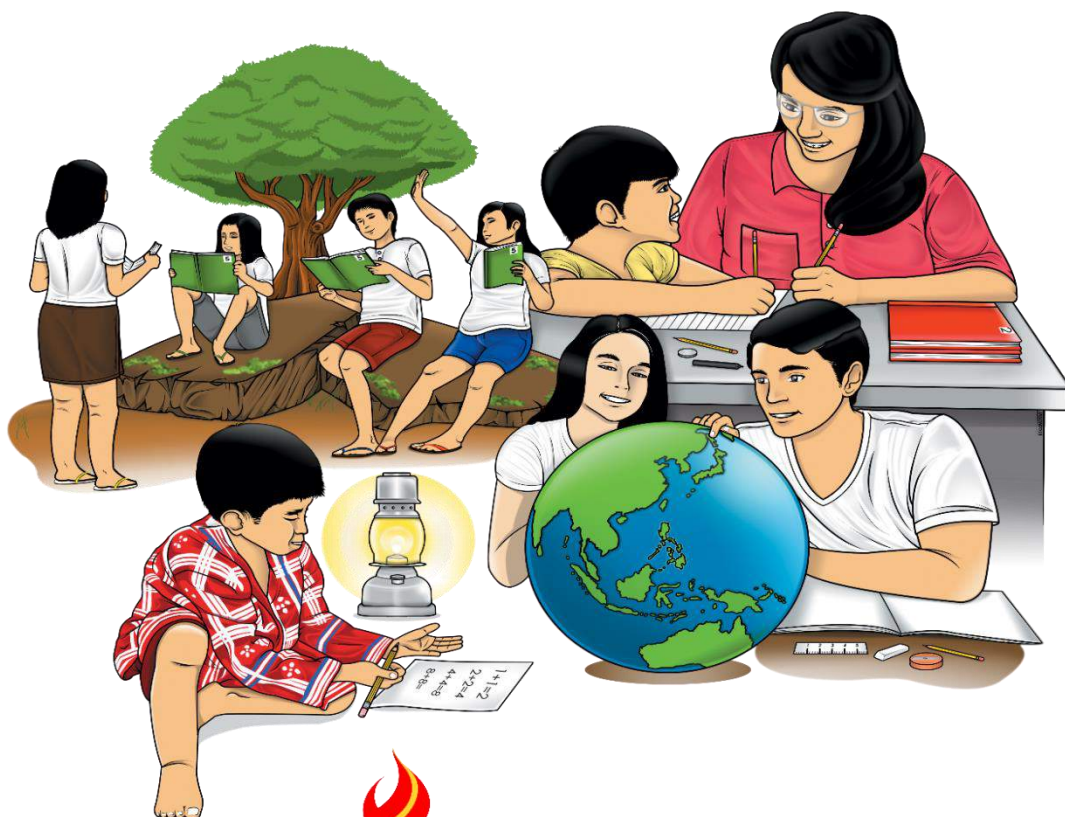


Technology and Livelihood Education

Industrial Arts- Module 1: Importance and Methods of Enhancing and Decorating Bamboo, Wood, and Metal Products



TLE – Grade 6
Alternative Delivery Mode
Quarter 2 – Module 1: Importance and Methods of Enhancing and Decorating
Bamboo, Wood, and Metal Products
First Edition, 2020

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Technology and Livelihood Education

Industrial Arts

Module 1:

**Importance and Methods of
Enhancing and Decorating
Bamboo, Wood, and Metal
Products**

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you master the skills in enhancing and decorating bamboo, wood and metal products. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of learners. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module focusses on the following topics:

- a. The importance of enhancing and decorating the product.
- b. The methods of enhancing wood and bamboo products
- c. Methods of enhancing metal products

At the end of this module, you should be able to:

- a. Discuss the importance and methods of enhancing and decorating bamboo, wood and metal products. (TLE6IA-0a-1)



What I Know

Directions: Read each item and choose the letter of the correct answer.
Write your answer on a separate sheet of paper.

1. Which of the following is a process of enhancing finished product?
 - a. Improving the appearance of the finished product
 - b. Buying a finished product
 - c. Selling the finished product
 - d. Painting the product
2. The process of adding more items to improve its appearance is called _____.
 - a. Painting the product
 - b. Varnishing the product
 - c. Decorating the product
 - d. Finishing the product
3. What technique on enhancing metal product uses hammer, metal, stamp, stencils, and other materials to create imprints on the metal surface?
 - a. Painting
 - b. Etching
 - c. Embossing
 - d. Beautifying

4. What do you call the items that enhanced the beauty of the products?
 - a. Finishing materials
 - b. Accessories
 - c. Sketches
 - d. Decoration
5. Which of the following refers to the ease in selling a product?
 - a. Enriching
 - b. Improving
 - c. Innovate
 - d. Marketability
6. The following are the reasons why there is a need to enhance your finished product, except ONE. What is it?
 - a. It is more saleable
 - b. More durable and beautiful
 - c. It makes a product more expensive
 - d. More attractive
7. Which is an example of a product made from metal?
 - a. Woven basket
 - b. Wind Chimes
 - c. Wooden Lamp
 - d. Bottle Flower Vase
8. How can you make your product saleable and beautiful?
 - a. Enhance and decorate the product.
 - b. Copy the work of other people.
 - c. Use expensive materials.
 - d. Use any method.
9. What characteristics does a handicraft maker need to possess in order to make his/her products salable and attractive?
 - a. Pride and honor.
 - b. Creativity and innovativeness
 - c. Orderliness and cleanliness
 - d. Health and profit
10. Which of the following are product made of wood?
 - a. Crystal accessories
 - b. Wooden utensils
 - c. Wind Chimes
 - d. Woven bamboo basket

Lesson

1

Importance and Methods of Enhancing and Decorating Bamboo, Wood and Metal Products

Finished products tend to be more saleable to the customers when enhanced and decorated. Enhancing and decorating finished products helped maintain their durability and toughness against harsh elements that may damage the product. Improving the appearance of the product increase the possibility that it can be easily notice or to be eye catching. Decorating it well, will also give an artistic look in which other product doesn't have. This will also raise the chance that customers would want to buy that product.



What's In

A. Directions: List at least 5 products that can be made from the following materials. Write your answer in a separate sheet of paper.

1. Bamboo

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

2. Wood:

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

3. Metal:

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

B. Directions: Arrange the scrambled words to form a correct word through its meaning. Write your answer on separate sheet of paper

- | | |
|------------------|---|
| 1. TAMARLIKEBITY | is a measure of whether a product will appeal to buyer and sell to a price range to generate profit |
| 2. VANONIVETI | introducing new ideas, original and creative thinking |
| 3. CENEHAN | further improve the quality of the product |
| 4. SSOACCESIER | a thing which can be added to something else in order to make it useful, versatile or attractive. |
| 5. RACODETE | look more attractive by adding extra items or images on it. |



What's New

Mang Jose and Mang Tano are both bamboo craft makers. Renato observed that more people are buying the products of Mang Jose.

What could be the reason why customers are attracted to the products of Mang Jose?

One morning, he asked one of the customers of Mang Jose the reason why they like to buy his products. The customer replied, “the products of Mang Jose are durable, functional and more aesthetically attractive.”

Durability, functionality, and the aesthetic appearance of the product promotes marketability, therefore maintaining the good quality of the product is very essential if you want to gain more profit from selling the product. This depends on your creativity and workmanship to improve, enrich and make the appearance of your product superior.



What is It

The Importance of Enhancing and Decorating the Product

A. Attractive and More Salable

People tends to buy product that are attractive. Once a product is enhanced and decorated it is more appealing to the customers. Thus, resulting to more sales and profit.

Finished products are more saleable to costumers when enhanced and decorated.

B. Durable and more beautiful

Durability of the product depends on the materials used. We are rich of local materials in the community favorable for project or furniture making. Once a product is enhanced and decorated using innovative finishing materials the product is more durable and will last longer. Finishing materials preserve and protect the product.

Enhanced and decorated bamboo, wood and metal products help maintain their durability against harsh elements.

C. Profitable

Profitability of the product depends on the quality of the materials used, the workmanship and creativity of how it is done and heart to satisfy the clients. Enhanced and decorated product also increases sales and bring more profit.

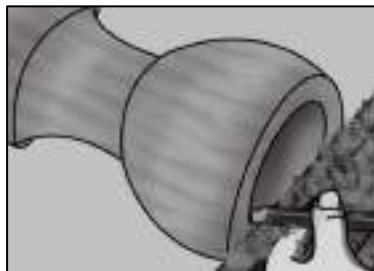
Finished products that are enhanced and decorated would beautify the product itself.

The Methods of Enhancing and Decorating the Product

There are different methods and considerations of enhancing and decorating products. Depending on the availability of materials, customer's preference, and marketability of the product.

Methods of Enhancing Wood and Bamboo Products:

1. **Wood Turning** - is a process of using a lathe to make various forms and shapes of wood.



2. **Pyrography** - the art or technique of decorating wood or leather by burning a design on the surface with a heated metallic point.



3. **Hand Carving** - is considered a woodcraft in which a sharp object is used to create designs on the wood. Chip carving knife, gouges and chisels are used in this technique.



4. **Flocking Technique** - lines the interior of drawers and boxes with a soft velvety finish



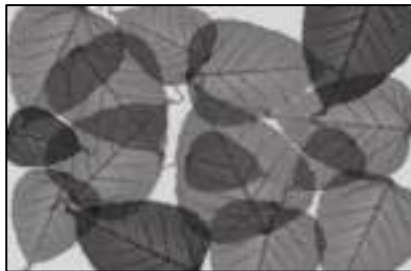
5. **Inlaying** - combines several techniques that involve inserting decorative pieces into a base object to incorporate new designs on the original products.



6. **Gilding** - decorative technique in which powder is applied on wood or other materials to give a thin coating of gold. Method of this technique include gluing, chemical gilding, and electroplating/coating.

7. **Staining** - is used to color wood to give an illusion of texture. This may come in two varieties.

- A. **Pigment-based** stain will color large pores of the wood
- B. **Dye-based** stain will color small pores of the wood



8. **Painting** - the simplest way of decorating wood since there are a variety of colors that you can choose from. One may also add a lacquer finish to make it shiny and glossy.



Methods of Enhancing Metal Products

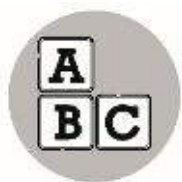
1. **Engraving** - transferring a design on metal using hardened steel tool called burin or graver to cut into the surface of the metal.
2. **Etching** - is a process used to make designs or pictures on a metal plate by using acid that produces corrosive action.

