MODULE 6.9

CURRICULUM AND INSTRUCTION: THE TEACHING OF TECHNOLOGY AND LIVELIHOOD EDUCATION

Teacher Induction Program

Teacher Education Council, Department of Education

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TEACHER INDUCTION PROGRAM

MODULE 6.9

Curriculum and Instruction: The Teaching of Technology and Livelihood Education

INTRODUCTION

This module is prepared for you teachers of *Edukasyong Pantahanan* at *Pangkabuhayan* (EPP), and Technology and Livelihood Education (TLE). This will serve as your guide in the teaching of the different components of EPP/TLE such as Industrial Arts, Home Economics, Computer and Entrepreneurship, and Agriculture and Fishery Arts. The objectives of each lesson in the component areas will serve as your gauge as to the teaching skills and knowledge you will hone upon completing this module. Preassessment and postassessment portions are included which deal with the topics that are covered.

The lessons are presented according to the major component areas. Each lesson is preceded by an introduction, followed by the lesson objectives. Selected texts or lessons perceived to be the most important tips for new teachers are included. Self-check questions and answer keys will guide you as you go through this module. Activities which will enhance the knowledge and skills you will gain from the text are provided in each lesson. You will assess your performance on the activities undertaken based on the comments on the activities. Important points to remember are given to summarize the skills and competencies for each EPP/TLE area. A postassessment portion will serve as your measure of how well you have learned the module.

This module also contains sample lesson plans in the various components of EPP/TLE.

OBJECTIVES

This module will guide the beginning teacher in EPP/TLE to:

1. Adopt the proper learning environment for EPP/TLE subject areas.
2. Demonstrate the skills in the preparation of the laboratory areas for the EPP/ TLE classes.
3. Discuss fully with the students the important competencies to be learned by the students in EPP/TLE under the 2002 Basic Education Curriculum.
4. Utilize the appropriate assessment strategy to evaluate learning outcomes in EPP/TLE.
5. Perform the evaluative process objectively in accordance with what is stated in the expected learning outcomes.
6. Demonstrate the importance of the teacher's creativity and flexibility in teaching EPP/TLE.
7. Determine EPP/TLE area sub-concepts that are teachable and applicable for the student's situational needs.
8. Utilize class schedules in the conduct of a laboratory class with meager resources, in terms of facilities, tools, and materials.

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PREASSESSMENT

Let us see how prepared you are to teach EPP/TLE. Below are questions that shall assess your preparedness. Choose the letter of the best answer. An answer key appears on page 4.

1. In what specific subject is EPP/TLE incorporated in the 2002 Basic Education Curriculum (BEC) of the Department of Education?
    a) Science
    b) Makabayan
    c) Filipino
    d) Mathematics
2. What will the EPP/TLE teacher do before conducting a laboratory class?
    a) set up the EPP/TLE laboratory room properly.
    b) clean the laboratory room.
    c) open the tool cabinet.
    d) switch on the electric current source.
3. Proper arrangement of furniture, tools and equipment in the EPP/TLE laboratory room is important. The best reason is it
    a) provides beauty in the laboratory room.
    b) provides space and ease in working.
    c) provides serenity and calmness.
    d) provides security and safety.
4. What is to be done in order to determine the supplies, tools, and equipment available in the EPP/TLE laboratory room?
    a) inspect tool cabinets.
    b) look for available equipment

c) inspect the supply shelves/cabinet.

d) make an inventory list of supplies, tools and equipment.

5. Under the 2002 BEC, how many component areas are there in EPP/ TLE?

   a) three areas

   b) four areas

   c) five areas

   d) six areas

6. How many areas are there in Home Economics under the 2002 BEC?

   a) three

   b) four

   c) five

   d) six

7. What should you do if the school has no provisions for a laboratory site for Agriculture and Fishery Arts?

   a) be flexible in teaching.

   b) conduct field trips.

   c) teach only limited skills.

   d) don't teach the area; instead, replace it with other areas of EPP/TLE.

8. What should you consider in teaching Agriculture and Fishery Arts with reference to the learners?

   a) teach according to what facilities are available in the school.

   b) strictly follow the BEC.

   c) be flexible considering the level of the learners.

   d) consider leniency in teaching.

9. What should you do as the teacher of computers when the computer units and the students have a ratio of 1:6?

    a) lecture to some students while others are on “hands on.”

    b) let some students go to the library.

    c) let some students do their homework in other subjects.

    d) make a rotational schedule of computer use among the students.

10. What should be done before going into actual entrepreneur activity?

    a) allocate the budget for capital.

    b) make a business proposal or feasibility study.

    c) look for a venue/room for the business.

    d) set up and obtain the merchandise and products for the business.

ANSWER KEY TO PREASSESSMENT

1. b.
2. a.
3. b.
4. d.
5. b.
6. d.
7. a.
8. c.
9. d.
10. b.

What does your score mean?

How much do you know? Refer to the score and its descriptive ratings.

9 – 10	Your rating is excellent! You have sufficient prior knowledge as an EPP/TLE teacher.
7 – 8	Your rating is good. You will perform well but you still have to learn more from this module.
6 or lower	Your rating is fair. You will need to study this module carefully; it will be better if you do this with a senior EPP/TLE teacher.

LESSON 1

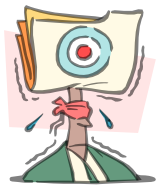
SETTING UP THE CLASSROOM FOR EPP/TLE

INTRODUCTION

Lesson 1 will provide you with the basic knowledge of the proper shop room arrangement so that the teaching-learning process will be effective. This will give you an orientation on the importance of preparing the shop room before the class starts. Furthermore this will provide you with a model shop layout both for the technology courses and for home economics, and opportunities to polish your skills in making an inventory of available shop tools, equipment, and supplies.

Setting up the shop room means getting the shop room ready for the conduct of shop classes. Getting the shop room ready is deemed very important before starting a laboratory class. Observations show that preparation of the laboratory shop room, tools, equipment, and materials directly affects the teaching-learning activity.

Try to reflect on the classroom situation during your schooldays. Were there aspects which you can improve? Every shop room must always be ready for the shop laboratory or activities. All EPP/ TLE areas must be provided with laboratory rooms except Agricultural and Fishery Arts which is to be done in an open area or field.



OBJECTIVES

After this lesson you shall be able to:

1. Demonstrate an understanding of the importance of setting up the classroom before a class starts.

2. Demonstrate the proper arrangement of a laboratory shop room.
3. Conduct an effective inventory of the shop tools, equipment and materials.
4. Show skill in the preparation of tools, equipment and supplies before the conduct of a laboratory shop.
5. Appreciate an ideal shop lay-out.

Here are guide questions for you to see whether the classroom is properly set up.

- Is the furniture such as the working tables and benches ready for the students' laboratory activity?
- Are the tools and equipment available and functional?
- Is the lighting and ventilation just right and sufficient?
- Are the material resources you need in teaching available such as electricity, water, and equipment?
- Is the shop room free from noise pollution?

SCQ 1.1

Why is a properly set-up shop room important?

SCQ 1.2

What are the steps you must take to prepare the shop room for the conduct of a shop work class?

In the succeeding two pages are samples of shop layouts. Figure 1 is the shop layout for Industrial Arts shop, and Figure 2 is the shop layout for Practice

House. The different furniture, equipment and benches are strategically located as well as the entrance and/ or exit doors.

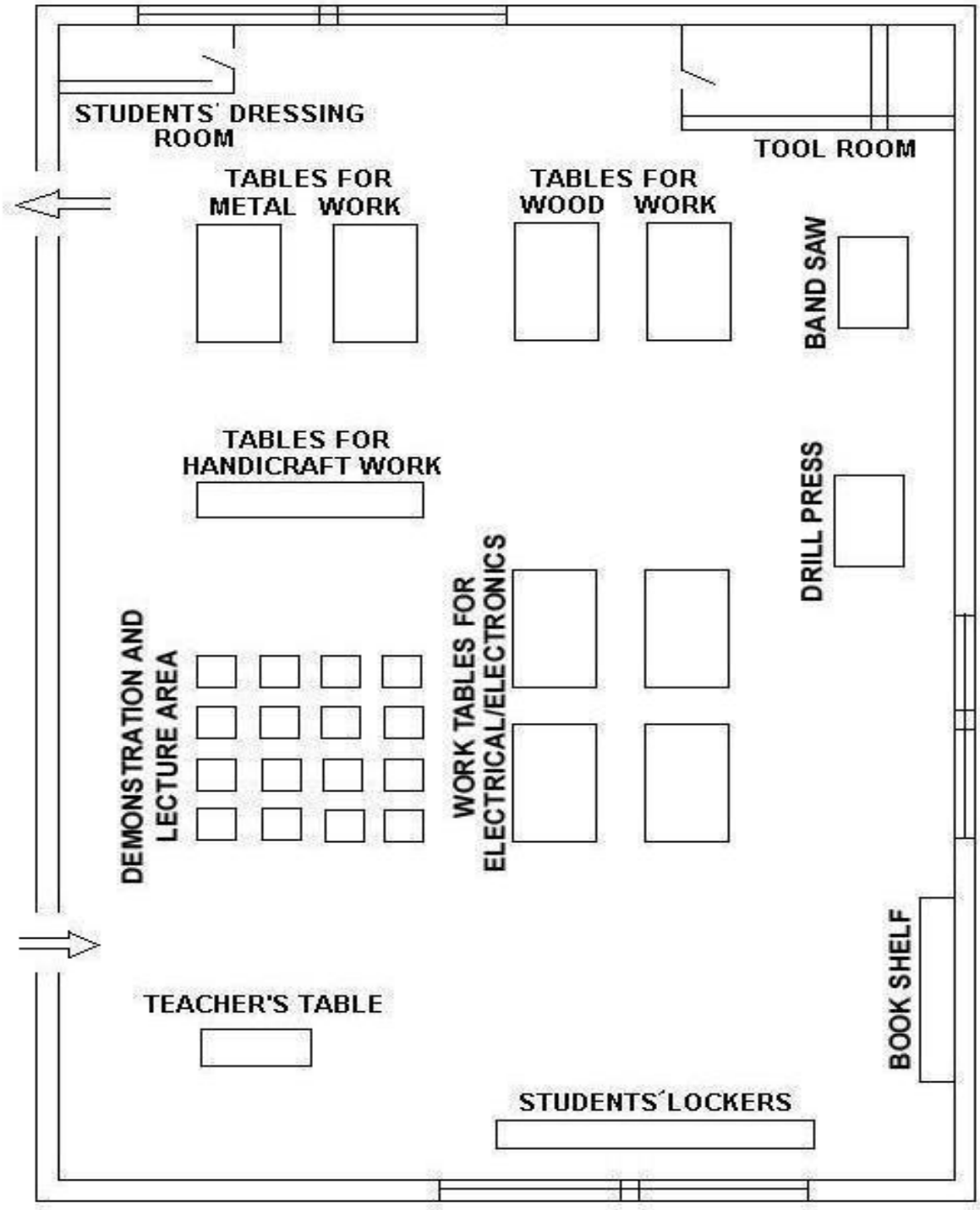


FIGURE 1
SAMPLE LAYOUT OF INDUSTRIAL ARTS GENERAL SHOP

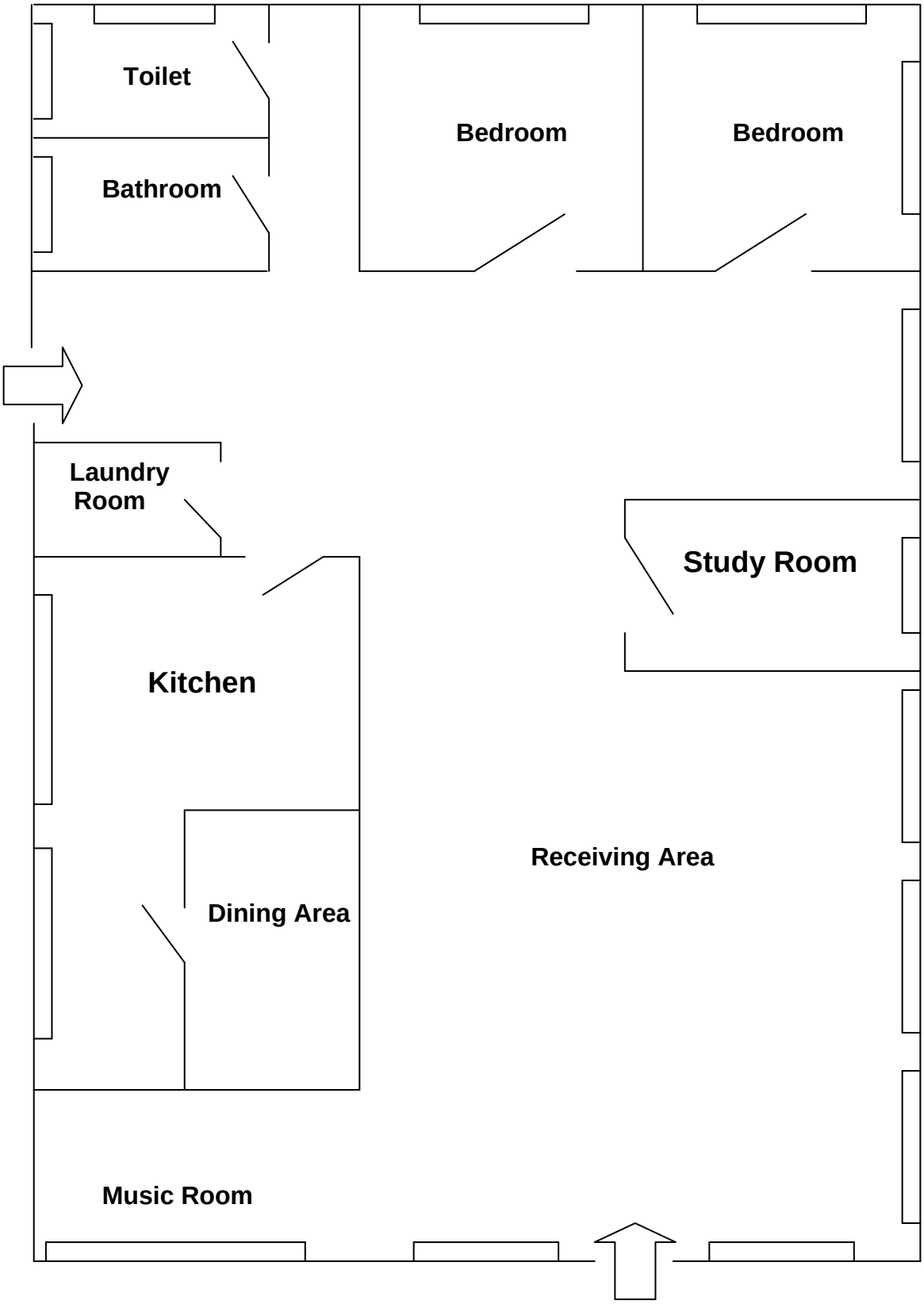


FIGURE 2
SAMPLE LAYOUT OF A PRACTICE HOUSE

This question will help you prepare the shop room for the conduct of the shop class. Try to be aware of this question and try your best to respond to it. If you have not done the steps in preparing the shop room before the conduct of the shop work class then try to do the following steps in preparing the shop room for the conduct of the shop work class:

- Take note of the arrangement of furniture such as working tables and working benches. They should be arranged in such a way that the students shall have enough space to work on their projects.
- Check the tools to be used if they are in good condition. Take note that they are not worn out. Defective tools should not be used because they will result in poor quality output/project.
- Switch on the lights or open the windows to provide the necessary light and good ventilation.
- Gather the needed materials and have them ready for use.
- Control if you can the sources of possible excessive noise which may distract the conduct of the laboratory class.

