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Document 10**Sample Pages from Fort Hare University, B. Prim. Ed. Program, Teacher-Learner Text, Umthamo, An Introduction to Technology Education, pp. 25–29**

These sample pages are taken from the Fort Hare University, B.Prim.Ed. Program (**see Document 9**).

Use this document to discuss the nature and place of school-based activities within the program.

Unit 5 - A Problem-Solving Project

The next activity is a project. It is the key activity for this umthamo. You and your pupils will work through the phases of a technological process as you solve the problem. This key activity is quite lengthy. We suggest that you break up the activity into sections. Plan to devote several periods, over a number of days, to complete this project.

Your pupils will go through the stages in the technological process by completing the following:

- Investigating a range of different types of holders
- Designing, making, and appraising a holder for pencils

We suggest that you encourage your pupils to work in groups and to carry out this task practically. Many schools do not have the proper equipment for technology education. Therefore, you will need to make some choices when you carry out this activity.

1. Encourage older children to work at home, and then to bring what they have made to school.
2. Encourage your pupils to bring whatever materials they can find in the local environment to school. They can then work on the “making” at school.
3. Buy some special tools and materials if your school has the funds. (Remember, however, no special tools or materials are needed.)

The activity begins with a short *story* that provides a context for the project. Then, there is a group *brainstorm* of possible solutions and some discussion. The next step is to *investigate* storage containers and holders. The groups then share ideas and begin to make a *plan* or draw a design. Next, they *make* an object (structure) from available materials. This structure should be able to hold or store pencils safely on a desk in the classroom. Finally, they comment on and compare the structures that they have made (*appraisal*).

Before you start, read through the suggested Key Activity two or three times to help you *plan* what you will do. Then, you can read how this problem-solving activity was conducted by Lukhanyo Konqobe in his multigrade class at Ngwevana. This will give you a picture of how this first technology project will work with your class.

Activity 6 – A Project (Key Activity)

The Story

Mrs. Bolosha is a Grade Two teacher. She has been teaching for 15 years in a village near Matatiele. She likes to set her pupils writing tasks. However, she finds that most of the children lose their pencils. As a result, they find it difficult to finish their work. This is very frustrating.

One day, she discovers that one of her pupils has got a holder for his pencils. It is a peanut butter jar, labeled with his name. Mrs. Bolosha finds it a very good idea and praises the boy. She encourages the rest of the children to do the same.

Her excitement doesn't last long. The jars are made of glass and are easily knocked off the desks. They shatter, and the broken glass is dangerous. Back to the old problem. Try to help Mrs. Bolosha solve her problem, please.

Brainstorming Ideas

Tell or read this story to your pupils. Then set them the task of thinking of designing something to help Mrs. Bolosha. Let them brainstorm ideas in their groups. Then let each group report back with the best idea.

As they report back, note each group's idea on the board. Get the children to explain which materials they plan on using. Discuss the

properties of different materials and different ways to join materials; for instance, cardboard and paper are easy to cut and join. Zinc or tin is hard to cut and join. Zinc will not tear. Wood can be nailed. Plastic can be joined with strong glue.

(This section may take nearly one period.)

Investigating

- First, the children need to examine several different types of holders. This kind of investigation is sometimes called a *survey*. You could ask your children to do this survey after school. You could suggest that they look at objects such as egg boxes, toothbrush holders, cutlery trays, and so on. They can look anywhere, in shops, at home, in offices, and so on. The teacher will need to give the children substantial guidance and encouragement.
- An alternative is to collect a variety of different holders and pictures of holders. Make sure that they are for different purposes and made of different materials. Then get your pupils to examine these holders and to compare them.
- When the children have investigated different holders, give them an opportunity to discuss, compare, and classify what they have seen.

(This section may take up to an entire period.)

Designing and Planning

- Tell your pupils to look carefully at a particular structure (for example, a basket, a Coke-bottle crate, an old cup, a can, a cutlery tray, or an egg box).
- Draw their attention to its strength, capacity, shape, and make-up. Point out that the designer chose the shape and the materials and made the object with a particular purpose in mind. Tell your pupils to comment on the good points of the design. (This will include its suitability for a particular task or job.)
- Remind your pupils of the story about Mrs. Bolosha's problem.
- Then tell your pupils that you want them to discuss and design a strong, safe, and attractive holder for pencils in the classroom. Tell them that you want everyone to think of an idea and to share it with their group members.

- Tell them to think about the materials that they could use to make their structure.
- Encourage the children to sketch while they are sharing their ideas. Tell the children to draw quickly as though they are writing rough notes. Tell them, "Just put your ideas down in the form of a quick clear drawing."

(This section will take another period.)

Making

- When the pupils are satisfied with their designs, they will begin to make their holders. Give them a range of materials: paper, used cardboard boxes, wire, empty cans, bamboo, clay, grass, string, wool, sticky-tape or glue, and scissors. You can encourage your pupils to bring objects easily available in their own environment.
- Tell the children that they can use grass, sticky-tape, glue, string, wool, or wire for joining.
- They must also consider safety and think carefully about their final design. They can then proceed to make their holders.

(This section will take another whole period or longer if they work at home.)

Showing and Appraising

When all the holders have been made, they can be displayed for viewing and discussion. Encourage positive comments. For example:

"This is good because...."

"We like this because...."

"This is a clever way to"

"I never thought of...."

"This looks very beautiful because...."

"We wonder if this could be improved by"

Later on, on the day that your pupils appraise their pencil holders, record the date and time in your journal, then write, "Technology Education - Key Activity."

Spend some time thinking about what happened when you tried this Key Activity with your learners: What have you learned? What surprised you? What were your pupils' comments?

Record your thoughts in your journal.

You will have a chance to share your experiences, and talk about the structures your learners have made, at the face-to-face session where this umthamo is concluded.

This was an example of a project that you could set your class. It demonstrated the technological process. It was an open-ended task because you asked your pupils to make up their own designs. You were not asking each group to make an identical structure. To carry out this project, your learners had to demonstrate their capabilities. It was, thus, an OBE.

Whenever you set your learners a task or activity, ask yourself if you would be prepared to carry out that activity yourself. Do not ask your children to do something that you aren't prepared to do yourself. We are sure that your pupils would be pleased if you also displayed your pencil holder with the other finished items. Do not worry if yours isn't as good as some of your pupils' holders. Think how proud they will feel!

In later imithamo, we will introduce you to some of the conventions that some technology educators use to set out technology tasks. We will also show you how you can formalize the appraisal aspect of the technology process.