.	rarely needs reminding.	work without having to be reminded.	
<b>Values Others' Viewpoints</b>					
<b>Listens to Other Teammates</b>	Is always talking—never allows anyone else to speak.	Usually doing most of the talking—rarely allows others to speak.	Listens, but sometimes talks too much.	Listens and speaks a fair amount.	
<b>Cooperates with Teammates</b>	Usually argues with teammates.	Sometimes argues.	Rarely argues.	Never argues with teammates.	
<b>Makes Fair Decisions</b>	Usually wants to have things their way.	Often sides with friends instead of considering all views.	Usually considers all views.	Always helps team to reach a fair decision.	
				<b>Total</b>	

Retrieved & adapted 4/10/94 from:  
<http://edweb.sdsu.edu/triton/tidepoolunit/Rubrics/collrubric.html>

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**Example 2 – Self-Assessment Rubric**  
**How Well Did We Work Together?**

Name \_\_\_\_\_ Date \_\_\_\_\_

1. I shared what I learned.

Not at all					Very much
1	2	3	4	5	

2. I felt that my partners listened to me.

Not at all					Very much
1	2	3	4	5	

3. I listened when my partners shared.

Not at all					Very much
1	2	3	4	5	

4. I asked questions of my partners.

Not at all					Very much
1	2	3	4	5	

5. I felt that our group worked well because:

-----  
-----

6. Next time we can be more effective if we:

-----  
-----

**Example 3**

**Team and Self-Evaluation for Group Projects**

Name \_\_\_\_\_ Date \_\_\_\_\_

1. What has been your contribution to the project so far?
2. Who has done the most work in your group so far?
3. Are there any problems that your group needs to work on?
4. Do you think you will need my help? Explain.
5. How much time does your group spend working on the project each day? Does your group use its time wisely? Explain.
6. Based on your view of everyone's work so far, what grade would you assign your group? Why?
7. What grade would you assign yourself? Why?

Source: Bird, Lois Bridges, Kenneth Goodman, and Yetta M. Goodman. *The Whole Language Catalog*. Macmillan/McGraw-Hill (1994).

**Appendix 5-C**

**Student Essay  
DAYS OF SPRING - DAYS OF ECOLOGY**

**Protect the nature!**

“The Nature never forgives”- wise saying that is worth for respect. The Nature is source of life. It is part of all of us. The living Nature - that is all of us. That is why it asks to be respected, nourished, taken care of.

Today, we are witnesses for the condition of our environment. The term Ecology starts to be more exploited. Why? Because the Ecology as a science and as a concrete action is appearing spontaneously and is conditioned from the deterioration of the picture of the space we are living in.

Our environment, that is part of us and place we should feel beautiful inside, looks more and more on an insipid arranged theater scene, where currently an “ecological drama” is going on, with a good predisposition to be turned to a tragedy. At the same time, “the Audience” can be assured on the spot, how cruel can be the Nature while implementing its rules, expensive valuing its longtime destruction.

We, the inhabitants of the planet Earth, are participants in the bad directed play, without willing to be part of it. At the same time, we are observers too. Unfortunately, we have to admit we are indirect and direct actors, some of us with bigger role, some with smaller and some with a role of polluters of our dear biosphere. In that division of roles, there are almost no positive ones. On the other side, the places where the “scene” is taking action are countless. The attack on what

was in the past called environment is very obvious on the fields, in the mountains, in the towns and the villages. And the air and water are not exempt too.

There are doses “spiced” with toxins flying in the air around us. Destroyed ozone layer from the Freon, that is releasing chlorine in contact with the ultraviolet rays and resolve the ozone layer, forbidden dumps all around, animals and plants in extinction, low quality water, green areas left without care, food with suspicious ingredients, full with pesticides, additives, conservancies and concentrates, that only look nice, but dangerous for our health.

And, while waiting for the “curtain” to descent, the ugly scenes that are interlaced among each other with no specific order are continuing interminable.

Is it possible that we are so remorseless with ourselves, with our Nature? Our country, destroyed with centuries from alien and now from our own oppressors.