ACTIVITY 1.1

1. Observe some of the shop rooms in your school. Take note of the shop layout.
2. Make an inventory of the available tools and supplies that are given to you by your immediate head for use by your students. (Form 1). It is important that you include the column for remarks.

   Below is the format you can use for the inventory of shop tools, equipment, and supplies.

   Enter the names of tools, equipment, supplies that are available in your shop room in this form.

Turn to next the page…

Form 1

No.	Unit/Pc.	NAME OF EQUIPMENT	REMARKS

3. Make a layout of your shop room, indicating the equipment, tools and furniture available to you.
4. Evaluate your shop room as to its lighting and ventilation. If your evaluation is poor, do something to improve it.

After doing this Activity 1.1 assess your performance according to the criteria below, and rate yourself by checking the column of the number which corresponds to your assessment.

Check 3 if you feel that you have done it very well, 2 if you have done it well, and 1 if you have done it haphazardly or not well.

The activity that I have done resulted in the following:	3	2	1
1. I have made the shop lay out to serve its purpose.			
2. I have made the tools, equipment and furniture available in their right places and I have properly recorded them.			
3. I have written some precautionary measures that are posted in the kitchen.			
4. I have made the shop room well lighted and ventilated.			
5. I have done something to control the distracting noise.			
6. I have exercised a high degree of concern concerning shop safety.			

Know your rating.

Refer to the interpretation below.

2.4-3.0 …….. very good

1.7-2.3 ……..……..good

1.0-1.6 …….. poor

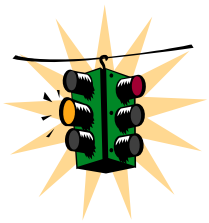
POINTS TO REMEMBER

Take note of the following important points in Lesson 1.

Proper shop layout

- Proper lighting and ventilation facilities
- Availability of tools, equipment, and materials to be used
- Absence of distracting noise in the classroom area
- Concern of the teacher for shop safety

ANSWER KEY TO SCQ'S

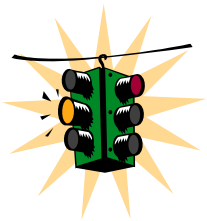


ASCQ 1.1

A shop room set-up is one of the concerns of the teacher teaching EPP/TLE, because it is much different from an ordinary lecture room. It is of prime importance that the setting up of the shop room shall be done in conformity with the needs of the students and the health and safety of both the students and the teacher. It should not be forgotten that shop room furniture and equipment should be positioned in such a way that they do not cover the windows. The teacher should be able to look at the entire shop room from any point or corner. If possible, the wall accessories should be in light color.

Below you will find the reasons why a properly set up shop room is important:

- Proper placement of equipment and tools facilitates movement.
- Poor shop room arrangement may be the cause of shop accidents.
- It provides ease in working.
- It maximizes utilization of time allotment.



ASCQ 1.2

Here are the major steps you can do to prepare the shop room for the conduct of a shop work class.

- Know the EPP/TLE area to teach. Each area has its needed tools, materials and furniture for use by the students.
- Identify the needed tools, materials, and furniture that are available.
- Make lay-out sketches for possible options of shop room arrangement. This way, areas for mobility of students are studied with considerations to the students' safety as well as yours. Secondly, this will give options for access to tools, materials, and wash stand.
- See to it that lighting and ventilation facilities are just right.
- See to it that the total shop room area is safe and conducive to the teaching and learning activity.

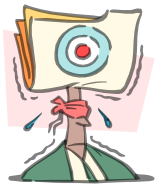
LESSON 2

INDUSTRIAL ARTS AND HOME ECONOMICS

INTRODUCTION

This lesson will review the implementation of the Industrial Arts and Home Economics offerings under the Basic Education Curriculum BEC of the Department of Education .This includes among others the learning competencies to be developed in the students. The learning competencies in each area are listed and were checked against the learning competencies provided by the BEC.

The teaching of Industrial Arts and Home Economics comes in two levels, namely: Industrial Arts, taught in the elementary, and the other one taught in the secondary. The same is true with Home Economics. Your role as a beginning teacher of Industrial Arts and/or Home Economics starts with the recall of your previous knowledge of the different areas and update of the different learning competencies as prescribed in the 2002 Basic Education Curriculum of the Department of Education.



OBJECTIVES

What will this lesson provide you?

After this lesson you shall be able to:

1. Demonstrate an understanding of Industrial Arts and Home Economics and their implementation under the 2002 Basic Education Curriculum.

2. Select the Industrial Arts and/or Home Economics areas most appropriate to be taught at a certain grade/year level.
3. Apply flexibility in the teaching of the different Industrial Arts and/or Home Economics areas with reference to available resources.
4. Exercise innovativeness and creativity in the teaching of TLE/EPP.
5. Appreciate the Industrial Arts and Home Economics offerings in the implementation of the BEC.

READ

Under the 2002 BEC Industrial Arts and Home Economics are the two major components of the subject Technology and Livelihood Education (TLE) on the high school level, and *Edukasyong Pantahanan at Pangkabuhayan* (EPP) on the elementary level. On the high school level it is normally offered as part of the exploratory courses taken in the first and second years. Areas of Industrial Arts included and covered in the TLE are Handicraft, Drafting, Electricity, Civil Technology or Woodwork, Graphic Arts, Auto-mechanics, Refrigeration, and Electronics. In the first two years, the students have to learn the different areas and in the third year, they have to choose one area which they would also take in the fourth year. This is what is called specialization area. On the elementary level for EPP, the areas offered under the Industrial Arts components are the same as in TLE except for Auto-mechanics and Refrigeration. The areas of Home Economics are Home and Family Life, Food and Nutrition, Clothing, and Arts and Crafts. Cosmetology is partly taken up as a component of personality development under Home and Family Life.

SCQ 2.1

What are the basic things you will consider if you are to teach EPP or TLE in one of the four locales given below?

You were given a teaching assignment in one of the following locales, specifically to teach Technology and Livelihood Education (TLE) and/or *Edukasyong Pantahanan at Pangkabuhayan* (EPP).

Locale 1 - Rural High School

Locale 2 - High School in a City or urban place

Locale 3 - Rural Elementary School

Locale 4 - Urban Elementary School

Knowing the locale of your school is an important consideration in selecting the kinds of project that your students shall undertake. In the project-making method it will be wise to make use of the available raw materials in the locality. The importance of prior skills and knowledge of industrial arts and home economics is followed by the importance of the availability of materials, tools and equipment in the school. Normally, tools and equipment are provided by the school. But it is important to remember that creative and resourceful EPP/TLE teachers can improvise tools to supplement the available tools in the school. In addition to improvising tools, project-making can be used as a teaching method. We recall the philosophy of education by John Dewey that “we learn by doing.” This is the working philosophy we adhere to when we actualize our teaching by the project-making method. This is why the qualities of being innovative, creative, and resourceful are of great importance too.

Innovative means the quality of being able to develop an article or a project which is an original one, or an improvement of an existing one. Creative means the quality of being able to make a project or an article of functional value out of existing materials and resources with a touch of originality. Resourceful means the ability or

quality of making the unavailable materials and tools available through the use of alternatives and/or devising or making improvised tools.

Strategies in the teaching of the different areas of EPP/TLE have to consider the resources such as materials, tools and equipment that are available. Strategies may mean the teaching act most appropriate and effective for a particular teaching-learning situation. Furthermore, this should take into consideration the learner, the school's locale and culture, and the material resources of the community. If the strategy is the project method, a foremost concern is the provision of materials to be used by the students. Normally, the students provide the materials for themselves; hence community resources are important. Your concern does not end with this only. You have to remember that in the teaching of EPP/TLE, the concepts of innovativeness and creativity shall also be taught to the students, and this is done thru the project-making method. The project-making method is an avenue for new ideas and new designs. Sometimes ideas of art can be used to improve or develop an already existing project or product.

Your updated knowledge of the new technologies, arts and designs can be attained through an awareness of the environment and market customer demands. This you may gain by reading magazines and newspapers, specifically the columns on technology education and training, arts, fashion, home, and culture. Others take an existing product on sale and introduce design development. In this way innovation is introduced to an original product design.

Form 2 on the next page is a guide which you may adopt in deciding what specific TLE/EPP area to teach according to the year or grade level of students or pupils, with reference to the locale of the school. Accomplish the form and refer to this as your guide plan.

Form 2

Student, Year and Section	Locale of School	Area of TLE/EPP

After deciding on the area of TLE /EPP to be taught, a list of needed materials, tools, and equipment has to be prepared. This will help you facilitate the teaching of the specific skills to the students/pupils.

Form 3 will guide you as to the available materials, tools, and equipment needed to teach a specific area. Accomplish the form to check the inventory.

Form 3

Materials	Tools	Equipment

Teaching TLE/EPP calls for the teacher to be updated with the new product designs and development. Again there must be a guide list or a plan of what you will teach in order to develop specific skills in the students. Hence, you will be asking yourself the question on the next page. Answer the question by writing the new technology, art, or design corresponding to each Industrial Arts and Home Economics area.

ACTIVITY 2.1

What are the new technologies, arts, and designs that are attuned to the times and which you will find useful in the classroom?

You may use Form 4 if you are teaching Industrial Arts and Form 5 if you are teaching Home Economics.

Form 4

Industrial Arts	New Technology/Art/Design
Auto mechanics	
Drafting	
Electricity	
Electronics	
Graphic Arts	
Handicraft	
Refrigeration	
Woodwork	

Form 5

Home Economics	New Technology/Art/Design
Arts and Crafts	
Clothing	
Food and Nutrition	
Home and Family Living	

How can innovation, flexibility, creativeness and, resourcefulness be utilized in the teaching of TLE ?

Think of the strategies you are to utilize in each area. Write them in the column provided. Use Form 6 if you are teaching Industrial Arts and Form 7 if you are teaching Home Economics.

Form 6

Industrial Arts	Innovative Strategies
Auto mechanics	
Drafting	
Electricity	
Electronics	
Graphic Arts	
Handicraft	
Refrigeration	

Form 7

Home Economics	Innovative Strategies
Arts and Crafts	
Clothing	
Food and Nutrition	
Home and Family Living	

ACTIVITY 2.2

1. Get a copy of the 2002 BEC Manual on MAKABAYAN.
2. Make a list of the learning competencies that you intend to develop in your pupils or students in the different areas of Industrial Arts and Home Economics for each grade or year level.
3. Acquaint yourself with the new technologies, arts and designs by looking at new magazines, reading articles, and going around shopping malls.
4. Introduce product designing to existing products and articles that are in the market.
5. Make a list of possible projects/activities per area to be done by your students considering the following:
    a. level of students
    b. target learning competency to be developed
    c. availability of materials and tools/equipment for making the project
    d. time element needed in making the project
    e. project/product innovation or development to be done
6. Take notice of the learners' ways and practices, food preferences, clothing style, and home decors and themes. These will be a basis for possible projects and activities that will suit their preferences and needs.

Compare your work with the list in the tables on pages 22-23.

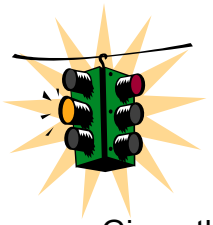
Try to decide on what projects or activities you are to teach or adopt for students. Be sure that these activities or projects you have chosen will develop the skills of the students with reference to the learning competencies. It is also wise to consider the students' preferences for food, clothing styles, and home decors so that their projects will suit their preferences.

POINTS TO REMEMBER

Take note of the following important points in Lesson 2.

- An understanding of the BEC
- The EPP/TLE offering in each grade/year level
- Tools, materials, and equipment inventory
- The key learning competencies of each area of EPP/TLE per level
- The new technologies and innovative strategies

ANSWER KEY TO SCQ'S



ASCQ 2.1

Given the four locales, you will have to think of ways to teach EPP/TLE. The following are some of the factors to be considered:

- The material resources involved in the teaching of skills through project making are important. Certain localities abound in indigenous materials and local agricultural products which can be utilized.
- Tools and equipment are most of the time not sufficient. This calls for alternative teaching methodologies in order to teach a specific learning skill.
- The type of project to be introduced and to be made by the students must appeal to their personal and home needs. This strategy will make the article more functional and valuable.

The kind of project to be produced should be something unique but must utilize available local tools and cheap materials.

COMMENTS ON ACTIVITY 2.1

Below is a sample list of new technologies or art and design, and the innovative strategies that you may adopt in teaching the different areas of TLE. Compare your work with this. Can you notice some similarities between your work and this list?

INDUSTRIAL ARTS	NEW TECHNOLOGY/ ART/ DESIGN AND INNOVATIVE STRATEGIES
Auto Mechanics	Bounce testing; album making of the different road signs
Drafting	Isometric construction; computer-aided designing
Electricity	Decorative lamp shade wiring diagram; house wiring plan
Electronics	Blinker schematic diagram; cell phone operation
Graphic Arts	Photography with moving objects; blurring background
Handicraft	Bamboo topiary; Origami

Refrigeration	Refrigeration cycle; poster making on the proper use of refrigeration
Woodwork	Padding furniture and repair; wooden fruit tray designing
HOME ECONOMICS	**NEW TECHNOLOGY/ ART/ DESIGN AND INNOVATIVE STRATEGIES**
Arts and crafts	Marbling; lace making; bead works and body ornaments
Clothing	Selection of proper attire for various occasions; clothing decorations
Food and nutrition	The basic nutrients plus the growth factors; modern table skirting
Home and family living	Family life in the new millennium; health hazards preventive measure

Have you considered any of the suggested projects/activities listed below in teaching TLE/or EPP? Check the YES or NO column. The projects or activities with a NO mean that they may be options in succeeding projects/activities.

Table 1
Component Area: Industrial Arts

Area	Suggested Projects or Activities	Yes	No
Handicraft	▪ Make and accomplish a project plan. ▪ Construct a bamboo flower vase. ▪ Hand sew a leatherette pencil case or envelope. ▪ Create a jewelry box out of an indigenous plant.		
Drafting	▪ Do the alphabet of lines. ▪ Make an orthographic projection of a simple object. ▪ Print letters by standard printing. ▪ Make a free-hand sketch using horizontal, vertical, and oblique lines. ▪ Make a mechanical drawing of the isometric of a box.		
Electricity	▪ Make simple splices and joints. ▪ Sketch the schematic diagram of a simple circuit. ▪ Apply Ohm's law in simple electrical computations. ▪ Assemble an extension outlet. ▪ Repair a broken household appliance.		