How Etching is made:

- A. Etching begins with metal plate, most commonly copper.
- B. Acid resistant wax, called the ground, is applied to the entire surface of the plate.
- C. The artist scratches an image into the surface using a burning (needle), exposing the metal underneath.
- D. Once the image is complete, the plate is submerged in an acid.
- E. The acid will bite away at the exposed metal, creating recessed lines on the plate.
- F. The plate is then removed and cleaned.
- G. The plate is inked. Ink fills the lines on the plate created by the acid.
- H. The excess ink is removed so the ink only remains in the recessed lines.
- I. Dampened paper is placed over the plate and put through a printing press.
- J. The press squeezes the paper and plate together, impressing an inked image onto the paper.
- K. Additional impressions can be created by re-inking, cleaning, and putting the plate through the printing press again.

3. **Metal Enhancing Media** - use of metal paints, markers and antiquing kits give color to the metal product. Metal paints may be applied using a brush or spray.

4. **Texturing and Embossing** - in this technique, you will need a hammer, metal, stamp, stencils, and other materials to create imprints on the metal.



What's More

Activity 1: Understanding the importance

Learning the Skills: Explaining the importance

Directions: Put a **check (✓)** if the statement demonstrates the importance of enhancing and decorating a finished product and put a **cross (x)** if it does not. Write it on a sheet of paper.

- _____ 1. Many people have the tendency to buy products that are enhanced and decorated.
- _____ 2. Improved and ornamented products are durable, strong, and of superior quality.
- _____ 3. Enhanced and decorated products tend to be more salable.
- _____ 4. Enhanced and decorated products are less profitable.
- _____ 5. There are many methods in enhancing our products.
- _____ 6. Wood carving is an example of methods of enhancing and decorating finished products.
- _____ 7. Painting is the simplest way of enhancing the finished products.
- _____ 8. Products that are made from wood and bamboo do not need to be decorated because of their natural beauty.
- _____ 9. Finished products that are enhanced and decorated beautify the product itself.
- _____ 10. Wood, metal, and bamboo products must be enhanced and decorated.

Activity 2: Understanding the words better

Learning the Skills: Word recognition

Directions: Match column A with Column B. Write the letter only. Use separate sheet of pad paper.

A

- 1. PYROGRAPHY
- 2. STAINING
- 3. WOOD TURNING
- 4. PAINTING

B

- A. Process of making various forms and shapes of wood using a lathe
- B. Powder is applied on wood or other materials to give thin coating of gold also include gluing, electroplating/coating
- C. Transferring a design on metal using hardened steel tool called burin or graver
- D. Inserting decorative pieces into a base object to incorporate new designs on the original product

- | | |
|-----------------|--|
| 5. HAND CARVING | E. Coloring of wood to give an illusion of texture either by pigment-based stain or dye-based stain |
| 6. ENGRAVING | F. Using acid to produces corrosive action as design on metal |
| 7. GILDING | G. Decorating technique on wood by burning a design on the surface with a heated metallic point |
| 8. ETCHING | H. Simplest way of decorating wood using variety of colors to choose from |
| 9. INLAYING | I. To create imprints on the metal, this technique uses hammer, metal, stamp, stencils and other materials |
| 10. EMBOSSING | J. A sharp object is used to create design on the wood using carving knife, gouges and chisels |



What I Have Learned

Directions: Read the statement below and fill in the blank with the appropriate terms or words. Choose your answer from the box below. Write it on a separate sheet of paper.

durability	metal	Flocking
Hand carving	Embossing	Etching

- _____ is considered a woodcraft in which a sharp object is used to create designs on the wood.
- _____ is a process used to make designs or pictures on a metal plate by using acid that produces corrosive action.
- Enhanced and decorated bamboo, wood and metal products help maintain their _____ to against harsh elements.
- Metal enhancing media uses of metal paints, markers and antiquing kits to give color to the _____ product.
- _____ is a technique that needs hammer, metal, stamp, stencils, and other materials to create imprints on the metal.



What I Can Do

Directions: Read the phrases and do the activity below. Write your answer on a separate sheet of paper

Your TLE 6 teacher assigned you to make project using local materials such as bamboo, wood or metal found in your community. He instructed you to make this project attractive and saleable.

1. What possible method of enhancing bamboo, wood or metal product are you going to use and why?
2. Write two to three sentences about the method you have chosen.



Assessment

A. Directions: Read each item and choose the letter of the correct answer and write it on a separate sheet of pad paper.

1. What is the importance of enhancing and decorating finished products?
 - a. It makes the products more attractive and salable.
 - b. Finished products are easy to buy.
 - c. We can sell finished product.
 - d. It can be painted.
2. Which one is not considered as the importance of enhancing/decorating finished products?
 - a. varnished materials
 - b. More attractive and saleable
 - c. Profitable
 - d. Durable and beautiful
3. _____ is the art or technique of decorating wood or leather by burning a design on the surface using a heated metallic point.
 - a. Engraving
 - b. Pyrography
 - c. Painting
 - d. Hand carving

4. Using carving knife, gouges and chisels to create designs on the wood is called _____.
 - a. Wood Turning
 - b. Flocking
 - c. Embossing
 - d. Hand Carving
5. What enhancing techniques that lines the interior of drawers and boxes resulted to soft velvety finish?
 - a. Wood Turning
 - b. Painting
 - c. Etching
 - d. Flocking
6. The following are reasons to enhance your finished product, except ONE. What is it?
 - a. It is more salable.
 - b. More durable and beautiful
 - c. It makes the product more expensive.
 - d. It is more attractive
7. Why is it important to know the different skills in enhancing and decorating finished products?
 - a. It develops skills and creativity for livelihood.
 - b. So that people will admire you.
 - c. People will not buy your product.
 - d. To pay more taxes.
8. How can you make your product salable and beautiful?
 - a. Use the appropriate methods to enhance the product.
 - b. Copy the work of other people.
 - c. Use expensive materials.
 - d. Use any method.
9. Enhancing the finished product improves one's _____ and _____.
 - a. Pride and honor.
 - b. Creativity and workmanship
 - c. Orderliness and cleanliness
 - d. Health and profit
10. A process of transferring a design on metal using hardened steel tool called burin or graver to cut into the surface of the metal?
 - a. Engraving
 - b. Metal Enhancing Media
 - c. Texturing or Embossing
 - d. Etching

B. Identify the method of enhancing wood, bamboo and metal products used. Choose your answer inside the box.

Wood Turning	Lacquer Painting	Engraving
Hand Carving	Gilding	Hand Carving

1. Typhoon Quinta left the province of Aurora with so much big trunks of drift woods. Mang Kardo wants to turn it into wood pots. What method of enhancing wood product will Mang Kardo used?
2. Brgy. Ara-al is well known for its bamboo plantation. The residents make use of bamboo as their source of livelihood. Most of them are into making bamboo sofa to be sold at the nearby local market. One customer does not want it painted by variety of colors instead its natural look be preserved. What will the locales used to make it shiny and glossy?
3. Aling Martha was given by her daughter a gift of 12 sets of spoons and forks during her 50th birthday. She does not want it to be lost since most of her relatives are fond of borrowing her silver-plated silverware. She decided that her name be imprinted at the back of spoon and fork. What method is best for transferring design on metal?
4. Aling Lourdes is a furniture store owner brought hard drift woods left by typhoon Quinta from the residents of their province. She wanted to turn these into useful home decor. What woodcraft enhancing method her workers will use to create designs on the wood.
5. Aling Loring, a balikbayan build a new home in her hometown. She wanted that all wooden materials to be used in her furniture has a touch of gold. She ordered the furniture maker to glaze it with gold coating. What method of enhancing woodcraft will the furniture maker used?



Additional Activities

Directions: Complete the table below by providing 5 materials you can use to enhance or decorate Wood, Bamboo and Metal products. Use a separate sheet for your answer.

Wood craft	Bamboo craft	Metal craft



Answer Key

<p>Assessment</p> <p>A.</p> <ol style="list-style-type: none"> A B D D C A A B A A <p>B. Possible responses</p> <ol style="list-style-type: none"> Enhanced and decorated products are attractive and beautiful. Finishing materials like paints, varnish, and shellac preserve, protect and beautify the product. People buy products they like and need. Refine work and creative design are attractive. Products of good quality and durable can be useful for a longer period of time. <p>Additional Activities</p> <p>Answers may vary</p>	<p>What's More</p> <p>1.1</p> <table> <tr> <td>6.</td><td>/</td><td>6.</td></tr> <tr> <td>7.</td><td>/</td><td>7.</td></tr> <tr> <td>8.</td><td>/</td><td>8.</td></tr> <tr> <td>9.</td><td>x</td><td>9.</td></tr> <tr> <td>10.</td><td>/</td><td>10.</td></tr> </table> <p>1.2</p> <table> <tr> <td>1.</td><td>G</td><td>6.</td></tr> <tr> <td>2.</td><td>E</td><td>7.</td></tr> <tr> <td>3.</td><td>A</td><td>8.</td></tr> <tr> <td>4.</td><td>H</td><td>9.</td></tr> <tr> <td>5.</td><td>J</td><td>10.</td></tr> </table> <p>What I Have Learned</p> <ol style="list-style-type: none"> Hand Carving Etching Durability Metal Embossing <p>What I Can Do</p> <p>1. Possible answers:</p> <p>* For wood and bamboo products</p> <ol style="list-style-type: none"> Wood Turning Pyrography Hand Carving Flocking Inlaying Gilding Staining Painting <p>* Metal Products</p> <ol style="list-style-type: none"> Engraving Etching Metal Enhancing Media Texturing & Embossing <p>2. Answer may vary</p>	6.	/	6.	7.	/	7.	8.	/	8.	9.	x	9.	10.	/	10.	1.	G	6.	2.	E	7.	3.	A	8.	4.	H	9.	5.	J	10.	<p>What I Know</p> <table> <tr> <td>1.</td><td>A</td><td>6.</td></tr> <tr> <td>2.</td><td>C</td><td>7.</td></tr> <tr> <td>3.</td><td>C</td><td>8.</td></tr> <tr> <td>4.</td><td>B</td><td>9.</td></tr> <tr> <td>5.</td><td>D</td><td>10.</td></tr> </table> <p>What's In</p> <p>- possible responses</p> <p>Activity A</p> <p>Bamboo Products</p> <ol style="list-style-type: none"> plates cups bowls Tables and chairs lamp shades, etc. <p>Wood Products</p> <ol style="list-style-type: none"> furniture dinner ware utility boxes jewelry box wooden toys, etc. <p>Metals</p> <ol style="list-style-type: none"> Stainless steel containers kitchen wares steel furniture jewelry box steel arts, etc. <p>B.</p> <ol style="list-style-type: none"> marketability Innovative Enhance accessories decorate 	1.	A	6.	2.	C	7.	3.	C	8.	4.	B	9.	5.	D	10.
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References

Department of Education Curriculum Guide 2016, EPP 6, Industrial Arts pages 38 – 41

Department of Education MELCs in EPP/TLE Grade 6 Industrial Arts pages 353 – 354

Meaning of marketability in business – Google Search

<https://www.google.com/search?q=meaning+of+marketability+in+business>

Methods of Enhancing Wood and Bamboo Products

<http://iamvnhinhancing.blogspot.com/2018/09/methods-of-enhancing-wood-and-bamboo.html>