### **NATURE! WILL YOU FORGIVE US?**

#### *Ecological section*

Students from ASUC “Boro Petrusevski”

(School newsletter “Ogledalo”)

Appendix 5-D

<b>Writing to Inform</b>				
<p><i>A significant magazine article, brochure, pamphlet, advertisement, exhibit, multimedia presentation, Web page, or other informational piece designed to convey a particular message or set of messages, supported by detailed information in all key areas. The piece should include a significant amount of text, written in the student's own words, along with illustrations and other graphical material. The piece should be well organized. Message(s) should be clear, supported by plenty of examples and concrete detail.</i></p>				
<b>Content</b>	<p><b>4 (Exemplary)</b> The work is an excellent source of information on the topic. It provides a variety of supporting details and concrete examples-in all key areas.</p>	<p><b>3 (Proficient)</b> The work is a good source of information, but some information is missing in one major area or several minor areas. Supporting details or examples may be missing.</p>	<p><b>2 (Novice)</b> The work has basic information on the topic. Several key pieces of information are missing; the piece would benefit from more details and examples.</p>	<p><b>1 (Beginner)</b> The work needs much more information on the topic, with specific details and concrete examples in all key areas.</p>
<b>Thinking and Communication</b>	<p>The work conveys the author's deep understanding of all the material to the intended audience The central message(s) are clear and well supported.</p>	<p>The work conveys a good understanding of the material to the intended audience. The central message(s) are evident, but somewhat unclear.</p>	<p>The work conveys a basic understanding of the material, but has difficulty conveying the knowledge and/or may be unclear about the Intended audience. Central message(s) may be confusing.</p>	<p>The work needs to include more central messages and present them in a way that the audience will easily understand.</p>
<b>Organization and Mechanics</b>	<p>All ideas are in the author's own, well chosen words. Organizational devices such as paragraphs, sections, chapters, and transitions have been used effectively. With minor exceptions, grammar, punctuation, spelling, and punctuation,</p>	<p>The work is written in the author's own words. There may be problems with organizational devices such as paragraphs, sections, chapters, and transitions. There may be several errors in grammar, punctuation, spelling, and/or</p>	<p>Language copied from another source needs to be replaced with the author s own words. Organizational devices such as paragraphs, sections, chapters, and transitions may be flawed or lacking. There may be numerous errors in grammar,</p>	<p>The written sections of the work need to, be greatly expanded and/or improved, using organizational devices such as paragraphs, sections, chapters, and transitions. Numerous corrections of errors in grammar,</p>

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<p><b>Illustration</b></p>	<p>spelling, and capitalization are correct.</p> <p>The work is well supported by carefully illustrated and useful tables, charts, diagrams, pictures and/or a model-all properly labeled and captioned.</p>	<p>capitalization.</p> <p>The work is supported by visuals, which need some improvement. There may be some mislabeling of graphics or design mistakes (e.g., a picture is confusing because it doesn't have a caption).</p>	<p>punctuation, spelling, and/or capitalization.</p> <p>The work is supported by limited use of visuals that may be unrelated or offer little support of the work. Graphics, tables, charts, diagrams, pictures, and/or a model may be mislabeled or irrelevant.</p>	<p>punctuation, spelling, and/or capitalization may be needed.</p> <p>The work needs to be illustrated in a way that will help the audience understand the content and core message(s).</p>
<p><b>Presentation</b></p>	<p>The work is well presented. The overall appearance is neat and professional.</p>	<p>The presentation is good. The overall appearance is generally neat, with minor flaws or missing elements.</p>	<p>The presentation and overall appearance of the work need to be improved in several important ways. For instance, the work might need to be neater or include additional elements.</p>	<p>The presentation of the piece needs to be greatly improved. The piece may need to be neater, better organized, and include all required elements.</p>

## Appendix 5-E

### Open-Ended Questions

#### 1. What are open-ended questions?

Open-ended questions focus on students' understanding, their ability to reason, and their ability to apply knowledge in less traditional contexts. Such questions can communicate levels of student achievement more clearly than multiple-choice items and give better guidance for instruction.