		Yes	No
Civil Technology/Woodwork	• Make sample wood joints. ▪ Make a fruit tray out of wood pieces. ▪ Construct a CD/VCD rack. ▪ Construct a computer table. ▪ Apply wood finishing to all the projects.		
Graphic Arts	▪ Do silk screen printing on T-shirt. ▪ Show skills in using camera. ▪ Take pictures of students' activity. ▪ Do ditto-stenciling.		
Refrigeration	▪ Demonstrate proper use and care of the refrigerator. ▪ Show how to conserve electricity while using the refrigerator. ▪ Describe stages undergone by the mechanical refrigeration system.		
Electronics	▪ Make a schematic diagram of a blinker. ▪ Make a schematic diagram of a telecommunications apparatus. ▪ Trouble-shoot a telecom apparatus.		

Table 2
Component Area: Home Economics

Area	Suggested Projects/Activities	Yes	No
Food and Nutrition	▪ Setting the table ▪ Cooking balanced and low cost meals for breakfast, lunch, supper, and snacks ▪ Menu planning for a family ▪ Food preservation ▪ Menu planning for an occasion		
Home and Family Life	▪ Do the scheduling of daily home activities. ▪ Take care of self and other members of the family. ▪ Look into the orderliness and cleanliness of the home. ▪ Take care of a child, an elderly, and a sick family member. ▪ Foster wholesome family relationships through giving love, care, and attention.		

		Yes	No
Clothing	• Operate and maintain properly the sewing machine. ▪ Make an album of the different kinds of cloth materials. ▪ Make different kinds of stitches. ▪ Attach buttons and mend torn clothing. ▪ Take body measurements. ▪ Sew a simple blouse or a pair of shorts. ▪ Practice recycling through creating articles/projects.		
Arts and Related Crafts	▪ Crochet a center piece or a hanky. ▪ Cross stitch a simple home décor. ▪ Bead work a bracelet or necklace. ▪ Embroider by hand a table linen.		

The succeeding tables contain the learning competencies which shall be the basis for you to check how far you have accomplished your task. Your score will determine the level of competency you possess for the teaching of EPP.

Below is a list of the learning competencies for teaching EPP based on the BEC 2002. Put a check mark in the YES or NO column depending on your competence on the following learning competencies.

Table 3
Learning Competencies for EPP

Component Area: Industrial Arts

Learning Competencies	Yes	No
1. Identify the different industrial arts activities.		
2. Define the role of each member in the family, community, and the nation.		
3. Identify the different materials and tools and their functions, as they are used for industrial work and activities in the home.		
4. Make a project plan of an identified project or activity.		
5. Keep the materials and tools properly.		
6. Apply properly the knowledge learned in the repair of household furniture and appliances.		
7. Follow the correct procedure/ steps in doing the activity or project.		
8. Prepare the materials and tools for an activity or a project.		
9. Observe the precautionary measures while working.		
10. Develop the interest in doing industrial arts activities.		
11. Appreciate one's work output.		
12. Develop the correct attitude towards work.		

Component Area: Home Economics (EPP)

Clothing

Learning Competencies	Yes	No
1. Develop the skills for correct selection of clothing for every occasion.		
2. Develop the skills in the care of clothing.		
3. Identify the different parts of clothes for both genders.		
4. Develop the skills in the proper use of materials and tools in sewing.		
5. Identify the right side of a piece of fabric.		
6. Mend or repair torn parts of a piece of clothing.		
7. Perform the basic skills in hand sewing and ironing.		

Family Life

Learning Competencies	Yes	No
1. Perform the responsibilities for developing self in terms of physical cleanliness and hygiene.		
2. Discuss the qualities and importance of a wholesome family and home.		
3. Perform correctly the duties of a good member of a family.		
4. Perform the proper ways of taking care of a younger brother/sister, an elderly, and a sick member of the family.		
5. Show the proper ways of taking care of the house so it will be clean and orderly, at minimum cost possible.		
6. Develop the habit of thrift in the performance of household chores.		

Food and Nutrition

Learning Competencies	Yes	No
1. Prepare balanced, economical, and sufficient meals for the family.		
2. Plan a balanced and economical menu for the family.		
3. Prepare or cook meals for the family.		
4. Follow the correct ways and procedures in the preparation of food suited for an occasion.		
5. Do the correct market list.		
6. Clean the cooking utensils properly.		
7. Arrange the cooking utensils properly.		
8. Observe precautionary measures in food preparation.		

Arts and Crafts

Learning Competencies	Yes	No
1. Develop the knowledge and skills for arts and related crafts which are of economic value.		
2. Identify the different arts and crafts mostly needed in the house and in the community.		

	Yes	No
3. Discuss the significance of the different arts and crafts to the country's economy.		
4. Appreciate the importance of the different arts and crafts in the promotion of livelihood of the country.		
5. Manifest proper work attitude in craft activities.		
6. Make articles or projects in arts and crafts.		

Table 4 is a list of learning competencies to be developed in the students in the different TLE areas, by year level. Refer to this to check how far you have accomplished your learning activity by putting a check mark in the appropriate column. Put a check mark in the column YES if you have it in your list (refer to table 3) and NO if it is not included.

Table 4

Learning Competencies in TLE Area Offerings by Year Level

Year Level	Learning Competencies	Yes	No
First Year	<u>Home and Family Life</u>: • Discuss the proper outlook of an individual towards life. • Maintain good harmonious family relationships. • Perform the duties of a responsible member of a family. • Join in the productive endeavors of the family. • Handle difficult situations which may arise. • Apply the proper methods of arranging and decorating the house. <u>Food and Nutrition</u>: • Discuss the importance of balanced diet and proper nutrition to one's health. • Discuss the proper ways of food preparation and preservation. • Plan a breakfast menu. <u>Clothing:</u> • Use the tools and equipment in sewing properly. • Trouble-shoot a sewing machine. • Identify the different kinds of cloth materials and cloth accessories and decorations.		

		Yes	No
	Drafting: • Discuss the proper use and functions of the different drafting tools and equipment. • Discuss the evolution of lettering and alphabet of lines. • Exercise free-hand lettering through the orthographic projection. • Draw the alphabet of lines properly. Handicraft: • Discuss the role of handicraft in the economic development of the country. • Identify the different kinds of indigenous and related materials used in handicraft. • Discuss the different processes involved in the preparation of materials for handicraft. • Identify the different kinds of weaves in basketry. • Make a project plan. Woodwork: • Demonstrate the proper use and maintenance of the different woodworking tools and equipment. • Classify the different kinds of materials used in woodworking. • Identify the different kinds of wood joints. • Make the different kinds of wood joints. • Appreciate the benefits derived from the proper use of woodwork tools and materials.		
Second Year		**Yes**	**No**
	Home and Family life: • Discuss the different factors of a good friendship. • Discuss the proper methods of solving the problems of a teen-ager. • Plan and budget time properly. • Discuss the importance of a family budget. • Prepare a budget plan for oneself. Food and Nutrition: • Discuss family size and its effect on meal planning. • Prepare the budget for different kinds of meals. • Evaluate the recommended dietary allowance (RDA) for different groups of diners.		

		Yes	No
	• Set the table for any occasion. • Prepare food for special occasions. <u>Clothing:</u> • Take body measurements properly. • Discuss the proper steps in pattern-making. • Sew a pair of short pants. • Appreciate making well-fitting pants. <u>Electricity:</u> • Explain the electron theory. • Identify the electrical conductors and insulators. • Explain the different kinds of circuit. • Identify the different kinds of electrical tools and devices. • Assemble an extension cord or outlet. • Show the different safety precautions while working. <u>Electronics:</u> • Explain the use and maintenance of the different tools in electronics work. • Draw the schematic diagram for the different electronics work. • Read the different capacitor specifications. • Give the meaning of the resistor color code. • Read the multi-tester correctly. <u>Metal Work:</u> • Explain the characteristics of the different kinds of metals. • Use the different tools and equipment in metal work properly. • Apply the proper way of measuring in metal work. • Make a functional project in metal work.		
Third Year	<u>Home Nursing:</u> • Identify the different types of teen-age relationships. • Discuss the proper behavior when going into a teen-age relationship. • Explain the basis for an intelligent choice of a prospective spouse. • Explain the concept of responsible parenthood.	**Yes**	**No**

		Yes	No
	• Show an understanding of the importance of a healthy infancy. • Explain the developmental stages of a fetus. • Discuss the importance of the proper ways of taking care of an infant. • Discuss the proper ways of educating a child. <u>Food Service:</u> • Identify the important aspects to be considered in baking a cake. • Demonstrate the proper ways of preparing pies and pastries. • Demonstrate the knowledge in preparing breads and noodles. • Demonstrate the skills in preparing meat, fish and vegetable recipes. • Show the skills in preparing native delicacies. • Identify alternative ingredients for some food recipes. • Demonstrate the skills in innovative food preparation. <u>Clothing</u>: • Draft pattern for a garment to be sewn. • Demonstrate the different types of hand sewing. • Show the proper ways of attaching pockets. • Explain the criteria in selecting a garment material. • Demonstrate the proper ways of cutting cloth material to be sewn. • Sew a skirt and a blouse. <u>Drafting:</u> • Explain the importance of knowing the different types of letters. • Explain the functions of the different tools and equipment in lettering and in drawing. • Use the lettering tools properly. • Discuss the importance of geometrical construction. • Use the drawing tools and instruments in drawing lines. • Construct different figures such as solid, prism, cylinder, angles, and polygon. • Explain the importance of the elements of a working drawing.		

		Yes	No
	• Make/draw a working drawing. • Make an orthographic projection of a pictorial drawing. • Discuss the principles and elements of design. • Make poster, logo, and monogram designs. • Make a design for silkscreen printing. • Perform silkscreen printing. <u>Metal Work and Bench Work:</u> • Show the proper ways of using the tools in metal work. • Observe and follow the safety practices in metal work. • Demonstrate the skills in bending and welding metals. • Prepare the bill of materials for a project. • Make a project in metal work. <u>Electricity:</u> • Compute for the resistance, current and volt in a series or parallel connection. • Demonstrate the skills in using and taking care of the electrical tools and equipment. • Make the different types of splices and joints. • Observe and follow the different safety practices in electrical work. • Show an understanding of the theories of signal connection. • Discuss the importance and correct application of signal connection. • Follow the steps in doing signal connections. • Demonstrate the skills in the assembly of ballast. • Explain the parts and functions of an electrical fixture. • Demonstrate the skills in reading a house wiring plan. • Interpret the current Electrical Code of the Philippines. • Make an estimate of the materials to be used in electrical installation. • Demonstrate the skills in the different techniques in connecting electrical wirings.		

		Yes	No
Fourth Year	Home Industry (Craft): • Identify the different kinds of indigenous materials that abound in the locality such as sea shell, coconut shell, bamboo and other indigenous plants, and leather. • Explain the steps and processes involved in the preparation of the indigenous materials into usable form. • Perform the steps or processes involved in the preparation of indigenous materials. • Demonstrate the skills in accomplishing a job plan. • Identify the right materials to be used for a project. • Identify the different tools used in home industry. • Demonstrate the skills in using the tools correctly. • Observe and follow the safety practices when working. • Make various kinds of projects using indigenous materials. Plastics and Synthetics: • Explain the different uses of plastics in project making. • Explain the steps in plastic wood lamination, plastic molding, and plastic casting. • Make an innovative project using plastics. • Explain the advantages and disadvantages of plastic materials as used in project making. Home Nursing: • Apply the knowledge and skills in taking care of the sick. • Discuss the basic food service management in taking care of the sick. Food Service: • Use background or prior knowledge in purchasing ingredients for a menu. • Discuss the factors related to sanitary food service in the family. • Perform food service correctly. • Explain the factors for a successful catering service.		

		Yes	No
	Clothing: • Make the pants' pocket wide. • Demonstrate the knowledge and skills needed in establishing a dress/tailor shop. • Make a project proposal. Cosmetology: • Discuss the methods of developing one's personality. • Demonstrate the knowledge and skills in manicuring and make-up. • Demonstrate knowledge and skills in hair care and hair style. Auto-mechanics: • Discuss the different components of a vehicle. • Demonstrate simple auto-mechanic operations. • Discuss the different kinds of engine and the types of fuel used. • Explain how the engine functions. • Discuss the fuel system operations, the horn system, suspension system, brake system, clutch assembly, differential and axle assembly, wheel and tires. Refrigeration and Air-Conditioning: • Discuss the refrigeration cycle. • Explain how the refrigeration system works. • Demonstrate an understanding of the operation of the refrigeration system. • Demonstrate the skills in the use of gauge manifold. • Demonstrate the skills in refrigeration servicing. Civil Technology: • Observe the precautionary measures to be observed while working. • Make a woodwork product. • Demonstrate the skills in the use of wood finishing materials. • Explain the house specification plan. • Discuss the different aspects of a house plan. • Demonstrate skills in masonry work.		

	Electrical and Electronics Work: • Discuss the different schematic diagrams in electronics. • Identify the different functions of electronics tools and soldering tools. • Explain the correct methods in trying out the different electronics components. • Compute for the resistance, capacitance, and inductance in circuits. • Identify the parts of a radio receiver and their functions. • Explain how the power supply works. • Assemble an intermediate amplifier frequency and automatic circuit control. • Explain the operation of amplitude modulation detector stage. • Repair a radio receiver. • Demonstrate the steps in trouble shooting a radio receiver.	**Yes**	**No**

Now try to count the number of your check marks in the YES column and in the NO column. If you have more check marks in the YES column, it means that you know well what learning competencies are to be developed in the students. If there are more in the NO column, it means that you have to consider these learning competencies in teaching EPP/TLE.

Know your rating

After counting the NO and YES check marks you have accomplished in the foregoing tables, the table below will assist you in assessing your knowledge regarding the learning competencies to develop among your students.

%NO	%YES	Descriptive Ratings
75	25	You are not well informed
50	50	You are moderately informed
25	75	You are well informed

POINTS TO REMEMBER

- An understanding of the BEC
- The TLE/EPP offering in each year level
- Tools, materials, and equipment inventory
- The key learning competencies of each area of TLE per year level
- The new technologies and innovative strategies

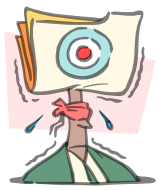
LESSON 3

AGRICULTURE AND FISHERY ARTS

INTRODUCTION

Lesson 3 will discuss the teaching strategies for the teaching of Agriculture and Fishery Arts. This highlights the alternative strategies you may adopt in teaching in situations where there is no available laboratory site for students to use.