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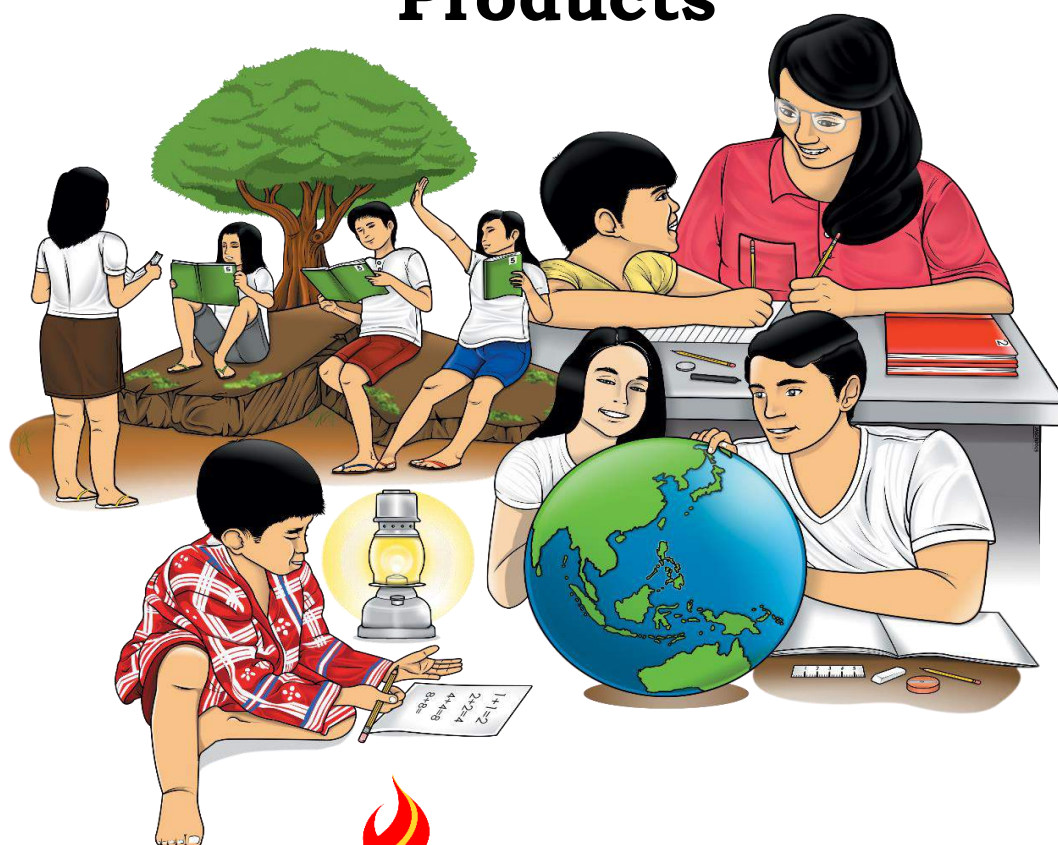
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Technology and Livelihood Education

Industrial Arts-Module 2: Creative and Innovative Ways of Enhancing and Decorating Bamboo, Wood, and Metal Products



TLE – Grade 6
Alternative Delivery Mode
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This module was designed and written with you in mind. It is here to help you master the skills on creative and innovative ways of enhancing/ decorating bamboo, wood, and metal products. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of learners. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module focusses on the following topics:

Steps on Enhancing Wood and Bamboo Products

1. Wood Turning
2. Pyrography
3. Hand Carving
4. Flocking
5. Inlaying
6. Gilding
7. Staining
8. Painting
 - a. Preparing Project for Painting
 - b. Painting the Project

At the end of this module, you should be able to:

- a. Demonstrate creative and innovative ways of enhancing and decorating bamboo, wood and metal products. (TLE6IA-0a-2)



What I Know

Directions: Read each question carefully. Choose the letter of the correct answer and write it in your answer sheet.

1. Which characteristics a person making handicrafts should acquire in order to develop marketable products?
 - A. Creativity and Innovativeness
 - B. Industry and hardworking
 - C. Confidence and artistry
 - D. Resourcefulness and Patience

2. Why should you apply finishing materials on products?
 - A. To enhance the appearance and protect the product.
 - B. To make people believe that your product is the best.
 - C. There is no need to advertise your product.
 - D. To make your family proud of you.
3. What should you do to achieve a beautiful and attractive product?
 - A. Use your creative thinking in blending colors.
 - B. Always ask assistance when sketching.
 - C. Use downloaded design.
 - D. Use many colors.
4. What tools are commonly used to polish rough surfaces and edges of the materials to achieve a very fine texture of the finished product?
 - A. Sandpaper and hand plane
 - B. Mallet and chisel
 - C. Saw and hammer
 - D. Screwdriver and plier
5. Why is it necessary to acquire the different skills in enhancing and decorating a product?
 - A. It can provide livelihood
 - B. It makes people proud of their self
 - C. It is a way to show your skills
 - D. It is one way to sell a product at high price
6. What type of paint is best for bamboo and wood products?
 - A. Water-based paint
 - B. paint
 - C. Enamel paint
 - D. None correct answer
7. When painting a finished product, the paint color should _____.
 - A. be Multiple color
 - B. be Dark color
 - C. be Bright color
 - D. Matched color with the material
8. The following are the reasons for enhancing a finished product, except one. Which one is not considered?
 - A. It will make our product more attractive.
 - B. It will protect our product.
 - C. The product will look expensive.
 - D. It makes the product dull.
9. What should be done before applying finishing materials with rough surfaces of a finished product?
 - A. Smoothed
 - B. Dried
 - C. Cleaned
 - D. All answers are correct
10. Applying finishing materials like paint or varnish, could be done with the use of any of the following materials below except _____.
 - A. Paint brush
 - B. Air brush
 - C. Paint roller
 - D. Spatula

Lesson

1

Creative and Innovative Ways of Enhancing and Decorating Bamboo, Wood, and Metal Products

Enhancing our finished products make their appearance more attractive, parts are protected, and well-refined. It also makes our product more interesting to the user.

Decorating finished products made from bamboo, wood and metal comes in so many ways, method or techniques depending on the kind of materials you used. Enhancing also involves your creativeness and innovativeness. These two should be accompanied by any chosen methods to make your work successful.



What's In

Directions: Choose the appropriate word inside the box that will complete the sentence below. Write it on a separate sheet of paper.

enhance	decorate	innovation	accessorize	marketability
---------	----------	------------	-------------	---------------

1. The easiest way of selling a product and determining the demand for a product in the market is called _____.
2. Creating and inventing something new is called _____.
3. _____ are something that you can put on a product that contributes to the beauty of the finished product.
4. To _____ is to put accessories to add beauty to a product.
5. To _____ means to refine, improve, or enrich the surface of the product.

1. **Lathe** – is a machine tool that rotates a workpiece about an axis of rotation to perform various operations such as sanding, drilling, deformation, and turning, with tools that are applied to the workpiece to create an object with symmetry about that axis.
2. **Gouge** – a form of chisel, a wood working tool
3. **Flocker** – a cylinder made of plastic or cardboard where fibers are deposited for flocking technique.

4. **Gold leaf** – gold in the form of very thin sheets, often used to cover objects such as decorative details in a project.
5. **Adhesive size** – is a glue designed specifically for working with metal leaf or foil.
6. **Grain of wood** – is the longitudinal arrangement of wood fibers or lines that naturally appear in lumber.



What's New

The Grade 6 learners of Mr. Reyes will be having their project exhibit during “Card Day”, for parents to see the output of their children in their EPP class. Clarisse, the president of their EPP Club conducted a meeting to gather suggestions from her classmates on what to do in order to present attractive, functional, beautiful and creative exhibits.

Linda suggested that they will enhance or decorate their bamboo, wood and other projects or output that they had in their EPP display room.

Clarisse asked, “What are they going to do to enhance or decorate their projects?”

What method do they need, to make their projects more creative and attractive?

Creativity and innovativeness are essential skills in improving, enriching and making the appearance of product superior.

Enhancing the product increases its marketability and durability.

1. What are the ways of enhancing and decorating a finished product especially those made from bamboo, wood and metal?



What is It

Products made from bamboo, wood, and metal are much in demand both in the local and international market. With the bigger needs of consumers, many handicraft makers continue creating and innovating different products made from these materials.

Note: Health and safety precautions are strictly observed when doing these methods.

Steps on Enhancing Wood and Bamboo Products

A. Wood Turning

1. Prepare all materials needed. These includes wood, wood lathe and basic turning tools like parting tools, gouge, skewed chisel and scrapper.
2. Set-up of your lathe on the area that is easy to clean up from wood chips and dust and well-lighted.
3. Make a sketch of the design you want on a sheet of paper.
4. Make marking of center points on your stock. This is done by drawing a line from one corner to opposite corner of a square or rectangular stock. The center is the point that lines intersect.
5. Mount the wood by placing its center on the headstock of the lathe spur.
6. Slide the tailstock center spur to the center of the other end of the wood to lock it.
7. Secure wood between the center by turning the handle on the tailstock center, then drive the wood blank into the spurn of the headstock.
8. Set the tool rest near the center of the work piece as close as possible, without hitting the wood when it is turning.
9. Start the lathe on low speed.
10. Start turning your wood, with the use of large gouge to rough out and round off the piece.
11. Use of parting tools and calipers. Set these tools to the depth of cuts that you need.
12. Use skewed chisel to make an angle or design your stock.
13. After you turned your piece to the design you want, polish it with sandpaper while it is still mounted. Begin with 180 grit and finish with 360-grit or higher sandpaper.
14. Cut the end of the wood that is attached to the headstock with fine-toothed hand saw.

B. Pyrography

1. Prepare your preferred and refined blank such as wood or bamboo.
2. Make your design.
3. Transfer your design by tracing, use of cut out or a freehand drawing onto the prepared blank.
4. Use a skew tip soldering gun to burn the outline on your project.
5. After outlining, use soldering gun with broad foot tip for shading or filling your design.
6. Apply stains or oils to bring out the design and to enhance your project.

C. Hand Carving

1. Decide what you want to carve by choosing what type of carving you want: whittling, relief carving, carving in the round, or chip carving
2. Make a drawing or a plan. It is very important before you start your project.

3. Prepare your materials such as a piece of wood that suites to what you want to carve, carving tools and design.
4. Transfer your design to the wood by using a pencil to lightly sketch the intended cuts and gouges before picking up any of your tools.
5. Rough out. This to remove as much wood as possible until you visualize the basic shape of the piece.
6. Modeling. Remove excess material as possible until the overall form of the piece develops.
7. Detailing. This is to add details to the carving once the overall form is completed by using smaller tools.
8. You need to apply wood finish to your carving to protect it from moisture, oils, dirt, and other debris.