Open-ended questions are not multiple-choice questions without options. They are not questions that demand a single correct response. Nor are they questions where any response is acceptable. Rather, open-ended questions address the essential concepts, processes, and skills that go beyond the specifics of instruction to define a subject area. In general, they require complex thinking and yield multiple solutions. Open-ended questions require teachers or evaluators to interpret and use multiple criteria in evaluating responses. Such questions also require more from students than simply memorizing facts. (from Badger, Elizabeth & Thomas, Brenda (1992). Open-ended questions in reading. *Practical Assessment, Research & Evaluation*, 3(4). Retrieved July 5, 2003 from <http://edresearch.org/pare/getvn.asp?v=3&n=4> .)

#### 2. What are some steps to writing open-ended questions?

:

##### A. Examine your subject or topic.

1. Decide on concepts that could be assessed using open-ended questions.
2. Make a list of three or four ideas.
3. Plan the purpose and decide what part of your lesson would be best for using open-ended

questions.

**B) Decide what you want students to do.**

1. Consider many different possibilities to determine the best format to use. (Do you want students to compare, contrast, to describe, to evaluate, to predict, etc.?)
2. Decide if there is a match between the content and the expectations you have for students.

**C) Use the RAMPS procedure for constructing the prompt.**

1. Write a scenario for the prompt. (a description of the situation).
  - a. What is the student's **role**? (R)
  - b. Is there a particular **audience**? (A)
  - c. What is the context (setting) for the **problem**? (S) Other considerations (optional):
  - d. What is the problem?
  - e. What assumptions (if any) should be included?
2. Write the expectations related to students responding to the question.
  - a. Decide the **mode (or form) that students are to use (i.e. a letter, a plan, a summary, explanation, etc.)** (M)
  - b. **Decide the purpose (i.e. to evaluate, compare, explain, predict, etc.)** (P) Other considerations.
  - c. Make sure expectations are specific.
  - d. Include any specific content/concepts you want the student to explain.
  - e. Decide if students should include representations such as charts, diagrams, or pictures with their explanations.
  - f. Develop a scoring guide.

(retrieved 3/10/04 from <http://www.murraystate.edu/prism/kyprism/openrp1.htm#steps>)

### Examples of Open-Ended Questions

#### Analysis

Why do \_\_\_\_\_? Explain your answer.

What are some possible explanations as to why \_\_\_\_\_?

Would other \_\_\_\_\_ be affected by \_\_\_\_\_? Why or why not?

How does \_\_\_\_\_? Support your answer (with information from reading, from the chart etc.).

Tell what \_\_\_\_\_ did wrong. How would you design a better way?

Draw a describe \_\_\_\_\_. Explain why \_\_\_\_\_.

Explain several reasons why \_\_\_\_\_.

Explain how \_\_\_\_\_.

Describe several ways \_\_\_\_\_.

Describe several things we can do to \_\_\_\_\_.

Discuss (describe) \_\_\_\_\_. Explain how \_\_\_\_\_.

Explain how you arrived at your answer using pictures, words, equations. (Math)

What is the fewest number \_\_\_\_\_? (Math)

What is the most \_\_\_\_\_? (Math)

Estimate how many \_\_\_\_\_. Explain how you made your estimate. (Math)

Predict and describe \_\_\_\_\_. Support and defend your answer.

Discuss the likelihood that \_\_\_\_\_.

From the information on chart, what is true of \_\_\_\_\_?

List the property of \_\_\_\_\_. How are \_\_\_\_\_?

Show or explain the role of \_\_\_\_\_. (how \_\_\_\_\_).

Would everyone agree with \_\_\_\_\_? Why or why not?

### Comparison & Problem Solving

Suppose you want to \_\_\_\_\_. Make a \_\_\_\_\_ and \_\_\_\_\_.

Tell why you chose (included) each.

Suppose you were a \_\_\_\_\_. Tell how you \_\_\_\_\_. Explain why you \_\_\_\_\_.

If you had to \_\_\_\_\_, which \_\_\_\_\_ would you suggest.

Explain your answer.

If \_\_\_\_\_, how would \_\_\_\_\_ be affected. (why)?

Make a graph showing \_\_\_\_\_. (Math)

Would you rather have \_\_\_\_\_ or \_\_\_\_\_? Tell why. (Math)

Discuss the pros and cons of \_\_\_\_\_.

Discuss differences and similarities that exist between \_\_\_\_\_. Include advantages and disadvantages.