In the 2002 Basic Education Curriculum (BEC), Agriculture and Fishery Arts is taught in the first and second years as an exploratory course. During the third and fourth years it is offered as a specialization course. As an exploratory subject in the first and second years, it is offered for one grading period, while in the third and fourth years it is for the whole school year. One grading period for the first two years seems too short, hence as teacher of this area of TLE, you are to teach the concepts and skills in the easiest and most expeditious way to achieve mastery and perform the activities of the course. In EPP this area is taken up in grades IV, V, and VI for two grading periods in each grade level.



OBJECTIVES

After this lesson you shall be able to:

1. Choose the topics most appropriate to be taught, based on the learning competencies to be developed.
2. Determine the methods most appropriate after considering the school's site, laboratory area and facilities.
3. Innovate strategies in the teaching of concepts in order to meet students' needs, even in the absence of laboratory areas and facilities.

4. Identify activities/projects applicable for young learners of this vocational endeavor.

5. Demonstrate interest in teaching Agriculture and Fishery Arts.

SCQ 3.1

What is the first consideration in teaching Agriculture and Fishery Arts?

The teaching of Agriculture and Fishery Arts requires enough space for the students to conduct their laboratory activities. It is a reality that if your school is located in the city, the area will not be enough for all the activities as well as the facilities. You will now be confronted with the questions "How shall I teach the subject? What innovative strategies can possibly be introduced in the existing situation?" For those assigned in agricultural vocational high schools, this problem may not be evident. Let us answer the questions by making a list of the possible concepts and skills to be taught and see if they can be taught considering your school site and facilities. So scanning the school site is your first concern to answer the questions.

SCQ 3.2

What are the concepts and skills that can be introduced/taught considering the school site and facilities?

Agriculture being a science covers a broad scope of study, and so does Fishery Arts. Hence one challenge to you as a teacher is to be able to appropriately select topics for the level of your students in the BEC. In the absence of a school

garden site, urban farming can be introduced. Urban farming is a farming concept appropriate for schools within a city where there is no area that can be tilled. It involves growing plants in containers. In the growing process, concepts of the factors that affect growth and development can be simultaneously demonstrated through experimentation. This makes the teaching of the subject more factual and interesting to the students. Factors such as sunlight, soil, rainfall/water, and genetic selection can be the basis for simple experiments. Experiments such as growing plants in different types of soil, growing plants with or without sunlight exposure, and with or without watering schemes can be done. Data and observations shall be drawn up by the students. Data gathered shall be discussed in class by the students and this will be enhanced by reading related topics in the textbooks.

Similarly, the teaching of fishery arts shall have limitations especially if the school is located in the *poblacion* or in the city. It may be hampered by the non-availability of a laboratory area or a fishpond. In this context, teaching may be limited to the resources the school has. For purposes of delivering instruction, you should be creative. A miniature pond can be made and activities may cover simple experiments such as water sterilization; testing for the right temperature, the ph level and the salinity level; an exercise on planning pond arrangement; an experiment on feeding by altering nutrition requirements of the fish; and fishtrap making.

ACTIVITY 3.1

What are the experiments which can be undertaken in the absence of a laboratory area for Agriculture and Fishery Arts?

There are experiments and activities which you may perform with your class in the absence of a laboratory area for Agriculture and Fishery Arts. See page 41. (Table 5).

ACTIVITY 3.2

Considering the school laboratory facilities for Agriculture and Fishery Arts, what specific subject matter can you teach? What activities/ projects/ experiments can be introduced to illustrate the concepts and skills?

List your answers in a form similar to the ones below.

Form 8
Subject Matter/ Activities/ Projects/Experiments for Agriculture

Topic	Activity/Project/Experiment

Form 9
Subject Matter/ Activities/ Projects/Experiments for Fishery Arts

Topic	Activity/Project/Experiment

ACTIVITY 3.3

Your output in activity 3.1 and 3.2 can be your materials to make a teaching guide to contain the following:

a. The topics most appropriate to be taught in each year level based on the learning competencies to be developed.

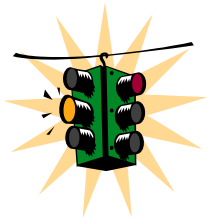
b. The methods most appropriate, after considering the school's site, laboratory area and facilities.

Activities 3.1, 3.2 and 3.3 should be your module guide in the teaching of Agriculture and Fishery Arts in your specific school. It is assumed that what you have done are all possible activities which can be taught to your pupils/students considering the availability or non-availability of a laboratory site in your school.

POINTS TO REMEMBER

- Agriculture and Fishery Arts under the BEC are usually taken during the first and second year levels as exploratory areas. In the third and fourth year levels, it is offered as a specialization course. Meanwhile, in grades IV, V, VI in the elementary level, it is taught for two grading periods each grade level.
- There are alternative activities in the teaching of concepts in the absence of a laboratory site/area. These include container gardening, preparation of poultry house plan, and experimentation.
- Innovative projects to suit the level of students must be adopted.

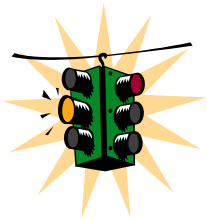
ANSWER KEY TO SCQ'S AND ACTIVITIES



ASCQ 3.1

In deciding to teach Agriculture and Fishery Arts, you must consider the following first:

- The availability of a laboratory site for agriculture practice such as a planting area, poultry house, and a fishpond for the culture of fish.
- Alternative activities which can be done by the students in the case of a school without laboratory areas.
- The needed facilities for the activities to be taught to the students.
- The availability of efficient water system is a very important factor to be considered.
- The photoperiod or sunlight duration in the laboratory area is also of prime importance.



ASCQ 3.2

Below are the concepts/skills and activities most appropriate for urban farming. Check the YES or NO column depending on the concepts/skills you possess.

Those with asterisks may be done by the elementary grades, those with none are for the high school level.

POSSIBLE PROJECTS / ACTIVITIES
▪ Germinate seeds in cans or garden. ** ▪ Experiment on the viability of seeds.** ▪ Grow vegetables.** ▪ Apply fertilizers to plants at their early growth stage.** ▪ Look for plant pests.** ▪ Harvest the vegetables.** ▪ Plant a tree.** ▪ Make/Keep a record of agriculture activities.** ▪ Weave a fishnet-trap. ▪ Control pests. ▪ Administer vaccine to poultry. ▪ Estimate poultry house construction cost. ▪ Prepare a simple feasibility study of a small poultry production. ▪ Give the stages in soil sterilization. ▪ Prepare a project proposal for duck raising. ▪ Raise quails.** ▪ Raise doves.** ▪ Sterilize water. ▪ Test water temperature. ▪ Test ph level.

Table 5

Experiments and Activities for Agriculture and Fishery Arts

Concepts	Suggested Experiments	Yes	No
▪ Different Types of soil texture**	▪ Experiment on water holding and absorbing capacity.**		
▪ Significance of sunlight to plant growth**	▪ Experiment on two identical plants. Grow in two separate containers, one exposed to sunlight, the other placed under the shade.**		
▪ Functions of the different types of fertilizers	▪ Experiment on the growth of 3 seedlings, each fertilized with one fertilizer type a. organic fertilizer b. complete fertilizer c. urea		
▪ Seed viability **	▪ Germinate sample seeds through the rag doll method and compute the percentage of germination.**		

		Yes	No
▪ Effectiveness of different root media	• Perform marcotting on 2 branches: > one wrapped with soil > one wrapped with sphagnum moss		
▪ Weight gain of salmon fish fed with wheat germ meal, and without	▪ Culture 2 salmon fish in 2 separate ponds.		

Those with asterisks maybe done by the elementary grades and those with none are for the high school level.

Know your rating

The table below will assist you in assessing your knowledge regarding the learning competencies in Table 5. Count the NO and YES check marks.

.%NO	%YES	Descriptive Ratings
75	25	You are not well informed.
50	50	You are moderately informed.
25	75	You are well informed.

COMMENTS ON ACTIVITY 3.2

After accomplishing forms 8 and 9, compare them with the topics or subject matters listed below. Those with asterisks may be done by the elementary grades and those with none are for the high school level.

Topics for Agriculture:

- Plant propagation methods such as:

  Grafting

  Sexual propagation**

  Marcotting**

  Inarching

- Ornamental plant growing by:

  Growing plant in containers/ pots**

  Bonsai culture

  Dish gardening**

- Poultry production by means of

  Broiler production in a small poultry house to accommodate 10 heads of chicken

- Vegetable production**

Topics for Fishery Arts:

- The different species of cultured fish which are adapted to the locality.**
- The right kind of water condition for a fishpond by considering its temperature and ph level.
- The procedure in making a fishnet trap.**
- The proper feeding techniques of a school of fish.**
- The proper way of sterilizing water for a fishpond.

If you listed 50% and above of the topics then that means you have the facility of knowledge of the subject matter to be taught, below 50% means you should think of some more topics or you may adopt the topics listed here as options.

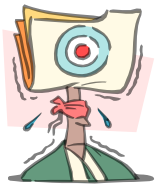
LESSON 4

INTRODUCTION TO COMPUTERS AND ENTREPRENEURSHIP

INTRODUCTION

Lesson 4 will give you an idea on how the teaching of computers would be more effective in a situation wherein the number of computer units is insufficient for the students during a "hands-on" laboratory class. The insufficient number of computer units is a common situation in most of the DepEd schools. In cases like this, the teacher must exercise creativity and flexibility. Another concern of the teacher is the arrangement of computer units as against the power source or electricity outlet. In this way the laboratory room stays neat, orderly, and spacious.

The preparation for global competitiveness of our students starts as early as their basic education level. One step towards this is the training in computers and entrepreneurship. Under the 2002 Basic Education Curriculum, emphasis is on the familiarization with the basic parts and components of the computer and the skills in basic operations that are most applicable as tools for learning. On the other hand, Entrepreneurship provides the skills needed to develop an awareness of community needs and for putting up a small business.



OBJECTIVES

After this lesson you shall be able to:

- Make a schedule of computer use by the students in cases where computer units are insufficient.
- Make a schedule of the chosen skills for the level of students to be taught.

- Install and arrange computer units for ease in movement.
- Orient oneself as to the type of economic and social conditions prevailing in different communities.
- Explore the merchandise needs of the community.
- Put up a mini or practice store for the students.

READ

COMPUTERS

In the public school system the number of students in EPP/TLE classes ranges from 25-60 students. This number is too big for a laboratory class. This number poses a great challenge for teachers like you, considering the few computer units that are available in a classroom. Thus a class laboratory schedule is very necessary. The reality is that only around 12 computers are available in most public secondary schools. The problem of insufficiency of computer units needs a class scheduling of students' hands-on activities. The class may be divided into three groups. These groups should swap activities for the duration of three weeks in order for them to learn the hands-on activities and skills which are scheduled for the first three weeks. The same process should be done for the other hands-on activities to be undertaken in the succeeding weeks.

When teaching computers in a school with inadequate facilities and computers, a scheme or a schedule is important to maximize the use of the facilities and equipment.

On the next page is a summary format of students "hands-on" schedule. The class may be divided into three groups, such as group 1, group 2, and group 3. Those with asterisks are for the elementary grades, those with none are for the high school level.

Time Duration	Group	Activities/Projects	Remarks
Weeks 1, 2, 3	1 ** 2 ** 3 **	Familiarize with the key board. Identify the components of the computer and their functions Identify the parts of the hard disk. Demonstrate proper handling of basic computer related-devices such as the printer, mouse, floppy drives, flash drives, compact discs, and connect the computer cables and wires (peripherals). Practice booting Identify the parts of windows desktop; tell the functions of the task bars items and explore the start button menus.	The 3 groups shall swap activities for the duration of 3 weeks.
Weeks 4, 5, 6, 7, 8, 9	1 ** ** 2 3 **	Practice Microsoft operation. Practice the use of the keyboard, and experience exploring the different menus. Create a file or a folder; work with a document, and practice the use of word document. Practice Excel operation. Practice Power Point presentation. Work with files; copy, delete, move, make a back-up.	The groups shall swap every 2 weeks. This time the monitors, the keyboards, and CPU are simultaneously working. While some students are on “hands-on” mode, the other members of the group shall observe and wait for their turn until everybody has been given the chance to use the computer.
Week 10	All groups 1, 2, 3	The members of each group shall work on their exercises in the different skills and submit hard copy.	Others who are not operating the computer shall be given related activities such as writing the steps of the computer skills they are studying which will serve as their reference guide.

SCQ 4.1

Why is a properly set-up computer room important?

Are there aspects in the computer room which you can improve? Every computer room must always be ready for the shop laboratory or activities. The shop room sometimes referred to as the laboratory area shall be provided for computer classes.

Here are guide questions for you to check if the computer room is properly arranged:

- Are the pieces of furniture such as the computer tables and chairs ready?
- Are the tools and equipment available and functional?
- Is the lighting and ventilation just right and sufficient?
- Are there enough outlets?

The questions will help you prepare the computer room for the conduct of the class. Try to be aware of these questions and try your best to respond to them. If you answer “NO” to the preceding questions then try to do this:

- Take note of the arrangement of the computers.
- Check the instructional materials to be used for the lesson.
- Switch on the lights or open the windows to provide the necessary light and ventilation.
- Gather the needed materials and have them ready for use.
- Check the outlets, their locations, and accessibility.

In the succeeding page is a sample of a shop layout. The computers are strategically located as well as the windows and entrance and exit doors.