D. Flocking

1. Put masking tape on outside edges to keep it from any unwanted drips or areas you don't want to flock.
2. Load the mini-flocker with the fibers but do not fill the tube completely. Put the tube back together and set it aside.
3. Brush an adhesive on the areas to be flocked. It should be done quickly so that it will not dry before adding the fibers.
4. Start pumping the fibers in the flocker right on the wet adhesive. Use storage container when doing this. Fibers that do not make it onto the adhesive can be collected and reused to another project.
5. Remove masking tape and let it dry for 24 hours
6. Use soft brush to whip away any loose fibers in your project.

E. Inlaying

1. Prepare your tools and materials before you start.
2. Draw and create a design on a separate, individual pieces. Plan of what colors or materials you want each piece to be.
3. Cut your design using hand tools such as chisel, coping saw or a sharp knife.
4. Determine the location of your piece where you wanted it to inlay and trace its outline.
5. Cut the outline of the piece using a knife. Do it until you reach the desired depth.
6. Check from time to time if the two materials are fit when the piece is inserted.
7. If you are now sure to its fit, put a right amount of glue to the materials. Apply pressure by clamping until the glue is dry.
8. Finish it by applying finishing materials to add accent and protection to your project.

F. Gilding

1. Preparing of object
 - a. Sand the surface until it is smooth
 - b. Cover with masking tape the areas you do not want to gild.
 - c. Apply primer to the object and let it dry.
 - d. Apply the gilding or adhesive size with paint brush.
 - e. Wait for 30 minutes to make the sizer become tacky.
2. Applying of gold leaf
 - a. Cut the gold leaf into smaller pieces to make it easier to apply.
 - b. Remove the leaf from the backing paper and lay on the surface of the object.
 - c. Burnish the gold leaf with dry brush or your fingers.
 - d. Smooth the leaf by putting tissue paper backing on top of the leaf to avoid tearing. Use your index finger to burnish the leaf and remove any air pockets.
 - e. Use gilder's brush to make the leaf to stick to the object completely and smoothly.
 - f. Check if there are any holes or parts not covered with gold leaf. Cover it with small bits of leaf.
 - g. Seal the gold leaf by applying an acrylic topcoat. This will protect the leaf from damage.

G. Staining

1. Choose wood stains and wood conditioner that are compatible or with same base. Example, water-based stain to water-based conditioner.
2. Sand the wood going in the direction of the grain with 120 grit sandpaper until flaws removed. Repeat with 220 grit sandpaper.
3. Apply conditioner on the surface and let it set for 15 minutes.
4. Wipe away excess wood conditioner with clean rag.
5. Before applying a stain, sand again the wood with 220 grit sandpaper or higher in the direction of the grain. Remove the dust with clean cloth or rag.
6. Apply stain with the use of rag or brush. Wait for 15 minutes then wipe excess stain.
7. Apply second coat of stain if needed, then let it dry for four hours.
8. After the stain dried, apply first coating of protective finishing coat.
9. After the first coating fully dries, lightly sand your project with 220 grit sandpaper. Wipe away dust with clean cloth.
10. Apply second coat and let it dry completely.

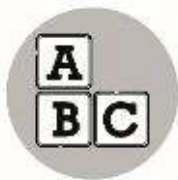
H. Painting

A. Preparing project for painting

1. Check your project for any holes, scratches, or cracks.
2. Put fillers or wood putty for the areas that is needed. Wait until it dries and harden completely.
3. Start sanding your project with rough coarse sandpaper, 80 to 100-grit sandpaper. Sanding should be in the direction of the grain of wood.
4. Finish sanding with fine sandpaper.
5. Clean your project from any dust or wood residue after sanding.
6. Apply primer or base paint on your project. Primer helps paint achieve a uniform look on a project. The most common base-paint for wood is flat white enamel.

B. Painting the project

1. Choose the kind of paint you want to use; flat, semi-gloss, or gloss paint.
2. Load your paint brush with paint using a paint bucket or a tray.
3. Start painting on the top part moving downward.
4. Make sure that all sides were painted. Wait until it dry.
5. Repeat painting if needed until you reach the desired outcome of your project.



What's More

Activity 1: Categorization

Learning the Skill: Categorizing materials according to methods used

Directions: Read each statement below. Determine in what ways of product enhancing the following skills belong to. Put a check (✓) to the column appropriate for it. Copy the table below on a separate sheet of paper to answer.

Steps	Creative and Innovative Ways of Enhancing a Product							
	Wood turning	Pyro-graphy	Carving	Flocking	Inlaying	Gilding	Staining	Painting
1. preparation of materials								
2. use of smaller tools to add details								
3. follow wood grain when sanding								
4. use of adhesive size								
5. make markings of center								
6. use of broad tip soldering gun for shading								
7. apply wood conditioner								
8. putting of masking tape								
9. make a design								
10. use of primer paint								

Activity 2: Observing

Learning the Skill: Analyzing and evaluating the quality of enhancement

Directions: Choose any enhanced finished product at home or from the market. Try to evaluate how the product was enhanced based on this rubric.

Criteria	Excellent 8-10	Good 4-7	Fair 1-3	Score
Design	Design is strictly followed and constructed according to procedure	There is 1-3 changes in the design base on procedure	Design is constructed with less detail.	
Workmanship	Project is useful, durable and of quality	Project is durable useful but not properly finished.	Project is useful only and not properly finished	
Appearance	The item is neat and presentable	The item has a few flaws but do not detract from the overall look.	The item has several flaws that detract from the overall look.	
Total Score				



What I Have Learned

Directions: Read each item carefully. Choose the appropriate word inside the box that will complete the sentence below. Write your answer on a separate sheet of paper.

result	fillers	clean	large gouge
plan	80 to 100-grit	dust	back paper
360-grit	Top	materials	sharp knife

1. Remove _____ every time after sanding with clean rag.
2. Put _____ into the cracks and holes of wood before polishing uneven surfaces.
3. Use _____ sandpaper when sanding rough surfaces of wood.
4. When painting, let the first coating dry thoroughly before applying the second coating until you arrive the best _____.
5. When applying varnish, always _____ the parts of the product.
6. Remove _____ of gold leaf before laying on the surface of the object.
7. At the start of wood turning, use _____ to rough out and round off the piece.
8. In refining the wood surface. use _____ or higher sandpaper.
9. When painting, it should be done at the _____ part going downward.
10. Before doing any method of enhancing a product, a person should have a _____.



What I Can Do

Make your own project. Upgrade it using the skills that you have learned to enhance your product.

Ask an older member of your family to rate your product based on the rubric in Activity 1 of this module.



Assessment

Directions: Read each question carefully. Choose the letter of the correct answer and write it in your answer sheet.

1. A wood working tool used to remove excess wood.
A. Mallet B. Gouge C. Pallet D. Saw
2. What is the common part in all methods of enhancing finished products?
A. Preparation of all materials needed.
B. Planning and creating of design.
C. Smoothing of objects.
D. All answers are correct.
3. The common material used to polish the surface of a finished product is _____?
A. Knife C. Sandpaper
B. Chisel D. Gloss paint
4. What is the gauge or number of sandpapers to be used in order to smoothen and remove small imperfections on a wood surface?
A. 40-60 grit C. 360-600 grit
B. 80-120 grit D. Any gauge can be used
5. What do you call the preparatory coating applied on materials before painting?
A. First coat C. Primer
B. Topcoat D. Paint
6. _____ is to add details to the carving once the overall form is complete by using smaller tools.
A. Detailing C. Rough out
B. Modeling D. Transfer design
7. The following are the usual ways to transfer your design from paper to your preferred piece or object except one, which is NOT?
A. Tracing C. Use of cut out
B. Printing D. Use of free hand drawing
8. To avoid damage from your finished project, it should be applied with _____.
A. Undercoat C. Metal primer
B. Finishing topcoat D. Glossy paint
9. For finishing surfaces of your project smoothly, use _____ sandpaper.
A. 40-60 grit C. 360-600 grit
B. 80-120 grit D. Any gauge can be used
10. What is the most important thing that you should always remember every time you work?
A. Health and safety C. Grades from your teacher
B. Result of your output D. Design of your project

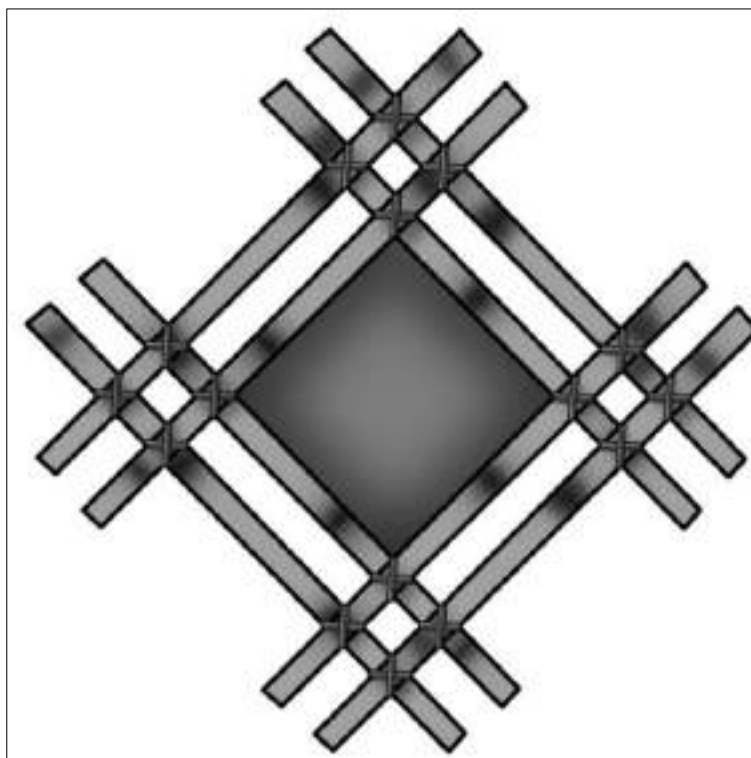


Additional Activities

Project making

Let us apply what you have learned from this module. Make a wall décor made of bamboo or wood as shown in the figure below. You can follow the design or make your own.

Use the rubric from What's More Activity 2, as your guide in making the project.