Think of a problem that \_\_\_\_\_. Describe the problem and give a solution.

Discuss the advantages and disadvantages of \_\_\_\_\_.

What could be done about \_\_\_\_\_? Give reasons for your answer.

Compare the \_\_\_\_\_. Tell which \_\_\_\_\_ would be most likely and which \_\_\_\_\_ would be least likely. Support your answer.

Tell what would happen if \_\_\_\_\_.

List the differences (similarities) in \_\_\_\_\_.

What are the advantages of \_\_\_\_\_? What are the disadvantages of \_\_\_\_\_? What would you do? Why?

**Evaluation**

Imagine you are \_\_\_\_\_ (in \_\_\_\_\_).

A. Based on what you know about \_\_\_\_\_, select (chose/decide) \_\_\_\_\_ and explain your selection (chose/decision).

B. Write an argument you would use to convince \_\_\_\_\_. Use information from your reading to support your argument.

Would you like to \_\_\_\_\_? Why or why not? Explain your answer giving examples from \_\_\_\_\_.

How do you think \_\_\_\_\_ feels about \_\_\_\_\_? Explain your answer.

Why do you think the \_\_\_\_\_? Give reasons for your answer (using examples from the reading).

Is the answer correct? Explain your answer. (Math)

## APPENDIX 5-F

### Guidelines for Writing Effective Multiple-Choice Test Items

1. Write items in clear and simple language, keeping vocabulary as simple as possible.
2. Base each item on a single central idea that is stated clearly and completely in the stem.
3. Use either a direct question or an incomplete statement for the stem.
4. Include in the stem words that would be repeated in all alternatives.
5. Avoid negative wording in the stem.
6. Avoid "window dressing" in the stem.
7. Avoid providing clues to the correct alternative.
8. Place alternatives at the end of an incomplete statement.
9. Write alternatives that are grammatically consistent with the stem and parallel to one another in form.
10. Use alternatives that are plausible to students who lack the knowledge and/or skills tested by the item.
11. Make alternatives independent and mutually exclusive.
12. Use alternatives that are approximately the same length.
13. Arrange alternatives in logical order, if one exists.
14. Avoid using "none of these" and "all of the above" as alternatives.
15. List alternatives either vertically or horizontally.
16. Verify that each item has one and only one correct answer.

From Kuhs, T.M., et al. (2001). *Put to the test: Tools and techniques for classroom assessment*. Portsmouth, NH: Heinemann.

## APPENDIX 5-G

### Getting Started with Portfolios

#### What is a portfolio?

A collection of a student's work such as reading, writing, and thinking. It is part of what can be called authentic assessment of learning.

They should not entirely replace traditional assessments, but should be considered as an important part of a comprehensive assessment program.

They are often used by other professionals, such as artists, photographers, architects and models. They are normally showcase portfolios, depicting an array of best work. Most, however, also have working portfolio, or a portfolio in process.

#### Portfolio Decision points:

What is its purpose (e.g. showcase, learning process; single course, one skill only)

Who will contribute?

How will you establish criterion?

What will you use as a portfolio

What might be included? (remember table of contents)

How should it be organized? Do students show work Sequentially? Topically? By difficulty level?

How/when will students review and add to their portfolios?

What self-evaluation format will be used?

How will you evaluate the portfolio? What criteria will you use?

How will portfolio goals be set? (conference, class discussion?)

Adapted from Goodman, K.S., Goodman, Y. M. , Bird, L.B. (1994). *The whole language catalog*. New York: Macmillan/McGraw-Hill

## XI. FOR LAST PAGE OF ALL MODULES

At the end of each day of the workshop, ask the following questions:

### Evaluation Questions for End of Demonstration Activities Each Day

1. What were the most valuable strategies that you learned today?
2. What new ideas did you learn about effective teaching?
3. What questions do you have about the strategies you learned today?

### Evaluation Questions for End of Entire Workshop

1. What in the workshop was most valuable to you?
2. What would have made this workshop more meaningful?
3. What will change in your teaching as a result of this workshop?
4. What was your overall impression of the workshop?  
  
1 2 3 4 5 (1 = little value — 5 = great value)
5. Suggest topics you would be interested in discussing in future workshops.
6. Please make any comments you would like on the workshop.