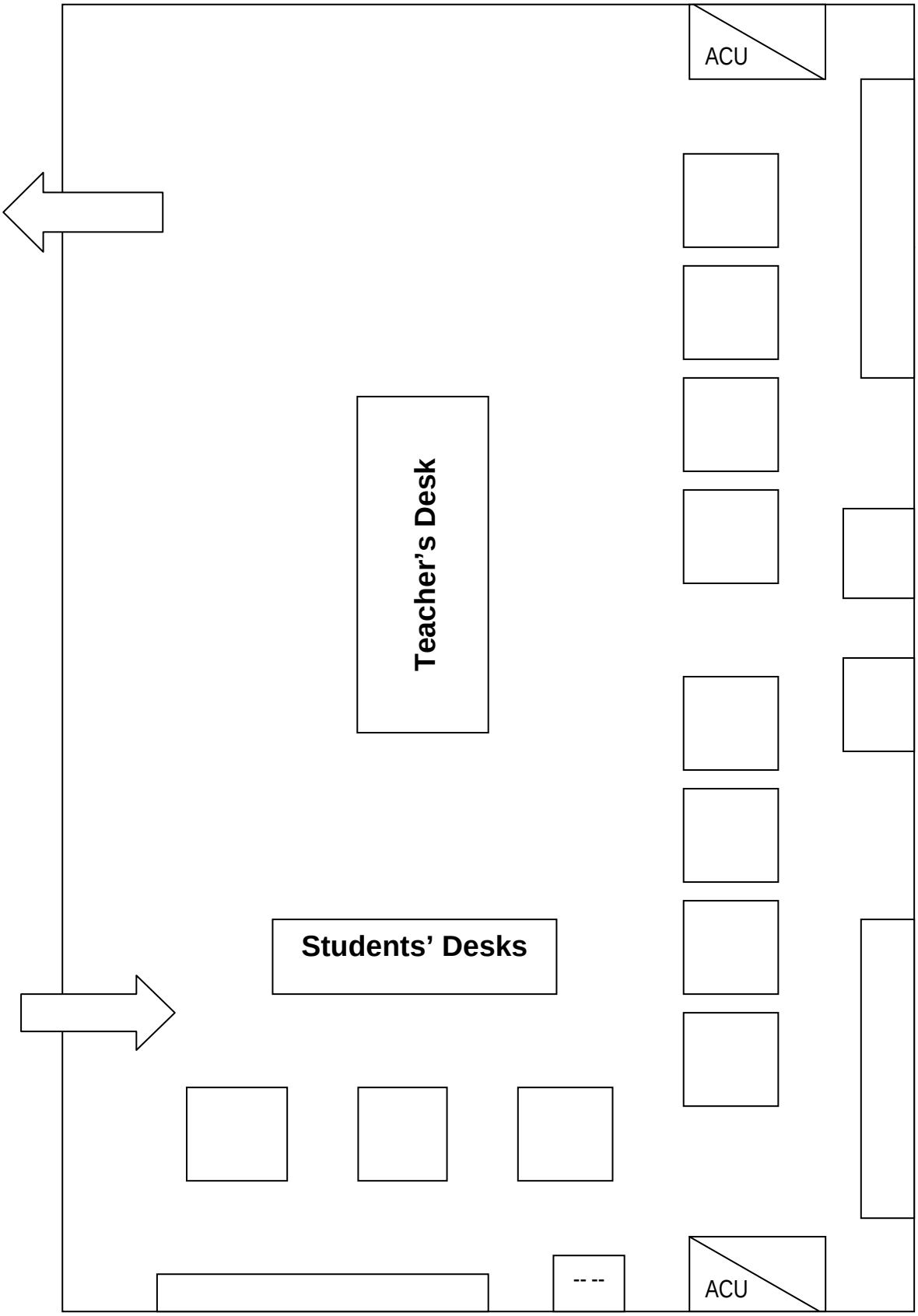


FIGURE 3
SAMPLE LAYOUT OF A COMPUTER LABORATORY

READ

ENTREPRENEURSHIP

It is a common observation that when we talk of business, the first question that is normally asked is "what kind of business?" referring to what merchandise to sell or what services to render. Usually business opportunities are directly related to the immediate material needs of the households and the services that are needed by the residents of a specific community. Being a teacher, your awareness of the students' and or pupils' residential community and environment is of importance. From the awareness of the community and environment, you should be able to evaluate the needed merchandise and services of the community. Your awareness of the community and its environment will make you think of the types of communities such as: fishing community, farming community, a city near or within a university belt area, and a community in a central poblacion. Knowing these community types will lead you to the knowledge of products, goods, or merchandise needed by them. From the awareness of the community and environment you should be able to respond to questions like:

SCQ 4.2

What kinds of merchandise, products, and or services are most needed by the communities where the students live?

The question shall be the basis for motivating the students to learn about entrepreneurship. Similarly, the answer to this shall be the focus of the undertaking. This can be done by listing down your observations as to the most needed products and services. Please accomplish the form below.

Form 10

Community Type (Fishing, Farming, Poblacion, City)	**Products/Goods/ Merchandise and Services Needed**

The teaching of Entrepreneurship should be realistic and functional. What is really "in demand" shall synchronize with the focus of sample business proposals to be made by the students. There are times when business proposals do not prosper due to similarities of products within a community. This means that supply exceeds the demand. Ideally, the teaching of entrepreneurship shall be based on reality. What is really needed as felt by the students is a strong motivational factor that will encourage the students to know what business enterprise will prosper in their locale.

ACTIVITY 4.1

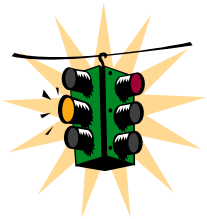
1. List as many computer-related activities as there are topics.
2. Make a layout of the computer room.
3. Divide the students into groups to determine the working teams.
4. Make a feasibility study.
5. Install a mini sari-sari store.

POINTS TO REMEMBER

Take note of the following important points in Lesson 4.

- Proper shop layout is of prime concern.
- Proper lighting and ventilation of the computer room ease performance of activities.
- A list of activities/ instructional materials to be used in computer instruction should always be available.
- Proper scheduling of students' "hands-on" activity can be a solution to the problem of the insufficient number of computer units.
- A business proposal or a feasibility study is an important step to be learned towards success in entrepreneurship.

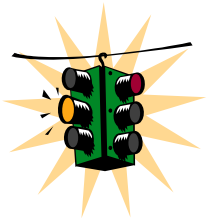
ANSWER KEY TO SCQ'S AND ACTIVITIES



ASCQ 4.1

Below you will find the reasons why a properly set-up computer room is important:

- Proper placement of equipment and computer units facilitates movement.
- Poor shop room arrangement may be the cause of shop accidents.
- A properly set-up computer room provides ease in working.
- A properly set-up computer room maximizes utilization of time.



ASCQ 4.2

Demand for products or goods may differ according to community type. Fishing communities as well as farming communities normally are far from groceries and malls; hence, these localities may need the basic commodities that are needed for home consumption. Similarly, school supplies and other dry goods such as clothing may be in demand in these communities. Whereas in a poblacion or in a city, merchandise demand can be high for products and by-products made from indigenous materials.

Now compare your work with the table below.

Community Type	Products/Goods/ Merchandise Needed
Fishing Community	Basic commodities, garments
Farming Community	Basic commodities, garments
City/University belt area	Art supplies shop, toiletries
Central Poblacion	Farm products and delicacies, beauty products

After doing these learning activities, assess your performance according to the following indicators, and rate yourself by checking the column of the number which corresponds to your assessment. Check column 3 if you feel you have done it very well, 2 if you have done it well, and 1 if you have done it fairly.

	3	2	1
I have placed the computers and instructional materials in the right places.			
I have made my shop room well-lighted and ventilated.			
I have made the list of computer-related activities.			
I have scheduled the students properly for their computer "hands-on" activities.			
I have made a feasibility study of a business proposal.			
I have made a plan for a practice mini sari-sari store.			

Know your Rating.

Now compute your rating by getting the mean (X) value.

Refer to the interpretation below.

2.4 – 3.0…….. very good

1.7 – 2.3…….. good

1.0 – 1.6…….. poor

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APPENDICES

SAMPLE LESSON PLANS IN EDUKASYONG PANTAHANAN AT PANGKABUHAYAN (EPP) AND IN TECHNOLOGY AND LIVELIHOOD EDUCATION (TLE)

The sample lesson plans can be used as your model lesson plan in EPP/TLE. Take note of the objectives. You will note that the objectives are stated in behavioral terms which include the three domains of skills to be developed in the students: the cognitive, psychomotor, and affective.

APPENDIX A

SAMPLE LESSON PLAN IN AGRICULTURE

(MAY BE TAUGHT IN GRADE VI, AND IN FIRST AND SECOND YEAR HIGH SCHOOL)

I. Objectives:

At the end of a session's lesson the students are expected to:

a. Identify the tools and materials needed in making an open terrarium.

b. Show interest in making an open terrarium.

c. Perform the steps in making a terrarium.

II. Subject Matter:

A. Topic: Horticulture/Ornamental Gardening

SubTopic: (Urban Farming) Making an open terrarium

B. Tools and Materials

Tools	Materials
Hand Trowel Water sprayer Pruning scissors or shears	Pebbles Charcoal(pulverized) Fish bowl or glass container Loam soil Sand Plants Decorative materials Figurines Organic fertilizer/ manure (optional)

III. Procedure

Preparation

A. Classroom routinary activities

B. Review of the past lesson.

1. What is Agriculture?
2. What are the different branches of agriculture?

C. Motivation

D. Presentation of the lesson

Key questions to unlock lesson difficulties:

1. What is ornamental gardening?
2. What is urban farming?
3. How can urban farming be practiced in your communities?
4. What is an open terrarium? (As an urban farming method.)
5. What are the tools and materials needed in making an open terrarium?
6. What are the steps in making an open terrarium?

A. Definition of technical terms

1. Terrarium
2. Open Terrarium
3. Closed Terrarium
4. Organic fertilizer (optional)

B. Safety precautions to be observed in making an open terrarium.

1. Cover your nose with a handkerchief to avoid inhaling the pulverized charcoal and organic fertilizer (if used).
2. Be careful in handling the hand trowel and the pruning scissors to avoid hurting your fingers.
3. Avoid spilling or dropping water on the floor so that the floor will not become slippery.
4. Move carefully in order to avoid spilling the soil.

C. Steps in making an open terrarium

1. Prepare all the needed tools and materials.
2. Wipe the bottle or glass container to make it very clearly transparent.
3. Put a one-inch thick layer of pulverized charcoal into the glass container.
4. Put a one-inch thick layer of sand on top of the pulverized charcoal.

   Put a one-inch thick layer of fertilizer (organic or commercial) next to the pulverized soil.
5. Fill the remaining space in the glass container with loam soil.
6. Trim the terminal roots of the plant material with the aid of the pruning scissors.
7. Plant or set the plant material in the glass container, taking into consideration the design to be created. Herbaceous/shrub plants should be used specially those that do not grow big.
8. Press the soil slightly around the plant.
9. Place the decorative materials such as pebbles and figurines.

10. Water with a fine spray. Water should just be enough to be absorbed by the soil media. This includes the loam, sand, fertilizer and charcoal.
11. Place in a shaded area or inside the house.
12. Trim the plants occasionally to maintain the correct height.

D. Application

Call one or more students to re-demonstrate the steps in making the open terrarium.

.

E. Generalization

Call one or more students to generalize the topic that has been discussed.

IV. Evaluation: Short Quiz

Direction: Choose the letter of the correct answer.

1. It is a miniature landscape garden in a container.
   a. flat garden
   b. bonsai
   c. open terrarium

2. It is the material used to enhance the beauty or appearance of the open terrarium.
   a. soil
   b. pebbles
   c. charcoal

3. It is a kind of tool used to supply water in fine sprays to the open terrarium.

   a. handwater sprayer

   b. water hose

   c. sprinkler

4. It is a farming method done when there is no available lot area or open field.

   a. container gardening

   b. garden plot making

   c. ornamental gardening

5. It is a kind of plant that is suited to be grown in a container such as an open terrarium.

   a. trees

   b. vine plants

   c. small shrubs and herbs

Key to Correction

1. c
2. b
3. a
4. a
5. c

V. Assignment

Follow up assignment

1. Make an open terrarium in your house.

Advanced assignment:

1. Read about vegetable gardening.
2. What are the atmospheric factors that affect plant growth?
3. Define the following terms.
    a. Weather
    b. Climate
    c. Humidity
    d. Topography
    e. Photoperiod

Reference:

Senn Andrews, *Fundamentals of Horticulture.* Manila: National Bookstore, 1978.

APPENDIX B

BANGHAY-ARALIN SA AGRIKULTURA

BAITANG V

Mga Layunin

1. Matutunan ang batayang konsepto sa tamang paghahalamang ornamental.
2. Matukoy ang mga kinakailangan sa paghahalamang ornamental.
3. Makapagtanim ng halamang ornamental.
4. Mapahalagahan ang pag-aalaga at pagkultura sa halamang ornamental.

Mga Paksa

- Batayang konsepto sa pag-aalaga at pagkultura ng halamang ornamental
- Mga kinakailangan sa paghahalamang ornamental
- Tamang pamaraan sa pagtatanim ng halamang ornamental

Karagdagang Kaalaman Para sa Guro at Mag-aaral

Sa paghahalaman ay may mga batayang konsepto na dapat muna malaman. Ito ang mga konsepto sayantipiko na may kinalaman sa pagtubo at paglaki ng halaman hanggang sa ito ay maging prodaktib: ang tamang uri ng lupa na pagtataniman, tamang panahon o klima, init ng araw, tamang ulan o pagdidilig, at tamang pag-aalaga.

Pamaraan

A. Paghahanda

Isulat sa pisara ang maikling tula na ito:

Magtanim magtanim ngayon

Pagandahin ang ating nayon

Hindi lang sa amin, ngunit sa inyo rin.

Malinis na hangin ating langhapin

Kapaligiran ay gawing luntian

Nang tayong lahat ay makalanghap.

Tanungin ang mga bata kung ano ang dulot ng halaman ayon sa maikling tula. Ang sagot ay dapat nagmumula sa tulang ito.

B. Paglinang

Mga materyales at kagamitan sa paghahalamang ornamental.

May mga mahalagang materyales at kagamitang kinakailangan sa paghahalamang ornamental. Ito ay ang mga sumusunod:

Materyales:	Kagamitan:
--Lupang *loam*	--paso na pagtataniman
--Lupang organiko	--*hand trowel*
--Konting buhangin	--*hand gloves* sa pagtatanim
--Binhi o halaman	--regadera

C Hakbang sa Pagtanim Ng Halamang Ornamental

1. Ihanda ang lahat ng mga materyales at kagamitan.
2. Isapin ang buhangin sa loob ng paso. Sa ganitong paraan ay maiiwasan ang pagdikit o pagkapit ng ugat ng halaman sa ilalim. Ito ay teknik para mapadali ang paglipat-tanim sakaling lumaki na ito at kailanganing mailipat sa mas malaking paso.
3. Haluin o pagsamahin sa parehong proporsiyon ang lupang *loam* at organiko.
4. Ilagay ang magkahalong dalawang uri ng lupa hanggang sa kalahatian ng paso.
5. Itanim ang binhi o halamang ornamental sa gitna ng paso.
6. Punan ng pinagsamang *loam* at organikong lupa ang natitirang bakanteng lugar ng paso.

7. Idiin ang lupa sa paligid ng halaman nang katamtamang lakas.
8. Diligan nang may pag-iingat para hindi maanod ang lupa sa ibabaw.
9. Ilagay sa lilim hanggang isang linggo bago ito paarawan. Kailangan ito para ang halaman ay hindi malanta dahil sa pagkakagalaw ng mga ugat nito.
10. Diligan lamang kung kinakailangan.

D. Pagtatapos at Pagtaya

Pagsunod- sunurin ang mga hakbang sa pagtatanim ng halamang ornamental. Ilagay ang tamang numero sa puwang.