Jofel D. Nolasco, Bamboo Wall Décor, 2019



Answer Key

<p>Assessment</p> <ol style="list-style-type: none"> 1. B 2. D 3. C 4. B 5. A 6. A 7. B 8. B 9. C 10. A <p>Additional Activities</p> <p>Answers may vary.</p>	<p>What I Have Learned</p> <ol style="list-style-type: none"> 1. Dust 2. Fillers 3. 80 to 100-grit 4. Result 5. Clean 6. Back paper 7. Large gouge 8. 360-grit 9. Top 10. Plan <p>What I can Do</p> <p>Answers may vary.</p>	<p>What' In</p> <ol style="list-style-type: none"> 1. Marketability 2. Innovate 3. Accessories 4. Decorate 5. Enhance <p>What' More</p> <p>Activity 1& 2</p> <p>Answers may vary.</p>	<p>What I Know</p> <ol style="list-style-type: none"> 1. A 2. A 3. A 4. A 5. A 6. C 7. D 8. C 9. D 10. D
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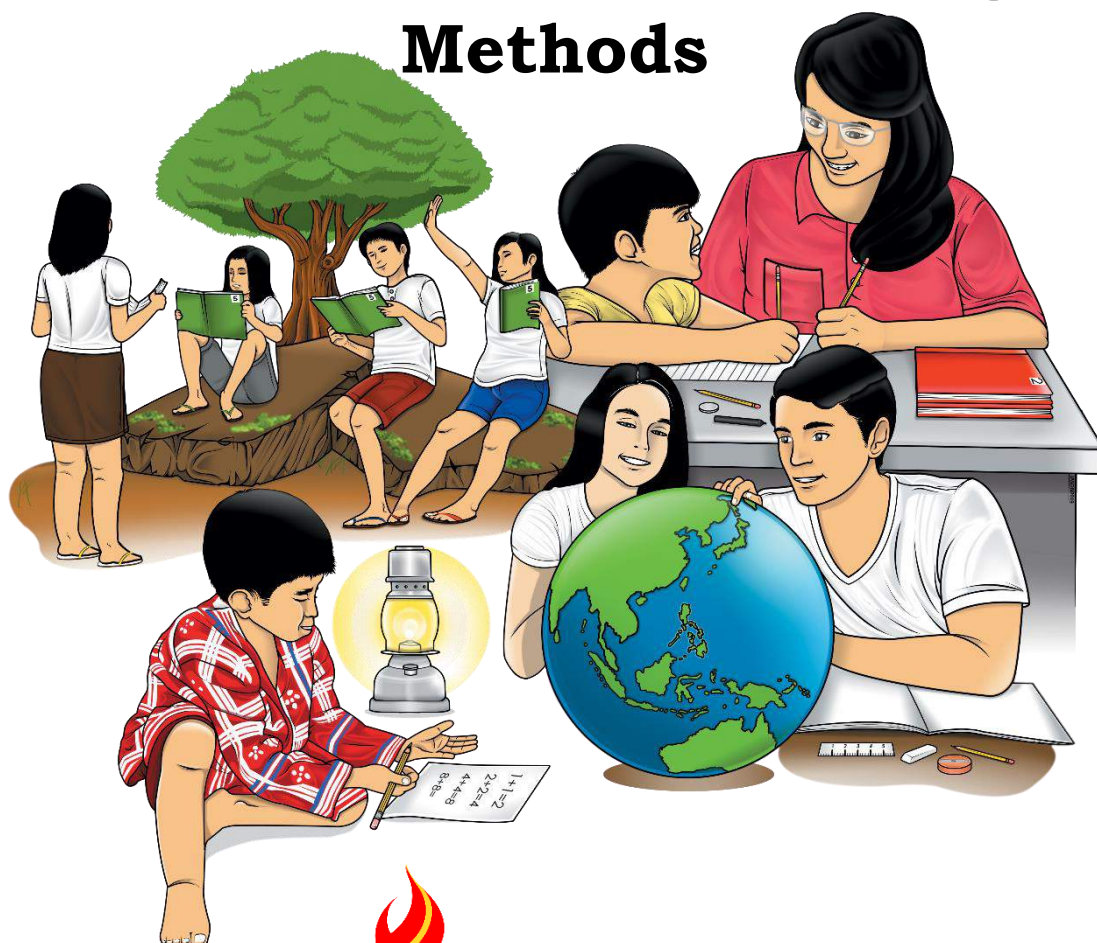
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Technology and Livelihood Education

Industrial Arts-Module 3: Simple Survey using Technology and other Data Gathering Methods



Technology and Livelihood Education – Grade 6
Alternative Delivery Mode
Industrial Arts – Module 3: Simple Survey using Technology and other
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First Edition, 2020

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Technology and Livelihood Education

**Industrial Arts – Module 3:
Simple Survey using Technology
and other Data Gathering Methods**

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you master the skills of conducting survey using technology and other data gathering method. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module focusses on the following topics:

- a. What is market survey?
- b. What are the different market surveys or data gathering material?
- c. The importance of market survey
- d. Types and sources of innovation finishing materials, accessories and design
- e. Process of enhancing and decorating finished product

At the end of this module, you should be able to:

- a. Conduct simple survey using technology and other data gathering method. (TLE6IA-0b-3)
- b. Check market trends on product made of bamboo, wood and metal
- c. Know types/sources of innovative finishing materials, accessories, and designs
- d. Apply processes in enhancing/decorating finished products.



What I Know

Directions: Choose the letter of the correct answer. Write your answer on a separate sheet of paper.

1. Which of the following is a data gathering method?
 - a. survey
 - b. talk show
 - c. raffle
 - d. training
2. What is the importance of conducting face-to-face surveys?
 - a. To know the problems of your neighbor.
 - b. To understand your role in the community.
 - c. To gather important information from the teachers.
 - d. To become closer with other people in your area to get more specific data or information.
3. Who can conduct surveys?
 - a. Teachers
 - b. Elementary learners
 - c. health workers
 - d. All of the above
4. Is data gathering essential in starting small a business?
 - a. Yes, it will tell you the prices of goods in the market.
 - b. Yes, it will tell you what kind of business to start.
 - c. No, budget is more important in starting a business.
 - d. No, it will entail a lot of time.
5. Why do you need to send a survey questionnaire to your target customers?
 - a. To know their likings
 - b. To ask for their views, and opinions.
 - c. To suit customers' preferences.
 - d. All of the above
6. Which is the fastest way of conducting a survey?
 - a. house to house
 - b. On-line
 - c. newspaper
 - d. letter
7. If you want to sell bamboo and wood products, what information can be included in your survey?
 - a. monthly electrical consumption of the family
 - b. food preferences of the family
 - c. places visited by the family
 - d. possible furniture you intend to buy
8. Which of the following can be used as accessories for bamboo products?
 - a. Beads and ribbons
 - b. Sand and stones
 - c. paint and thinner
 - d. metal and bottles

9. Which of the following product uses shellac as enhancing material?
- a. Wind chimes
 - b. Bamboo sala set
 - c. bird cage
 - d. rubber pots
10. Paper twines can be used as decorating materials for_____.
- a. Athletes shoes
 - b. Baby's dress
 - c. Bamboo basket
 - d. metal grills

Lesson

1

Simple Survey Using Technology and other Data Gathering Method

A Survey is an important source of information or facts that are collected from a sample of respondents. At present, data gathering employs the use of technology to a target audience about a topic of interest which is needed in starting a small business or in marketing products or goods.



Jofel D. Nolasco, A boy using computer

What is the importance of conducting survey or gathering of data?



What's In

Directions: Fill in the blanks with the correct answer. Choose your answer from the box and write it in a separate sheet of paper.

Strategies	accessories	marketability
feedback	innovativeness	methods
finishing	finished product	survey
customers' preferences		

1. It is an innovative, easy and fast way to gather information through the use of technology. _____
2. It is an information regarding customers' reactions and suggestions of the product. _____
3. A creative and inventive way of enhancing a product. _____
4. Something that contributes to the beauty of the product. _____
5. It is the ease of selling product. _____
6. A product that customers would like to buy. _____
7. Ways or processes to improve the appearance of the product. _____
8. Materials used to improve, enhance and enrich the appearance of a product. _____
9. An enhanced and improved product that passed quality control and is ready for distribution to the market. _____
10. Use by entrepreneurs to encourage customers to buy their products. _____

Important words to remember:

1. Attributes – a quality or feature regarded as characteristic of something
2. Survey – a detailed inspection or investigation of something.
3. Market Survey – an investigation into the state of the market for a product or service, including an analysis of consumer's need and preferences.
4. Online Survey – is a questionnaire that the target audience can complete over the internet.
5. Market trend – is a perceived tendency of financial markets to move in a direction over time.
6. Data gathering – is the process of gathering and measuring of information on targeted variables in an established system, which then enables one to answer relevant questions and evaluate outcomes.
7. Feedback – information about reactions, comments, suggestions to a product



What's New

Donna wanted to start a new business while at home due to COVID -19 pandemic. She needs work to earn a living in order to feed her family because their company had a “No Work, No Pay” policy. The provision of their daily sustenance and providing the medical needs of her sick mother were some of her priority, especially if the Enhanced Community Quarantine (ECQ) will be extended.

What possible business or income generating project will Donna do with P3,000.00 savings she had left? What should Donna do first?



What is It

Knowing the needs and what is trending in the market today one will be guided on what small business of income generating project will he/she start.

What is a market survey?

A market survey is a tool use to gather facts and statistics about prospective customers or residents in your community. It will tell us where and how customers spend their money and their purchasing power to acquire the product.

What are the different market surveys or data gathering methods?

1. **Online Survey** – it is innovative, cost-effective, easy, and fast way of reaching maximum number of people, to gather information about the market trends and customers' preferences of the product.
2. **Face-to-face Survey** – it is a survey method that is gained or acquired information from respondents via face-to-face mediums. It is much more effective than the other mediums because respondents usually tend to trust the surveyors and provide honest and clear feedback about the subject in-hand.
3. **Telephone Survey** – it is a method using a telephone and requires much lesser investment than face-to-face surveys. Depending on the required reach, telephone surveys cost as much or a little more than online surveys. Contacting respondents via the telephonic medium requires less effort and manpower than the face-to-face survey medium.
4. **Paper Survey** – these surveys can be used where laptops, computers, and tablets cannot go and hence they use the age-old method of data collection; pen and paper.

MARKET SURVEY SAMPLE

Dear Valued Customer,

Warm Greetings!

We want to produce products that respond to your tastes and needs. Furthermore, we would like to know what you think of our product by filling up this questionnaire. Your honest response can help improve our local bamboo, woodcraft and metal craft industries.

Thank you.

MARKET SURVEY

Date _____

Location _____

PERSONAL INFORMATION

Name of Respondent: (optional) _____

Address: _____

Gender: _____ Male _____ Female

Status: _____ Single _____ Married

Number of family members if married: _____

Work: _____ Monthly Income: _____

Instruction: Put a check (/) on the statement of your choice.

Questions about the product:

1. What is your choice of material for the furniture you wanted to have at home?

_____ Bamboo _____ wood _____ Metal

2. Which of this bamboo/wood/ metal furniture do you want to have at home?

_____ tables and chairs _____ walls and ceiling floors
_____ Curving decors _____ beds & drawers

3. Which bamboo/wood/metal handicraft do you want to have?

_____ key chain	_____ wall décor
_____ centerpieces	_____ card
_____ tags	_____ plant racks
_____ picture frame	_____ wine holder
_____ straw	_____ utensils

4.If you choose wood material, are you looking for wood products made of:

_____ narra	_____ bamboo	_____ any
_____ kamagong	_____ rattan	

Thank you for your time and kindness. I assure you that your answers will greatly help our objective to serve you better.

The Importance of Market Survey

The main purpose of the market survey is to collect data about a target market such as pricing trends, customers' requirements, competitors, analysis and other details to help you improve your business.