_____ a. Itanim ang binhi o halaman sa paso.

_____ b. Ilagay ang magkahalong lupa hanggang sa kalahatian ng paso.

_____ c. Idiin ang lupa sa paligid ng halaman.

_____ d. Diligan lamang kung kinakailangan.

_____ e. Ihanda ang lahat ng mga materyales at kagamitan.

_____ f. Haluin o pagsamahin ang *loam* at organikong lupa.

_____ g. Isapin ang buhangin sa loob ng paso.

_____ h. Diligan nang may pag-iingat para hindi maanod ang lupa.

_____ i. Ilagay sa lilim.

_____ j. Punan ng lupa ang natitirang bakanteng lugar sa paso.

Sanggunian:

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Susi sa Pagwawasto

a. 5	f. 3
b. 4	g. 2
c. 7	h. 8
d. 10	i. 9
e. I	j. 6

APPENDIX C

SAMPLE LESSON PLAN IN HOME ECONOMICS

(MAY BE TAUGHT IN THE SECOND YEAR HIGH SCHOOL)

I. Objectives:

At the end of the lesson the students are expected to:

A. Enumerate the characteristics of a newborn baby.

B. Recognize the differences among babies.

C. Show interest in familiarizing oneself with the characteristics of newborn babies.

II. Subject Matter:

A. Topic: Babyhood Years

Subtopic: Characteristics of a newborn baby

B. Instructional Materials:

Aids and devices

Charts

Pictures of babies

III. Procedure:

A. Preparation.

1. Daily classroom routine

2. Review of the past lesson

B. Motivation:

There are different letters in the chart. Select some letters which can form a word and encircle them. The words you shall form are the characteristics of a newborn baby.

B	**F**	**D**	**H**	**I**	**K**	**P**	**J**	**I**	**G**	**Q**	**D**
A	**P**	**P**	**E**	**A**	**R**	**A**	**N**	**C**	**E**	**E**	**R**
U	**T**	**E**	**L**	**V**	**H**	**G**	**E**	**M**	**P**	**X**	**F**
V	**U**	**L**	**P**	**C**	**K**	**Q**	**W**	**W**	**T**	**Y**	**B**
Y	**T**	**I**	**L**	**A**	**U**	**D**	**V**	**I**	**D**	**N**	**I**
E	**D**	**C**	**E**	**H**	**S**	**S**	**O**	**L**	**R**	**M**	**B**
H	**G**	**I**	**S**	**O**	**F**	**N**	**A**	**X**	**Z**	**Y**	**A**
J	**K**	**L**	**S**	**N**	**E**	**S**	**A**	**N**	**C**	**Z**	**F**

You will form the following words.

Appearance

Helplessness

Individuality

C. Presentation of the Lesson

1. Definition of technical terms:

   Appearance

   Helplessness

   Individuality

2. Unlocking of difficulties

   a. What are the characteristics of a newborn baby?

   b. What are the differences which are observable among babies?

D. Application:

   Let us now see how well you have learned. Summarize the lesson just discussed.

E. Evaluation; Short Quiz

Direction: Fill in the blanks with the correct word. Read each item carefully.

1. _____ is the state of being dependent babies.
2. The common characteristics of newborn infants are_____ and
3. _____
4. The physical image of a person is called _____.
5. Babyhood years begin from the day of birth of the baby until _____ year of age.

Key to Correction:

1. Helplessness
2. Smallness
3. Top heaviness
4. Appearance
5. One

IV. Assignment:

1. Define the term childhood.
2. Describe the body proportion of an infant.

Reference:

Nursing Services, American Red Cross*. Home Nursing.* New York: Doubleday and Company, Inc., 1977, pp. 91-113.

APPENDIX D

BANGHAY-ARALIN SA PAGLULUTO AT NUTRISYON

BAITANG IV

Mga Layunin

1. Matalakay ang kahalagahan ng tamang nutrisyon.
2. Makilala ang iba't- ibang local na pagkaing nagbibigay ng sustansiya ayon sa *food pyramid.*
3. Maipaliwanag ang kahalagahan ng anim na *food elements* na mahalaga para sa tamang nutrisyon.
4. Mapahalagahan ang tamang pagbabalak ng pagkain para sa pamilya.

Mga Paksa

- Kahalagahan ng anim na *food elements* at ng tamang nutrisyon
- Ang anim na *food elements* para sa mabuting nutrisyon
- Iba't-ibang uri ng pagkaing lokal na nagbibigay ng mga *food elements*
- Mahalagang aspeto sa pagbabalak ng pagkain para sa pamilya

Karagdagang Kaalaman Para sa Guro at Mag-aaral

Ang kalusugan ng mga miyembro ng pamilya ay nakasalalay sa tamang pagkain. Ito ang mga pagkain na nagbibigay ng mga *food elements* na kinakailangan ng ating katawan para mapanatili at mapangalagaan ang kalusugan. Maraming uri ng pagkaing lokal na kayang bilhin ng mag-anak ang maaaring ihanda sa hapag kainan para matugunan ang tamang pangangailangan ng katawan ng tamang nutrisyon. Ang pagbibigay ng tamang nutrisyon ay makakamit mula sa tamang pagbabalak ng pagkain para sa pamilya.

Mga kagamitan

Mga larawan at aktwal na produkto o pagkaing lokal. Larawan ng *food pyramid* na nagtataglay ng mga ibat ibang uri ng pagkain na nagbibigay ng mga sustansiya.

Pamaraan

A. Paghahanda

Ganyakin ang mga mag-aaal sa larawan ng *food pyramid* at aktwal na pagkaing lokal. Hayaan ang mga mag-aaral na makapagbigay puna sa kanilang nakikita.

B. Paglinang

Ang anim na *food elements* na kailangan ng katawan para sa mabuting nutrisyon

- *Fats and oils*--Ito ang nagbibigay sustansiya para mapanatili ang init ng katawan at ito ay nagbibigay din ng enerhiya para may lakas ang katawan
- *Vitamins*--Ito ay nagbibigay sustansiya para mapasigla at mapaliksi ang katawan, at nang lumakas ang resistensiya laban sa sakit.
- *Minerals*–Ito ang nagbibigay sustansiya para mapanatiling matigas ang mga buto at mga kuko.
- *Proteins*--Ito ang sustansiyang tumutulong para ang *muscles at tissues* ng ating katawan ay siksik at matigas.
- *Carbohydrates*--Ito ang nagbibigay ng sustansiya para ang ating katawan ay may enerhiya at lakas.
- *Liquids/Water*--Ito ang tumutulong sa katawan sa lahat ng metabolismo at nang sa ganun ay magawa nito nang maayos ang mga prosesong internal.

Mga Halimbawa ng ibat ibang pagkaing lokal na nagbibigay ng mga *food elements*

- *Fats and oils*

  Butter/mantikilya *Mayonnaise*

  Mantika Taba ng mga ulam(baboy, manok)

- *Vitamins*

  Pinya Ubas

  Dalandan Mga prutas

- *Minerals*

  Pagkaing sea shells: Isdang dilis

  -Halaan Saging

  -Suso

- *Proteins*

  Mga karne: Mga Isda:

  - Manok - Hasa-hasa

  - Baboy - Tanigue

- *Carbohydrates*

  Kanin Tinapay

  Kamote Gabi

  Kendy

- *Liquids/Water*

  Tubig Sabaw ng pagkain

  Juices

Mga Mahalagang Aspetong Dapat Pagtuunan ng Pansin sa Pagbabalak ng Pagkain para sa Pamilya

1. Uri ng pagkain at uri ng sustansiya na naibibigay nito
2. Pagkaing nasa panahon (*in season*)
3. Abot kaya ng pamilya ang halaga
4. Kasariwaan ng pagkain (*freshness)*

Pagtatapos at Pagtaya

Piliin ang tamang sagot sa pamamagitan nang pagbilog sa letra ng mga tinutukoy:

1. Ang *food element* na nagbibigay enerhiya o lakas sa katawan ay:

   a. *carbohydrates* c*. vitamins*

   b*. proteins* d. *minerals*

2. Ang *food element* na nakakapagpalakas ng resistensiya laban sa sakit ay:

   a. fats *and oils* c. *liquids and water*

   b. vitamins d. *carbohydrates*

3. Ang *food element* na nakakapagpatigas ng ating mga buto at kuko ay:

   a. *fats and oils* c. *liquids and water*

   b. *proteins* d*. vitamins*

4. Ang pagkain na sagana sa *vitamins* ay:

   a. isda c. tinapay

   b. mantikilya d. bayabas

5. Ang pagkain na may taglay na *proteins* ay

   a. isda c. tinapay

   b. mantikilya d. bayabas

6. Ang pagkain na sagana sa *minerals* ay:

   a. pinya c. halaan

   b. manok d. kanin

7. Ang pagkain na taglay ang *carbohydrates* ay:

   a. pinya c. halaan

   b. manok d. kanin

Magbigay ng tatlong aspeto na dapat tuunan ng pansin sa pagbabalak ng pagkain sa pamilya

8.

9.

10.

Sanggunian:

Luz Rojo. *Effective Home Economics,* Quezon City: Adriana Publishing, 1998.

Susi Sa Pagwawasto

1. a
2. b
3. b
4. d
5. a
6. c
7. d
8. uri ng pagkain at uri ng sustansiya na naibibigay nito
9. pagkaing nasa panahon (*in season*)
10. abot kaya ng pamilya ang halaga

    -- kasariwaan ng pagkain (*freshness*)

APPENDIX E

SAMPLE LESSON PLAN IN COMPUTERS

(MAY BE TAUGHT IN THE ELEMENTARY AND IN HIGH SCHOOL)

I. Objectives:

Given the information and an hour session, the students are expected to:

1. Learn the advantages of using power point in making presentations.
2. Appreciate the advantages of power point presentations.
3. Construct a presentation using power point.

II. Subject Matter:

A. Concept: Power Point / Graphics Presentation

Sub concept: Creating a power point presentation

B. Instructional Materials:

1. Reference: *Microsoft Office 2000 Professionals*
2. Aids and Devices:

2.1 Visual aids

2.2 Computer unit/s

2.3 M.S. Office 2000 Software

III. Procedure:

Preparation

1. Daily classroom routine.
2. Review of the past lesson.

Topic: Creating a Slide Presentation

A. Motivation:

Class, I have here two drawings of a dove. One on a cartolina and the other one projected on the screen. Which dove do you like? Why?

B. Presentation:

1. (Unlocking of Difficulties) Discuss the answers to the following key questions:
    a. What is a power point presentation?
    b. What are the advantages of a power point presentation?
    c. What are the structures to be considered in planning a power point presentation?
    d. What are the other elements which can be added or utilized in a power point presentation to make it more interesting and attractive?
    e. What are the steps in creating a power point presentation?
2. Definition of Terms:
    a. Power Point
    b. Presentation
    c. Layout
    d. Dialog Box

C. Application:

Call at least 3 students to create their own presentation using power point.

D. Generalization:

Call at least 3 students to give a brief summary of the topic that has been discussed.

E. Evaluation: Short Quiz.

Direction: Write the answer in the space provided.

_____1. It is a pattern or frame.

_____2. A software which enables one to extend the ability to communicate and help make effective presentations.

_____3. The giving of information to the audience and listeners.

_____4. It allows one to provide more information about how a program should carry out a task.

_____5. Characterized by having font and alignment buttons most common on a toolbar.

Key to Correction:

1. Layout
2. Power Point
3. Presentation
4. Dialog Box
5. Formatting Toolbar

IV. Assignment

a. Follow-up:

Study more about the power point presentation.

b. Advance assignment:

Read about the slide show presentation.

Reference:

Parsons, J. Et al. *Microsoft Office 2000 Professionals*. Jomma Mfg. Corp. Phil., 2000, Quezon City: Phoenix Publishing, 2000. pp 16-28.

APPENDIX F

BANGHAY-ARALIN SA TINGIANG PAGTITINDA

BAITANG VI

I. Mga Layunin

1. Matalos ang kahulugan ng tingiang pagtitinda.
2. Maipaliwanag ang kahalagahan ng matalinong pamamahala ng tingiang pagtitinda.
3. Matalakay ang mga alituntunin kailangang isaisip para sa ikauunlad ng pagtitinda.
4. Mapahalagahan ang mga alituntunin sa ikauunlad ng pagtitinda.

II. Mga Paksa

1. Kahulugan ng tingiang pagtitinda
2. Kahalagahan ng matalinong pamamahala ng tingiang pagtitinda
3. Mga alituntuning dapat isa-isip o isagawa para sa maunlad na pagtitinda.

III. Karagdagang Kaalaman Para sa Guro at Mag-aaral

Sa panahon ngayon ay makabubuti sa isang mag-anak ang mayroong karagdagang kita o hanapbuhay. Ito ay nakatutulong sa maaaring kakulangan ng kita o sa kawalan ng kita o hanapbuhay ng ilang pamilya. Ito ay gawaing madaling matutunan ng ating mga kabataan habang sila ay nasa bahay lamang o di kaya'y habang walang pasok sa paaralan. Ito ay maaari ding sanayang panimula para sa mas malaking pangangalakal.

Pamaraan

A. Paghahanda

Magkaroon ng talakayan tungkol sa karanasan ng mga bata sa pamimili sa *mall* o sa tingiang tindahan, at tanungin kung anu-ano ang

magagandang napuna nila sa mga *mall* o tingiang tindahan. Hatiin sa dalawang grupo ang klase: a. yung may gusto magsalita tungkol sa napuna sa *mall* at b. yung may gusto magsalita tungkol sa napuna sa tingiang tindahan.

B. Paglinang

Ang tingiang pagtitinda ay isa sa mga mahahalagang gawaing nakatutulong sa ika-uunlad ng ating pamayanan. Isa ito sa mga programa ng ating pangulo upang matulungan ang pamayanan at mapaunlad ang ating bansa. Isa ito sa mga bagay na dapat natin isagawa para sa maunlad na katuparan ng programang ito na tutuo namang makatutulong sa ikauunlad ng pamayanan.

Ang ikauunlad ng tingiang pagtitinda ay nakasalalay sa mga alituntuning ito:

- Masigasig na hangarin ng pamilya na mapaunlad ang pagtitinda
- Sapat na kaalaman sa pamimili at pagtitinda
- Katamtamang puhunan sa panimula
- Mga katangian ng magtitinda, gaya ng mga sumusunod:
  a. magalang at magiliw sa mamimili
  b. matapat at maayos sa gawain
  c. nag-uukol ng sapat na panahon sa pagtitinda
  d. may kaalaman sa tamang halaga ng mga paninda
  e. sumusunod sa tamang alintuntunin sa pagpapatong ng halaga na tutubuin
  f. may kaalaman sa magandang pag-aayos ng paninda
  g. may tamang pamamaraan sa pamimili
  h. may kaalaman sa paglilista ng tamang halaga at mga napagbilhan

C. Pagtatapos at Pagtaya

Sagutin kung ano ang tinatanong/tinutukoy.

1-4 Mga alituntuning dapat isa-isip o tandaan para sa maunlad na pagtitinda

5-10 Mga katangian ng magtitinda

Sanggunian:

Corazon R. Fajardo, *Entrepreneurship*. Manila: National Bookstore, 1994.

Susi sa Pagwawasto

1. Masigasig na hangarin ng pamilya na mapaunlad ang pagtitinda
2. Sapat na kaalaman sa pamimili at pagtitinda
3. Katamtamang puhunan sa panimula
4. Mga katangian ng magtitinda
5. Magalang at magiliw sa mamimili
6. may katapatan at kaayusan sa gawain
7. nag-uukol ng sapat na panahon sa pagtitinda
8. may kaalaman sa tamang halaga ng mga paninda
9. Sumusunod sa tamang alituntunin sa pagpapatong ng halaga na tutubuin
10. may kaalaman sa magandang pag-aayos ng paninda
    - Tamang pamamaraan ng pamimili
    - Kaalaman sa paglilista ng tamang halaga at mga napagbilhan

APPENDIX G

SAMPLE LESSON PLAN IN METAL WORKS

THIRD YEAR

I. Objectives: At the end of the lesson the students are expected to:

A. Identify the tools and materials needed in making a metal candle holder.

B. Demonstrate the steps in making a metal candle holder.

C. Show interest for art metal work.

II. Topic: Art Metal Work

Subtopic: Making a Metal Candle Holder

III. Procedure:

1. Preparation (perform the routinary class activities)

a. Review of the past lesson

b. Unlocking of difficulties

2. Presentation

a. Motivation

b. Instructional Strategy

c. Definition of the technical terms used and encountered in the discussion of the lesson and in making the project:

Scallop design

Screw

fasten

hammer

fold

d. What are the tools and materials to be used in making the metal candle holder?

e. What are the steps in making the metal candle holder?

Safety Precautions to be observed while making the metal candle holder

- Use the right tool for each specific step or activity.
- Be careful in holding the sharp edges of the metals (for they are sharp).
- Pay attention to what is being done to avoid untoward incident/s.

The tools and materials needed in making a metal candle holder:

- metal snips
- hack saw
- hack saw blade
- hammer
- screw driver
- aluminum tube
- metal paint
- aluminum flat bar
- aluminum sheet
- aluminum screw

Steps in making the metal candle holder:

1. Get started by preparing all the tools and materials needed.
2. Prepare 2 pcs. of aluminum flat bar by cutting it to a length of 15 cm. each.
3. Cut the aluminum tube to a length of 7.5 cm.
4. Make a circular sheet from the aluminum sheet with a diameter of 10 cm.
5. Curve the ends of the two flat bars to create the leg of the candle holder.
6. Cut a scallop design around the circular metal sheet with a depth of ½ inch.
7. Fold the scallops upward. This forms now the plate of the candle holder.

8. Cut a tongue-like design at one end of the aluminum tube. This will serve as the hook to the metal plate.
9. Attach the two flat bars to the metal plate with an aluminum screw; make sure that the tube is fastened first on the metal plate.
10. Spray with metal paint if colors are desired.

Application

Call one or two students to re-demonstrate the steps presented.

Generalization

Call one or two students to summarize the steps that have been discussed and tell the economic importance of Art metal work.

Evaluation

Direction: A short quiz. Fill the blanks with the correct word.

_____a. The process of forming curves in metals.

_____b. It is the tool used for cutting the aluminum sheets.

_____c. The process of joining metals together with the aid of a screw driver.

_____d. The metal material that is used to form the metal plate.

_____e. The manner or method of applying paint to the finished metal candle holder.

Key to Correction

a) bending

b) metal snips

c) screwing

d) metal sheet

e) spraying

Agreement

Make a candle holder at home using different designs.

APPENDIX H

BANGHAY-ARALIN SA METAL CRAFT

BAITANG VI

I. Mga Layunin

1. Matalakay ang kahulugan ng *metal craft*.
2. Matutuhan ang paggawa ng *metal candle holder*.
3. Mapahalagahan ang gawaing *metal craft*.
4. Makilala ang iba't ibang kagamitan sa paggawa ng *metal candle holder*

II. Mga Paksa

- Kahulugan ng *metal craft*
- Mga materyales at kagamitan sa paggawa ng *metal candle holder*
- Tamang pamaraan sa paggawa ng *metal candle holder*

III. Karagdagang Kaalaman Para sa Guro at Mag-aaral

Ang *metal craft* ay gawain na maaaring magturo sa atin ng paglikha ng bagay o proyekto sa pamamagitan ng paggamit ng metal o ng tinatawag nating aluminum. Isa sa mga proyekto na maaaring gawin ay ang *metal candle holder*, na puwedeng gamitan ng mga retaso o maliliit na bahagi ng metal o aluminum. Ang mga proyektong metal ay isa sa mga gawaing magtuturo ng pagiging malikhain.

Pamaraan

A. Paghahanda

Magpakita ng aktwal na *metal candle holder* at ng kandila na nakatayo sa mesa ng guro*.* Hayaan ang mga bata na punahin ang *metal candle holder* at ang kandila na nakatayo sa mesa ng guro. Maaaring tanungin ang mga bata kung ano ang dapat gawin upang ang kandila na nakatayo sa mesa ng

guro ay mailagay sa ayos. Kailangan maibigay nila ang kasagutan sa kahalagahan ng paggawa ng *metal candle holder*.

B. Paglinang

Mga materyales at kagamitan sa paggawa ng *metal candle holder*

May iba't-ibang kagamitan na kinakailangan upang makagawa ng isang *metal candle holder*. Ito ay ang mga sumusunod:

Materyales:	Kagamitan:
- Metal o *aluminum sheet*	- Metal *snips*-panggupit sa aluminum
- Metal na tubo – 1" diametro	- *Hack saw*–pamputol sa tubo at sa *flat bar*
- *Flat bar metal* – ¾" lapad	
- Ribet - ½" haba	- *Riveter*-pangkabit sa ribet
- *Spray paint*	

C. Hakbang sa Paggawa Ng *Metal Candle Holder*

1. Ihanda ang lahat ng materyales at kagamitan .
2. Gupitin ang aluminum sa bilog na 6" diametro at lagyan ng *scallop* na desenyo sa paligid nito. Ito ang magiging *metal plate* ng *candle holder*.
3. Itupi ang *scallop* pataas.
4. Magputol ng tubo sa habang 3", at dalawang piraso ng *flat bar* sa sukat na 9"
5. Iikot ang mga dulo ng flat bar.
6. Gumawa ng dalawang patulis sa tubo sa pamamagitan ng pagtanggal o paggupit ng ¼" sa isang dulong bahagi nito. Ito ang magsisilbing *fastener* para ang tubo ay maikabit sa *metal plate*.
7. Pagdikitin ang dalawang *metal bar* ng pa-ekis sa pamamagitan ng ribet. Ito ang magsisilbing paa ng *candle holder*.
8. Ikabit ang tubo sa *metal plate* sa pamamagitan ng pagtusok ng tulis nito sa *plate*.

9. Ikabit sa kabila ng *plate* ang nakaekis na *flat bar* sa pamamagitan ng ribets.
10. Pinturahan sa paraang *spray.*
11. Patuyuin ang pintura.

D. Pagtatapos at Pagtaya

Sagutin kung ano ang tinutukoy.

1. Ang metal na ginawang lalagyan ng kandila ay _____.
2. Ang aluminum ay ginawang anong bahagi ng *candle holder*? _____.
3. Ang metal na ginamit para maging paa ng *candle holder* ay _____.
4. Ang materyales na ipinangkabit sa *metal plate* at *flat bar* ng *candle holder* ay _____.
5. Ang materyales na nagbigay kulay para gumanda ang *candle holder* ay_____.
6. Ang kagamitang pamputol ng tubo at *flat bar* ay _____.
7. Ang kagamitang panggupit ng aluminum ay _____
8. Ang kagamitang pangkabit ng ribet _____.
9. Ano ang unang hakbang sa paggawa ng *metal candle holder*?
10. Magbigay ng isang magandang karanasan habang ginagawa ang proyekto.

Sanggunian:

Tomas M. Quilang. *Handicrafts Handbook*. Quezon City: National Bookstore Publishers, 1994.

Susi Sa Pagwawasto

1. tubo
2. *metal plate*
3. *flat bar*
4. ribet
5. pintura
6. *hack saw*
7. metal *snips*
8. *riveter*
9. Ihanda ang mga materyales at kagamitan.
10. Ang sagot dito ay maaaring magkakaiba.

APPENDIX I

SAMPLE LESSON PLAN IN WOODWORKING

FOURTH YEAR

I. Objectives: At the end of the lesson the students are expected to:

A. Explain the importance of applying varnish.

B. Identify tools and materials used in applying varnish.

C. Demonstrate the steps, safety precautions, in applying varnish.

D. Gain the skills in applying varnish.

II. Topic: Wood Finishing

Sub topic: Applying Varnish

Tools and Materials:

paint brush	varnish
empty coke can	sand paper
rags	old newspaper

Aids and Devices:

illustrations

charts

materials to be used in applying varnish

III. Procedure

A. Preparation (class routinary activities)

1. Review of the past lesson
2. Motivation

B. Presentation

Definition of technical terms

Varnish	Wood finishing
Paint brush	Wood finishes

Safety Precautions to observe in applying varnish:

a. Select appropriate brush; make sure that there are no loose bristles.

b. Use a mask to avoid inhaling the fumes.

c. Dip ⅓ of the paint brush bristle to avoid too much spilling from the project.

Steps in applying varnish:

1. Prepare all the materials and tools needed.
2. Wipe the project completely with a clean rag to remove dust.
3. Pour varnish into a clean container such as an empty coke can.
4. Using a paint brush, apply varnish with long easy strokes. Let it dry.
5. Smoothen the surface of the project after the first coating using fine sand paper.
6. Repeat steps 4 and 5 until the desired color is attained.

C. Application

Call one or two students to re-demonstrate the steps that were presented.

D. Generalization

Call other students to summarize the lesson discussed.

E. Evaluation

Direction: Encircle the letter of the correct answer.

1. What tool is used in spreading the varnish?

a) stick b) brush c) spray

2. The material used in smoothening the surface of the wood is

   a) grinder b) sand paper c) file

3. In order to avoid too much spilling of varnish, the brush should be dipped in the can at least

   a) ½ of the length of the bristles

   b) 1/4 of the length of the bristles

   c) ⅓ of the length of the bristles

4. It is used in wiping the dust away from the wood.

   a) brush b) rag c) sprayer

5. To avoid inhaling the fumes of the varnish or any finishing materials it is advisable to use a:

   a) rag b) mask c) towel

Key to Correction

1. b 2. b 3. c 4. b 5. b

IV. Assignment

A. Follow-up

1. Practice applying varnish at home.

B. Advance

1. What are the different kinds of paints?
2. When is the best time to apply paint?
3. How is paint being dissolved?

Reference: Arsenio Galairan, *Basic Woodworking*, pp. 70-81.

APPENDIX J

SAMPLE LESSON PLAN IN ELECTRONICS

FOURTH YEAR

I. Objectives:

At the end of the lesson the students are expected to:

A. Demonstrate the correct steps in soldering hook-up wires and semiconductors.

B. Solder hook-up wires and semiconductors.

C. Observe the safety precautions in soldering.

II. Subject Matter: Soldering Hook-up wires and Semiconductors

Reference: Velasco, B. *Electronics Component Testing,* Manila: National Bookstore, 1998. pp. 220-226.

A. Instructional Materials:

1. aids and devices: chart
2. hand tools
    - diagonal cutter
    - long nose pliers
    - soldering iron
    - soldering stand
    - printed circuit board
3. materials
    - hook-up wires (AWG no. 22 stranded)
    - alligator clips
    - semiconductors

III . Procedure

A.Preparation

1. Daily routine: greeting the class; checking the attendance.
2. Review of the past lesson. (The teacher asks questions about the previous lesson regarding semiconductors and printed circuit board.)
3. Motivation: The teacher shows examples of two projects or metals which are joined or assembled by means of soldering. Ask the students about the importance of such method of joining two pieces of metals.

B. Presentation :

1. Definition of technical terms:
   a. soldering – is a process of joining pieces of metals with the use of solder and application of heat.
   b. soldering iron – a tool used in heating two or more metallic components in order to join them together.
   c. soldering tip – the tip of the soldering iron where heat passes through to melt the solder.
   d. solder – an alloy of tin and lead which melts in heat used to join pieces of metallic components.
   e. soldering stand – an equipment which holds the soldering iron when not in use.
2. Safety Precautions:
   a. Do not spray hot solder by shaking the hot soldering iron or the hot soldered joint.
   b. Do not touch the bare metal part of the soldering iron. Always hold it on the insulated handle.
   c. Always rest a hot soldering iron on the soldering stand.
   d. Keep away from combustible materials while working.

e. Use the appropriate soldering iron (30 watts).

Procedure in soldering hook-up wires and metallic components:

Steps in Preparing Hook-up Wires:

1. Strip off the insulation from the ends of short pieces of Hook-up wires.
2. Examine the stranded stripped-off ends of hook-up wires. It must be clean and dust free.
3. Twist together the ends of the stranded hook-up wires.
4. Tin the soldering iron.
5. Solder the alligator clips.

Steps in Soldering Semiconductor Components:

1. Examine the cleanliness of the parts to be soldered and the soldering iron to be properly tinned.
2. Solder by placing the tip of the soldering iron to the pieces to be joined.
3. Observe if the solder and the components are adequately touched by the soldering iron tip.
4. Check the joints or connections if properly done.

C. Application:

Call one or two students to do again the steps in soldering hook-up wires and semiconductors.

D. Generalization:

The teacher calls a student to summarize the lesson.

F. Evaluation

Direction: Identify what is described in the following statements by writing the correct word or words before each statement.

_____ 1. The equipment where the hot soldering iron is rested when not in use.

_____2. The process of joining metals to assure permanent electrical joints or connections.

_____3. An alloy of tin and lead used to join two or more metal components.

_____4. The most important part of the soldering iron where heat passes to the parts to be joined.

_____5. A tool used to join or combine two or more metallic components.

Key To Correction:

1. soldering stand
2. soldering
3. solder
4. soldering tip
5. soldering iron

IV- Assignment:

1. Follow-up assignment

   Solder five semiconductor components on a printed circuit board.

2. Advance assignment

   Answer the following:

   1. What is printed circuit board designing?
   2. What are the tools and materials needed in printed circuit board designing?
   3. What are the steps involved in printed circuit board designing?

References: Grob, B., *Basic Electronics*. Manila: National Bookstore, 1993.
Velasco, B., *Electronics Component Testing*. Manila: National Bookstore, 1998.

APPENDIX K

SAMPLE LESSON PLAN IN FISHERY ARTS

FIRST YEAR

I. Objectives:

At the end of the lesson the students are expected to:

A. Define the term fish culture/cultivation.

B. Identify the different methods of fish cultivation.

C. Show interest in fish culture discussions and activities.

II. Subject Matter: Methods of fish cultivation

Instructional aid and device: a fish bowl aquarium

III. Procedure:

A. Preparation:

The teacher performs the daily routine classroom activities before the lesson proper.