1. Gain customers' feedback

Market survey offers marketing and business ideas about the needs, wants/likings of the costumers to a certain product, thus giving you the idea to suit your product to these preferences.

2. Understand customers' preference to procure products

Products are in the form of home furnishing or fixtures, accessories jewelry and home decors. These are trending products that can be made from bamboo, wood and metal found in our market today.

Customer's buying craft vary generally from tourists, collectors, business people, artists or artisans, people attending conferences and many others.

To have a marketable and salable product, artists and manufacturers must know their costumers and their preferences in terms of color, style, size and quantity. It is also helpful to know their interests and needs. They must be creative and adopt new design trends for their products to be competitive in the market.

3. Enhance existing products and services

A market survey can also be applied with the purpose of refining; enriching and improving existing products/services, study customers' approval levels along with getting data about their insights and awareness of your products. Use these data to increase customers' level of expectation to your products.

4. Make important business decisions

Data gathered using market surveys is helpful in making major variations in the industry which decreases the degree of risks involved in making important business decisions.

Types and sources of innovative finishing materials, accessories, and design:

A good and competitive business minded person aside from conducting survey and knowing customers' preferences, must also know the types or sources of innovative finishing materials, accessories and design that can be applied to products.

Materials used to enhance, decorate and improve finished product quality:

1. Finishing Materials – these are used to smoothen the surface before decorating the product.
 - a. Varnish - Used for finish or topcoat, it is durable because it contains a higher ratio of solid.
 - b. Shellac – This finish is natural that is very safe once dried and hardened. It is also used as protective coat on non-wood item.
 - c. Lacquer – Provides intense gloss finish often used on Asian-inspired furnishing. It is extremely durable and resistant to damaged. It can be applied with the use of a sprayer.
 - d. Polyurethane – essentially a plastic in the form of a liquid. Available in water and oil-based options.
2. Decorating and wrapping materials - Colored paper twines and ribbon cloth use as decoration and wrappings for bamboo and wood products.
3. Accessories - Beads and charms are small accessories of different colors used to make products attractive.

4. Abaca and Sinamay Fibers – are thin-paper locally-made materials used for wrapping and packaging of the finished products.

Process of enhancing and decorating finished products:

A. For Wood and Bamboo Products:

1. Wood Turning - is a process of using a lathe to make various forms and shapes of wood.
2. Hand Carving - is considered a woodcraft in which a sharp object is used to create designs on the wood.
3. Pyrography - the art or technique of decorating wood or leather by burning a design on the surface with a heated metallic point.
4. Flocking - lines the interior of drawers and boxes with a soft velvety finish
5. Inlaying - combines several techniques that involve inserting decorative pieces into a base object to incorporate new designs on the original products.
6. Gilding - decorative technique in which powder is applied on wood or other materials to give a thin coating of gold.
7. Staining - is used to color wood to give an illusion of texture.
8. Painting - the simplest way of decorating wood since there are a variety of colors that you can choose from.

B. For Metal Products:

1. Engraving - transferring a design on metal using hardened steel tool called burin or graver to cut into the surface of the metal
2. Texturing & Embossing - in this technique you will need hammer, metal, stamp, stencils, and other materials to create imprints on the metal.
3. Etching - is a process used to make designs or pictures on a metal plate by using acid that produces corrosive action.



What's More

Activity 1: Understanding the methods and importance of conducting a market survey.

Learning the Skills: Classifying Ideas

Directions: Write **M** if the statement demonstrates a method of conducting a market survey and **I** if it expresses the importance of a market survey.

1. Gathering facts and information about the prospective customers in your areas of business operation using online survey. ____
2. Collecting data and evidence about the market trends and customers' preferences of the products. ____
3. Finding out the pattern of gradual changes or the tendency of the product to go on sales and earn more or slow down its sales and results to losing ends. ____
4. Studying the customers' capacity to purchase and buying prospective for crafting products/services that satisfy those wants/needs. ____
5. Using telephone in contacting respondents via the telephonic medium. ____
6. Offers marketing and business ideas about needs wants/likings of the costumers to a certain product. ____
7. Helps you understand customers' preference to buy the products. ____
8. Helps you to know the costumers' thoughts about the quality and functionality of the product. ____
9. Face-to-face survey will gain an honest and clear feedback about the subject in-hand. ____
10. These surveys can be used where laptops, computers, and tablets cannot go. ____

Activity 2: Tell How You Understand

Learning the Skills: Comparing

Directions: Compare the following survey or ways of gathering data. Use the words inside the box. Write your answer in a separate sheet of paper.

Age-old method	pen and paper	online
Lesser investment	easy	fast
Clear feedback	gain respondents' trust	cost effective
House to house	less effort	less manpower
sure of honest answer		

Online	Face-to-face	Telephone	Paper

Activity 3: Tell How You Understand

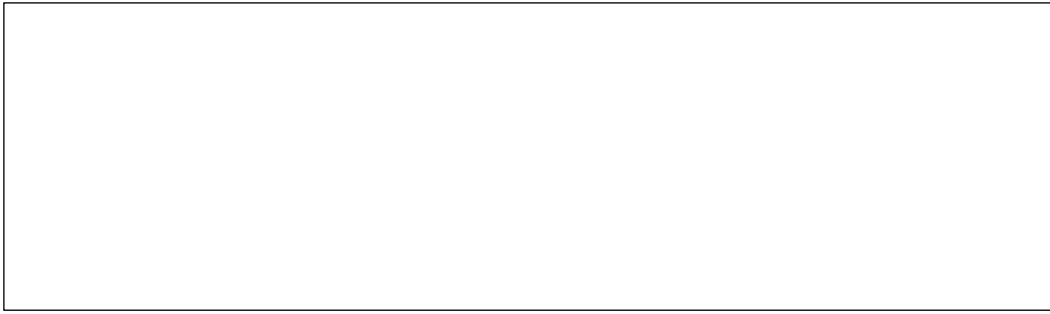
Learning the Skills: Explaining Ideas

Directions: In your own words or understanding. Write a brief explanation for each question below on your answer sheet.

1. What is a market survey?

--

2. Why is it important to conduct a market survey?

A large, empty rectangular box with a thin black border, intended for the student's answer to question 2.

3. Why is customers' preference important in enhancing and decorating products?

A large, empty rectangular box with a thin black border, intended for the student's answer to question 3.

4. Why is there a need to decorate and to add accessories to finished products?

A large, empty rectangular box with a thin black border, intended for the student's answer to question 4.



What I Have Learned

Directions: Choose the correct answer from the set of words in the parentheses. Write your answer on a separate sheet of paper.

1. The (online, cellphone, television) is the most effective and the fastest way to gather data and information.
2. Gathering data and information about the market trends, demands, and customers' preferences is called (method, survey, planning).
3. A survey is used to (study, answer, unlock) market trends, product demands, characteristics and purchasing power of the customers.
4. When conducting a survey about a product, we examine the (marketability, characteristic, description) of the product.
5. Customers' (attitude, preference, answer) should be given attention for products to be competitive.
6. (Decorations, Surveys, Finishing) are materials used to enhance and smoothen products.
7. Pyrography, carving and gilding are some of the (materials, accessories, processes) of enhancing/decorating finished products.
8. Accessories like beads can make the product (durable, common, attractive).
9. (Charm, Abaca, Paper Twines) is a thin paper locally made material used for wrapping finished products.
10. (Varnish, Shellac, Lacquer) is a material that gives natural finish and protective coat on non-wood item.



What I Can Do

Anyone who wishes to have extra income or plan to start a business must consider conducting a survey on the product he/she wants to bring out of the market to find out if such product will suit to the costumers' preferences and sustain its marketability.

Conduct a market survey of the product that you want to sell. Use what you have learned from this module to guide you in conducting your survey. Through the help of your parents and elder brothers and sisters gather data on Bamboo, Wood and metal furniture in your community. Use the sample survey below.

PRODUCT MARKET SURVEY

Date _____

PERSONAL INFORMATION

Name of Respondent: (optional) _____

Address: _____

Gender: ___ Male ___ Female Status: ___ Single ___ Married

Work: _____ Monthly Income: _____

Name of the Product: _____

Instruction: Put a check (/) on a word /or phrase of your choice.

1. What is your assessment with the product?				
Very Positive	Somewhat Positive	Neutral	Somewhat Negative	Very Negative
2. How would you rate the quality of the product?				
Very High Quality	High Quality	Average Quality	Poor Quality	Very Poor Quality
3. How innovative and creative is the product?				
Extremely innovative	Very Innovative	Average innovative	Not so Innovative	Not at all Innovative

4. In your own assessment, what are the things you like most about the product?

Answer:

5. Is there something you want to suggest in order to improve our new product?

Answer:



Assessment

A. Directions: Read the following test items and choose the letter of the correct answer. Write your answer on a separate sheet of paper.

1. What is an important tool used to gather information from sample respondents?
 - a. Survey
 - b. Letter
 - c. Writings
 - d. Telephone
2. What is used as the fastest way to gather data from a target audience?
 - a. radio
 - b. newspaper
 - c. technology
 - d. letter
3. What contributes to the beauty and attractive appearance of a finished product?
 - a. methods
 - b. accessories
 - c. importance
 - d. information
4. Why do you have to send a survey questionnaire to your target customers?
 - a. To know the likings of the customers.
 - b. To ask their feelings, views, and opinions.
 - c. To suit customers' preferences.
 - d. All of the above
5. Which of the following is the most innovative, cost-effective method of survey or gathering of data?
 - a. Paper
 - b. Telephone
 - c. Face-to-face
 - d. online
6. What should be given emphasis in innovating or adding of accessories to a product?
 - a. the size of the product
 - b. customers' preference
 - c. artist's style
 - d. number of products
7. What do you call a material that is plastic in form, available in water and oil-based options used as finishing for products?
 - a. varnish
 - b. polyurethane
 - c. shellac
 - d. lacquer
8. Which process of enhancing a finished product using a sharp object to create designs on wood?
 - a. hand carving
 - b. flocking
 - c. etching
 - d. texturing

9. What is the process of enhancing metal products that uses acid to produce corrosive action?
- | | |
|--------------|--------------|
| a. staining | c. etching |
| b. engraving | d. texturing |

10. Which of the following explains the importance of conducting a market survey?
- Gain customers' feedback
 - Understand customers' preference to procure products
 - Assist in making important decisions in enhancing a product
 - All of the above

B. Directions: Identify the kind of materials use to enhance or decorate finished products. Write **FM** for finishing materials, **DM** for decorating material, **A** for accessories and **WP** if use for wrapping and packaging Write your answer in a separate sheet of paper.

- | | |
|-------------------------|-------|
| 1. Beads | _____ |
| 2. Ribbon cloth | _____ |
| 3. Sinamay fibers | _____ |
| 4. Varnish | _____ |
| 5. Lacquer | _____ |
| 6. Colored paper twines | _____ |
| 7. Shellac | _____ |
| 8. Abaca | _____ |
| 9. Polyurethane | _____ |
| 10. Charms | _____ |

C. Directions: Choose from the list below the kind of survey or data gathering method described by each statement. Write your answer on a separate sheet of paper.

Online Survey	Telephone Survey
Face-to-face Survey	Paper Survey

- It can be used where technology cannot reach customers.
- In this method researchers can easily identify if the respondents are uncomfortable with the questions asked.
- A widespread data collection method.
- Contacting respondents individually via the telephonic medium.
- An age-old method of data collection.



Additional Activities

Pretend that you are a costumer. Fill out this survey form. Your preference might be the same that of your costumers. Ask copy of the survey form from your teacher or facilitator.

School Canteen Survey

Grade: _____ **Section:** _____

We are seeking your feedback to help us evaluate the offerings and help us make changes and improve the services we had.

1. How many days in a week do you typically buy food items in the school canteen?

Please check the appropriate box beside each type of food.

	1	2	3	4	5
Breakfast					
Snacks					
Lunch					

2. Please tell us what item/s do you buy most often and never buy.
Please check the appropriate box beside each type of food

Items	Buy Most Often	Never Buy
Chicken Joy		
Boiled Banana		
Egg/Chicken Sandwich		
Siomai		
biscuits		
Banana cake		
Fries		
Boiled egg		
Arroz Caldo		

3. From the items below, which of the following items are you going to most likely purchase?

Please put a check on the space before the item of your choice.

___ Banana cue

___ Pudding

___ Sweet corn

___ Calamansi Juice

___ Shanghai

___ Fresh milk

___ Cupcakes

___ Siopao

___ Donuts

___ Pancakes

4. What other suggestions can you give in order to improve our canteen services?

Write your comment/s inside the box.

We welcome any additional comments and suggestions to improve the canteen service for everyone.

Thank you very much!



Answer Key

<p>What I Know</p> <p>1. a 2. d 3. d 4. b 5. d 6. b 7. d 8. a 9. b 10. c</p> <p>What's In</p> <p>1. Survey 2. Feedback 3. Innovativeness 4. Accessories 5. marketability 6. Customers' preferences 7. Methods 8. Finishing materials 9. Finish product 10. strategies</p>	<p>What's More</p> <p>Activity 1</p> <p>1. M 2. I 3. I 4. I 5. M 6. I 7. I 8. I 9. M 10. M</p> <p>Activity 2</p> <table><tr><td><p>Online</p><p>Cost effective</p><p>Easy</p><p>fast</p></td><td><p>Face-to-face</p><p>Gain</p><p>respondents</p><p>trust</p><p>Sure of</p><p>honest</p><p>answer</p><p>Clear</p><p>feedback</p></td><td><p>Telephone</p><p>Paper</p><p>Age-old</p><p>investments</p><p>Less effort</p><p>Less</p><p>manpower</p></td><td><p>Activity 3</p><p>Answers may vary</p></td></tr></table> <p>What I Can Do</p> <p>Teacher will check learners' output</p>	<p>Online</p> <p>Cost effective</p> <p>Easy</p> <p>fast</p>	<p>Face-to-face</p> <p>Gain</p> <p>respondents</p> <p>trust</p> <p>Sure of</p> <p>honest</p> <p>answer</p> <p>Clear</p> <p>feedback</p>	<p>Telephone</p> <p>Paper</p> <p>Age-old</p> <p>investments</p> <p>Less effort</p> <p>Less</p> <p>manpower</p>	<p>Activity 3</p> <p>Answers may vary</p>	<p>What I Have Learned</p> <p>1. online 2. survey 3. study 4. marketability 5. preferences 6. Finishing 7. processes 8. attractive 9. Paper twines 10. Shellac</p>
<p>Online</p> <p>Cost effective</p> <p>Easy</p> <p>fast</p>	<p>Face-to-face</p> <p>Gain</p> <p>respondents</p> <p>trust</p> <p>Sure of</p> <p>honest</p> <p>answer</p> <p>Clear</p> <p>feedback</p>	<p>Telephone</p> <p>Paper</p> <p>Age-old</p> <p>investments</p> <p>Less effort</p> <p>Less</p> <p>manpower</p>	<p>Activity 3</p> <p>Answers may vary</p>			
<p>Assessment</p> <p>A. 1. a 2. c 3. b 4. d 5. d B. 1. A 2. DM 3. WP 4. FM 5. FM C. 1. Paper survey 2. Face-to-face survey 3. Online survey 4. telephone survey 5. paper survey</p> <p>Additional Activities:</p> <p>Answers may vary</p>						

References

Department of Education Curriculum Guide 2016, EPP 6, Industrial Arts pages 38 – 41

Department of Education MELCs in EPP/TLE Grade 6 Industrial Arts pages 353 – 354

[youtube.com/watch?v=Uy2ZvRgVxQk](https://www.youtube.com/watch?v=Uy2ZvRgVxQk) (EZ Link)

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Technology and Livelihood Education

Industrial Arts – Module 4: Effects of Innovative and Creative Accessories on Marketability of Products



Technology and Livelihood Education – Grade 6
Alternative Delivery Mode
Industrial Arts – Module 4: Effects of Innovative and Creative Accessories on
Marketability of Products
First Edition, 2020

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Technology and Livelihood Education

Industrial Arts – Module 4: Effects of Innovative and Creative Accessories on Marketability of Products

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you in master the skills in enhancing/decorating finished products. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the learning materials you are now using.

This module focusses on the following topics:

- a. Effects of the innovative finishing materials on the marketability of the products.
- b. Kinds of finishing materials commonly used.

At the end of this module, you should be able to:

- a. Discuss the effects of innovative finishing materials and accessories on the marketability of the products. (TLE6IA-0c-4)



What I Know

Directions: Write **Yes** if the statement is correct and **No** if not. Write your answer on a separate sheet of paper.

- _____ 1. Stains are chemical used in giving colors to materials of products.
- _____ 2. All kinds of paint can be use in finishing bamboo and wood products.
- _____ 3. Customers buy all products that they like without checking its finished.
- _____ 4. Finishing materials make products durable and lasting.
- _____ 5. Products become attractive to customers if enhanced and well- finished.
- _____ 6. Innovativeness of learners is needed in producing quality outputs.
- _____ 7. Bamboo products can be decorated and enhanced for marketability.
- _____ 8. Finishing materials cannot be used on wood products.
- _____ 9. Shellac is an example of finishing material that give stain.
- _____ 10. Spirit stain is the hardest finishing materials to apply.

Lesson

1

Effects of Innovative and Creative Accessories on the Marketability of Products

To introduce new trends or concept in the market. Competitive entrepreneurs never stop inventing and creating innovative and creative accessories for their products.

Why is it important to know the ways to enhance and the different kinds of enhancing and decorating materials or accessories?



What's In

Directions: Put a CHECK (✓) before the number if the materials can be used as finishing or accessories to enhance the product and CROSS (✗) if it is not. Write your answer in a separate sheet.

1. Paint
2. Anahaw Leaf
3. Shellac
4. Varnish
5. Metal Sheets
6. Pentel pen
7. G.I. Pipe
8. Enamel Paint
9. Bamboo
10. Fillers



What's New

Christopher with his older brother made a center table out of bamboo, which abundantly grows in their community. He had a conversation with Teacher Lance who gave him tips on how to make it more attractive and appealing. Teacher Lance looked at the finished product displayed by Christopher. He made some suggestions and recommendations to make it marketable and more attractive. Teacher Lance suggested that they will add some more accessories to enhance the look of the center table.



What is It

Many products displayed in the malls look the same but differ in the materials used. Knowing your product and constant innovations will give you edge among your fellow suppliers as your product competitors.

The following are the effects of innovative finishing materials on the marketability of the products:

1. Improve the quality and marketability of the products.
2. It gives satisfaction to the costumers.
3. It makes product saleable.
4. It makes products durable and lasting.
5. Products becomes attractive and appealing to buyers.
6. Entrepreneurs keep on improving his product, thus business keeps on growing.

Kinds of Finishing Materials commonly used:

1. **Fillers** - a substance put in a space or container to fill it, usually applied in woods to fill up cracks and grooves.

There are 2 kinds of wood fillers:

- a. Paste Fillers - compound of silica and drying oil used as a filler for open grain wood (as oak)
 - b. Shellac - purified lac usually prepared in thin orange or yellow flakes by heating and filtering and often bleached white
2. **Stains** - a penetrative dye or chemical used in coloring a material or object.

Three kinds of stains:

- a. oil stain - easiest to apply
 - b. water stain - a wood stain in which water is the solvent or dispersion medium
 - c. spirit stain - hardest to apply, it dies easily
3. **Paint** - Most commonly used and beautify the object
 4. **Varnish** - transparent material comes from gum commonly used in Furniture
 5. **Enamel** – paint material in different colors, used in wood

Two kinds of enamel:

- a. **Gloss Enamel** - Enamel paint that air-dries to a hard, usually glossy, finish, used for coating surfaces that are outdoors or otherwise subject to extreme temperatures
 - b. **Non-Gloss Enamel** - does not give any shine on wood.
6. **Lacquer** - a liquid made of shellac dissolved in alcohol, or of synthetic substances, that dries to form a hard-protective coating for wood, metal.



What's More

Activity 1

Directions: Write **True** if the statement is right about enhancing the products and **False** if it is wrong. Write your answer on a separate sheet of paper.

- _____ 1. The enhanced product gives satisfaction to customers.
- _____ 2. Enhancing materials improves the quality and marketability of the product.
- _____ 3. Accessories on products will affects its durability.
- _____ 4. Customers can give suggestions to the product for improvement.
- _____ 5. Satisfied customers will keep on patronizing enhanced products.

Activity 2

Directions: Identify the word being describe in the sentences. Choose your answer from the box below and write your answer in a separate paper.

Attractive	Durability	Marketability
Customers	Accessories	Products

_____ 1. the ability of a commodity to be sold or marketed.

_____ 2. a person or organization that buys goods or services from a store.

_____ 3. a thing which can be added to something else in order to make it more useful, versatile, or attractive.

_____ 4. the ability to withstand wear, pressure, or damage.

_____ 5. mean pleasing or appealing to the senses.

Activity 3

Directions: Unscrambled the word to form the correct term based on the definition given. Write your answer on a separate sheet of paper.

1. LUERQAC: a liquid made of shellac dissolved in alcohol

Answer: _____

2. RISTIP SAINT: hardest to apply, it dries easily

Answer: _____

3. SHINVAR: transparent material comes from gum commonly used in furniture.

Answer: _____

4. AINTP: Most commonly used and beautify the Object

Answer: _____

5. MELANE: varnished with color, used in wood

Answer: _____



What I Have Learned

Directions: Fill in the sentences with correct words that will complete the thought. Choose your answer inside the box. Write your answer on a separate sheet of paper.