B. Review of the past lesson:

1. Define the terms ornamental gardening and urban farming?

2. What are the materials needed in making an open terrarium?

3. What are the steps in making an open terrarium?

C. Motivation:

The teacher shows to the class a crystal bowl or bottle with a small fish. Ask the students these questions to arouse their attention.

1. What is this, Class? (Referring to the crystal bowl with small fish)

2. Do you know how to take care of a fish inside a bottle?

D. Presentation of the Lesson:

Key Questions to Unlock the Difficulties:

1. What is the meaning of fish culture/cultivation?
2. What are the different methods of fish cultivation?
3. Which among the different methods of fish culture do you like and which will you adopt?

The meaning of fish cultivation: Fish cultivation is the practice of raising a fish specie within a controlled environment .The practice is intended to increase production in order to have a continuous supply of fish for human consumption.

Methods of fish cultivation. The methods of fish cultivation are:

1. Fish pen – this method needs bamboo poles as posts and fishnet enclosure. The fishnet is securely attached to the bottom part of the water to prevent fish from escaping. This is done in shallow protected area of inland water in the sea or lake.

2. Open Water – this is a method of fish cultivation in an open area without installing an enclosure. This method is applicable to the cultivation of oysters, mussels, and in seaweed farming. This is done in coastal waters, bays, and other similar environments.

3. Fish Cage – This method uses fishnet and bamboo or wooden frame with nylon netting .The four corners of the net are tied to the poles and then submerged in an inland flowing body of water. Growth of fish in this structure is dependent on the food given to them.

4. Fishpond – This method is done by excavating ground. The excavation may be cemented including the dug-out walls then filled with water, or it can just be a dug-out without cement, just filled with water.

5. Aquarium – This is the cultivation of fish in a glass structure making use of crystal bowls or containers. This method requires constant aeration, care, and good

water management. This method is beautifully done to ornamental fishes of various colors.

E. Generalization:

The teacher calls one or two students to summarize the lesson just presented and discussed.

F. Evaluation

Direction: Fill in the blanks with the correct word or words.

1. Fish cultivation done in a dug-out structure in the ground is _____.
2. Fish cultivation using glass structure such as a crystal bowl is _____.
3. Fish cultivation which is done in bays and coastal waters without making an enclosure in the area is_____.
4. Fish cultivation done in a structure made of fishnet wherein the four corners are tied to bamboo or wood, and submerged in water is _____.
5. Fish cultivation which requires the erection of long bamboo posts in a shallow protected inland water area like the sea or lake is _____.

Key to Correction:

1. dug-out method
2. aquarium method
3. open water method
4. fish cage method
5. fishpen method

IV- Assignment

Each student shall make a miniature fish cultivation project using the aquarium method. Be sure to observe and perform proper feeding, aeration and water management practice.

APPENDIX L

SAMPLE LESSON PLAN IN HANDICRAFT

SECOND YEAR

I. Objectives:

At the end of the lesson the students are expected to:

A. Identify the processes involved in preparing the bamboo into usable form.

B. Perform the steps in making a bamboo topiary out of bamboo flowers.

C. Observe safety precautions in working with bamboo.

D. Appreciate the economic and aesthetic value of bamboo.

II. Subject Matter:

Production of Bamboo Topiary out of Bamboo Flowers

Instructional Materials:

Aids and devices:

a. realia (materials such as bamboo, styropor, enamel paint)

b. tools: NT cutter, knife, bolo, small paint brush

III Procedure:

A .Preparation

1. Performing the daily class routine activities.

2. Review of the past lesson. (Ask the students to identify the different parts of the bamboo plant.)

3. Motivation:

The teacher shows the students a multi-colored bouquet made from bamboo and lets them guess the material it is made of.

B. Presentation:

Definition of technical terms:

1. Splitting – the process of cutting the bamboo perpendicularly into halves or quarters with the aid of a bolo.
2. Stripping – the process of reducing the split bamboo halves or quarters into smaller pieces with the use of a knife.
3. Scraping – the process of creating thin short scrapes as in flower petals with the use of NT cutter.

Safety Precautions

1. Pay full attention to what you are doing to avoid hurting or cutting your hand.
2. Use the right tool for a specific work or job.
3. Check the bolo, knife and NT cutter if they are in proper order and condition.
4. Exert hand control while scraping or making the flowers to avoid bruising your fingers.

Procedure in Making the Bamboo Topiary

Steps in splitting and stripping the bamboo:

1. Hold the bamboo perpendicularly.
2. Cut or split the bamboo with the use of a bolo into halves or quarters.
3. Strip the halves or quarters into smaller pieces, reducing it to ½" in width with the use of a knife.
4. Smoothen strips and form into circular sticks about 3/8" in diameter with the use of a knife.

Steps in Scraping the Bamboo into Bamboo Flowers:

5. Taper one of the ends of a bamboo stick to resemble a sharpened pencil.

6. Scrape thinly to form small petals. Scraping shall be done around the circular stick until a flower is formed.
7. Repeat steps nos. 1 and 2 to make several flowers.
8. Pin the flowers on the styropor by thoroughly covering the whole of the styropor with the bamboo flowers.
9. Color with the use of a small paint brush.
10. Add glitters if desired to add more beauty to the project.
11. Attach stick or drift wood to serve as the stem or branch of the bamboo topiary.

C. Application: Practicum by all the students. All the students shall make one bamboo flower each.

D. Generalization: The teacher calls one or two students to summarize the lesson.

F. Evaluation: (A short seat work activity)

Direction: Arrange the processes or steps sequentially as done in making a bamboo topiary by placing the nos. 1, 2, 3, 4, 5 before each process listed.

_____ a. scraping

_____ b. tapering

_____ c. splitting

_____ d. coloring

_____ e. stripping

Key to Correction:

a. 4

b. 3

c. 1

d.5

e.2

IV- Assignment:

Follow-up assignment:

a. Continue making more bamboo flowers.

b. Make the bamboo topiary.

APPENDIX M

SAMPLE LESSON PLAN IN AUTOMOTIVE

GRADE V

I. Objectives: At the end of the lesson the students are expected to:

A. Identify the different categories of road signs.

B. Give the meaning of the different road signs.

C. Appreciate the importance of the different road signs.

II. Subject Matter: The Road Signs

Reference: Garcia, E., *A-1 Drivers Manual*, 2001.

Instructional Materials: chart; drawings/illustrations; OHP

III. Procedure:

A .Preparation:

1. The teacher performs the routine class activity.
2. Review of the past lesson:
   a. What are the major components of the automobile system?
   b. What is the function of each part of the automobile system?
   c. Identify the different parts of the automobile system. (The teacher shows again the drawing of an automobile or shows the students a real automobile and lets them identify the different parts.)
3. Motivation:

The teacher shows three electric bulbs of different colors: red, green, and yellow. Let the students give the meaning of colored bulbs when used as traffic signs. It will be more meaningful if the bulbs will be lighted.

B. Presentation:

Key Questions to Unlock the Difficulties:

1. Why is safety on the road a primary concern of drivers?
2. What are the different categories of road signs?
3. What are the different traffic signs and their meanings?

Discussion of the topics below: (the student-centered style)

1. Safety observance on the road has several advantages:
    a. Serves as direction for the drivers.
    b. Preserves life by prevention of accidents.
    c. Helps maintain good traffic flow.
    d. Brings people to their destination safely and on time.
    e. Saves time and effort while traveling.
2. The different categories of road signs:
    a. Caution signs – these are figures of triangular shape and with red color border.
    b. Warning signs – these are figures with diamond shape on yellow or black background.
    c. Information signs – these are figures in round or rectangular shape with white or blue background.
    d. Instruction signs – these figures are round shaped, inverted triangle or octagon shaped and are colored red.
    e. Directional signs – these figures are round shaped colored white with blue background.
3. The different traffic signs and their meanings:
    a. Circle in square figure, with white on red – means danger.
    b. Triangle, red border line on white background – means yield.

c. Square or rectangle, black text on white background – means obey.

d. Diamond, black on yellow, with arrow inside – means warning.

e. Circle with an X inside, black on yellow, with letter R– means railroad crossing.

C. Generalization: Call a student to summarize the lesson.

D. Evaluation: The teacher flashes drawings of road signs and the students shall write the meaning of each on their paper (Nos. 1, 2, 3, 4, 5 drawings of road signs).

1. circle in square figure , with white on red
2. triangle, red border line on white background
3. rectangle, black text on white background
4. diamond, black on yellow, with arrow inside
5. circle with an X inside, black on yellow, with letter R

Key to Correction:

1. danger
2. yield
3. obey
4. warning
5. railroad-crossing

V- Assignment:

Make an album or scrap book of the different road signs. Draw or illustrate and apply correct color/s for each road sign.

APPENDIX N

SAMPLE LESSON PLAN IN REFRIGERATION

THIRD YEAR

I. Objectives

At the end of the lesson the students are expected to:

A. Give the definition of the term refrigeration.

B. Enumerate the stages undergone by the mechanical refrigeration system.

C. Show interest in how the mechanical refrigeration system functions.

II. Subject Matter:

The mechanical refrigeration system

Aids and devices: realia – a refrigerator, chart

III. Procedure:

A. Preparation:

1. Daily class routine (greeting the class; checking of attendance).
2. Review of the past lesson. (The teacher asks questions derived and pertaining to the previous lesson.)
3. Motivation: The teacher shows the class the rear or the back part of the refrigerator in order to arouse their interest to learn something about the object shown.

B. Presentation:

Key Questions to Unlock the Difficulties

1. What is the meaning of refrigeration?

2. What are the stages undergone by the mechanical refrigeration system?
3. What are the different functions performed by the system part under each stage?

Refrigeration – refers to the process of transferring heat from one area to another.

The stages undergone by the mechanical refrigeration system:

1. Evaporator – this is the coil of tubes found on the low pressure side of the system. It is sometimes called freezer, the chilling unit. Its function is to absorb heat in order that it will be moved and transferred to the condenser.
2. Condenser – this is another coil tube found in the high pressure side of the system. Its function is to discharge into the atmosphere the heat being absorbed in the evaporator.
3. Compressor – this is referred to as the “heart” of the system. Its function is to compress the low-pressure gas refrigerant into high-pressure gas refrigerant which moves the system.
4. Expansion valve – this part controls the flow of the refrigerant to the evaporator. It reduces the high-pressure liquid refrigerant to a low-pressure liquid refrigerant at right quantities to operate the system efficiently and without over-loading the compressor.

C. Generalization: The teacher calls a student to summarize the lesson.

D. Evaluation: (short quiz)

Direction: Identify what is being described in the following statements.

1. The part that controls the flow of the refrigerant to the evaporator.
2. Coil of tubes that is found at the high-pressure side of the system where heat absorbed in the evaporator is discharged into the atmosphere.

3. The coil of tubes found in the low-pressure side of the system. It absorbs heat to be transferred into the system.
4. This is the “heart” of the system. This compresses the low-pressure gas refrigerant into high-pressure gas refrigerant.
5. The process of transferring heat from one area to another.

Key to Correction

1. Expansion valve
2. Condenser
3. Evaporator
4. Compressor
5. Refrigeration

IV- Assignment:

Make posters on the theme “Proper Use of the Refrigerator” with emphasis on cutting the cost of electricity and the proper care of the refrigerator.

APPENDIX O

SAMPLE LESSON PLAN IN ELECTRICITY

FIRST YEAR

I. Objectives: At the end of the lesson, the students are expected to:

A. Enumerate the steps, tools and materials needed in making a lampshade.

B. Explain the importance of a simple circuit.

C. Make a lampshade using the principle of a simple circuit.

D. Appreciate the application of simple circuit connections in project making.

II. Subject Matter: Lampshade-making using simple circuit connection.

Reference: *Basic Electricity* by Jose de Guzman, pp 70-73.

Aids and Devices:

1. Charts
2. Actual objects
3. Pictures
4. Tools
    a. screw driver
    b. pliers
5. Materials
    a. plug
    b. receptacle
    c. switch
    d. bulb
    e. stranded wire # 14
    f. decorative materials for the lampshade

III. Procedure

A. Preparation

1. Daily Routine
    a. Prayer
    b. Greeting one another
    c. Checking attendance
2. Review of the past lesson
    a. What is an extension outlet?
    b. What is the economic importance of making an extension outlet?
    c. What are the tools and materials needed in making an extension outlet?
3. Motivation

The teacher will show the class a real lampshade and identify its parts.

Definition of Technical Terms

a. Electrical Circuit – is a closed continuous path through which electricity flows.
b. Source – this consists of battery, generator, or main electrical power supply, e.g., Meralco, Napocor.
c. Conductor – refers to a material that allows the flow of electricity.
d. Load – an electricity-consuming device or any unit that is capable of converting the electrical energy into another form of energy to do work.
e. Switch – it is a gadget that controls the flow of electricity.

B. Raising of Problems

1. What is the importance of studying a simple electrical circuit?

2. What are the steps, tools and materials needed in making a lampshade?

C. Presentation of the lesson:

1. Tools

a. screw driver

b. pliers

2. Materials

c. Plug

d. Switch

e. Bulb

f. Stranded wire # 14

g. Decorative material/s for lampshade

1. Safety Precautions

a. Tighten the screws properly.

b. Do not work when your hands are wet.

2. Steps in making the lampshade

a. Prepare all the tools and materials needed.

b. Assemble the upper portion of your lampshade by boring holes and fixing the receptacle at the top of the post.

c. Insert the wire into the base of the lamp and the other end of the receptacle.

d. Connect the end of the wire to the male plug using the underwriters' knot.

e. Prepare/Assemble the lampshade using the prepared and decorative materials.

f. Attach the bulb, preferably a colored bulb to the socket.

D. Application

Call one or two students to re-demonstrate the proper way of making a lampshade using a simple electrical circuit.

E. Generalization

One or two students will summarize the lesson.

F. Evaluation (Short Test)

Direction: Encircle the letter of the correct answer.

1. It serves as the foundation framework in the lighting of the lampshade.
   a. simple circuit
   b. series circuit
   c. closed circuit
2. It is the part of the circuit that is responsible for the control of the flow of electricity.
   a. plug
   b. stranded wire
   c. switch
3. A part of the circuit that is responsible for supplying energy to the circuit.
   a. source
   b. load
   c. plug
4. The part of the lampshade where the electricity flows.
   a. path
   b. switch
   c. load

5. The material capable of using electrical energy to perform work.
    a. load
    b. plug
    c. switch

Key to Correction:

1) a
2) c
3) b
4) a
5) a

IV. Assignment

A. Follow-up assignment

Make a lampshade at home using indigenous materials.

B. Advance assignment

1. What is metal work?
2. What are the different tools and materials used in metal work?
3. Define the following terms:
    a. metal
    b. ferrous
    c. non- ferrous

Reference: *Metal Works* by Bruce Leroy, pp. 101-109.