Marketability	Local materials
Accessories	Patronizing
Durability	Product satisfaction

1. _____ can be achieved through research and listening to customer's suggestions.
2. Applying finishing materials and adding _____ will make the products more attractive.
3. Creating innovative products will develop its _____ when it is launched.
4. Customers will keep buying and _____ quality and durable products.
5. Using _____ is cheaper than buying raw materials from other places.



What I Can Do

Directions: Read the situation and do the activity provided. Write your answer on a separate sheet of paper.

The Grade 6 learners of Mr. Gomez conducted fund a raising event using the different outputs and projects they had made in their TLE class.

They wanted to enhance their bamboo and wood projects using indigenous and local materials.

List down five (5) indigenous and local materials they can use in enhancing their bamboo and wood projects to make it marketable. Write answer in separate sheet of paper.



Assessment

A. **Directions:** Read each item and choose the letter of the correct answer and write it on a separate sheet of paper.

1. What kind of finishing material is used to fill up cracks and grooves?

- | | |
|------------|------------|
| a. Stain | c. fillers |
| b. shellac | d. paint |

2. What do we call the ability of the product to be sold?

- | | |
|------------------|----------------|
| a. Measurable | c. Accessories |
| b. Marketability | d. Product |

3. The process of developing a product that will make it more attractive is called:

- | | |
|----------------|----------------|
| a. enhancement | c. Salable |
| b. boosting | d. Patronizing |

4. What word best describes a product that can withstand extreme weather conditions?

- | | |
|-------------------|------------------|
| a. Accountability | c. Durability |
| b. Creativity | d. Marketability |

5. What is the feeling of a customer who receives a product that matches his need?

- | | |
|-----------------|--------------|
| a. Disappointed | c. Angry |
| b. Sad | d. Satisfied |

B. **Directions:** Read each item carefully and copy the correct answer from the parenthesis. Write it in a separate sheet of paper.

1. (Glue, Plastic, Paste) is a filler finishing materials?

Answer: _____

2. (Shellac, Glue, Varnish) is a transparent material comes from gum commonly used in furniture.

Answer: _____

3. Applying finishing materials on the product can (improve, lessen, destroy) the quality of the material.

Answer: _____

4. Accessories can add to products (weight, marketability, transparency).

Answer: _____

5. Carlo applied his (intelligence, creativity, cooperativeness) in enhancing his bamboo and wood product using finishing materials and accessories.

Answer: _____



Additional Activities

A. For learners with local handicraft factory in the community or locality, observe how the workers apply the methods in decorating the products and list the finishing materials they used to enhance the product. Use the table below in listing your observations. Use separate sheet for your answer.

Name of Product	Methods in decorating the products	Finishing materials used

B. For learners without any local handicraft factory in the community or locality, based on the lesson learned from this module. Look for a project or product made of bamboo, wood or metal at home in the community. Complete the table above.

Note:

In doing the activities, observe safety and health protocol.



Answer Key

<p>What I Know</p> <p>1. Yes 2. No 3. No 4. Yes 5. Yes 6. Yes 7. Yes 8. No 9. No 10. Yes</p> <p>What's In</p> <p>1. / 2. X 3. / 4. / 5. X 6. X 7. X 8. / 9. X 10. /</p>	<p>What' More</p> <p>Activity 1 1. True 2. True 3. False 4. True 5. True</p> <p>Activity 2 1. Marketability 2. Customers 3. Accessories 4. Durability 5. Attractive</p> <p>Activity 3 1. laquer 2. spirit stain 3. varnish 4. paint 5. enamel</p>	<p>What I Have Learned</p> <p>a. Product satisfaction b. Accessories c. Marketability d. Patronizing e. Local materials</p> <p>What I Can Do</p> <p>Answers may vary. Teacher will check learners' answers.</p>	<p>Assessment</p> <p>A. 1. c 2. b 3. a 4. c 5. d</p> <p>B. 1. Paste 2. Varnish 3. improve 4. marketability 5. creativity</p> <p>Additional Activities</p> <p>Answers may vary.</p>
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Department of Education Curriculum Guide 2016, EPP 6, Industrial Arts pages 38 – 41

Department of Education MELCs in EPP/TLE Grade 6 Industrial Arts pages 353 – 354

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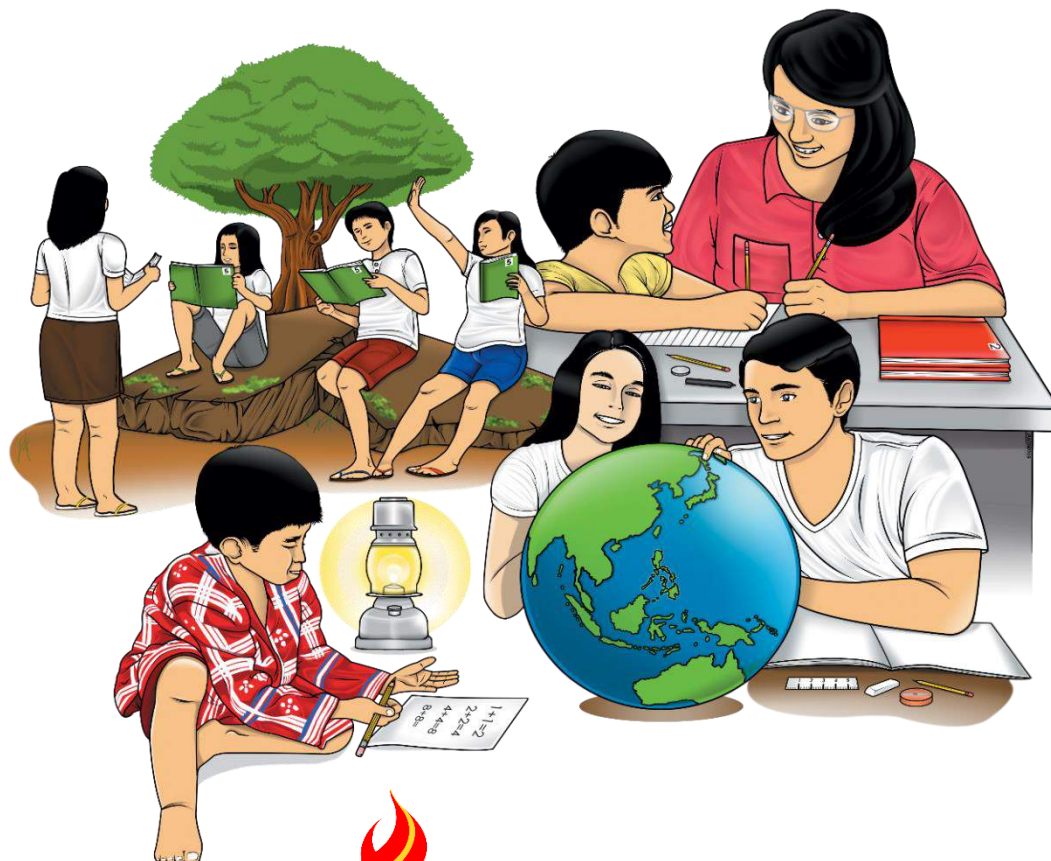
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Technology and Livelihood Education

Industrial Arts – Module 5: Sketching, Shading, and Outlining of Bamboo, Wood, and Metal Products



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TLE – Grade 6

Alternative Delivery Mode

Quarter 0 – Module 5: Sketching, Shading and Outlining of Bamboo, Wood, and Metal Products

First Edition, 2020

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Technology and Livelihood Education

Industrial Arts – Module 5: Sketching, Shading, and Outlining of Bamboo, Wood, and Metal Products

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you master the skill in sketching, shading, and outlining bamboo, wood, and metal products. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of learners. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module focusses on the following topic:

- a. Enhancing Bamboo, Wood, Metal and Other Finished Products through Sketching, Outlining and Shading

At the end of this module, you should be able to:

- a. Enhance bamboo, wood, metal and other finished products through sketching, shading, and outlining, (TLE6IA-0c-5)



What I Know

Directions: Read each question carefully. Choose the letter of the correct answer and write your answer on a separate sheet of paper.

1. Which of the following are the basic elements of drawing?
 - A. Points and lines
 - B. Paper and pencil
 - C. Lines and shapes
 - D. Paints and brushes
2. What is the basic concept of toning in art class?
 - A. To create a shade.
 - B. To create different color.
 - C. To create variation of lines.
 - D. To create variation of shapes.
3. What should you do to make your piece look more attractive and realistic?
 - A. Use a dark outline.
 - B. Add more lines.
 - C. Use some curves.
 - D. Add shades.
4. What is the common type of pencil used in sketching?
 - A. B pencil
 - B. H pencil
 - C. I pencil
 - D. HD pencil
5. What shading technique uses parallel lines?
 - A. Stippling
 - B. Cross hatching
 - C. Hatching
 - D. Carling
6. What is the most essential element in creating a shade?
 - A. Light
 - B. Lines
 - C. Images
 - D. Color

7. Which part of your body can serve as a guide in creating an outline of your subject?
 - A. Fingers
 - B. Palm
 - C. Wrist
 - D. Arm
8. What is the correct position of your hand, when holding a pencil while sketching?
 - A. Near at the tip.
 - B. Near at the middle.
 - C. At the top part.
 - D. At the middle.
9. This technique is also known as “inking the drawing”.
 - A. Sketching
 - B. Outlining
 - C. Shading
 - D. Painting
10. As a beginner, which of the following is the best subject for drawing?
 - A. Moving subject
 - B. Imaginary subject
 - C. Stationary subject
 - D. All answers are correct

Lesson

1

Enhancing Bamboo, Wood, Metal and Other Finished Products through Sketching, Outlining and Shading

We know that making an artwork includes talent and skills. Some people are born artistic and creative skills and that is the reason why they became popular in the different fields of art.

There are also many livelihoods where sketching, shading and outlining are being used. Among are furniture -making, tailoring, dress making, and creating construction projects and many others.

Learning the basic skills can help us improve our creativity and artistic inclination. Let us learn to be more imaginative, creative, and have more patience to practice. Practice is the basic in all that we do.



What's In

Directions: Choose the appropriate word from the parenthesis. Write your answer on a separate sheet of paper.

1. (Shellac, Paint, Filler) is a finishing material that fill up cracks and grooves.
2. (Saleable, Enhancement, Production) is a process of developing the product that will make it attractive to buyers.
3. (Glue, Shellac, Varnish) is a transparent material that comes from gum.
4. Beads and charms are (accessories, designs, colors) that will make products more attractive and increases marketability.
5. A (transparent, colorful, durable) product can withstand any weather conditions.



Notes to the Teacher

Please help the learner to better understand the terms being introduced. Lesson is easy to understand when they can comprehend these words.

The words below are defined according to their function in this module. Take time to familiarize them, it will help you on your journey in this module.

New Words to Learn

1. **Draft** – is a preliminary version of a piece of writing or drawing.
2. **Three dimensional** – appearing to have a length, width, and height.
3. **Subject** – any object that serve as a model in creating a piece.
4. **Shadow effect** – a dark image cast on a surface by the interception of light rays by an opaque body.
5. **Tone** – a lightness or darkness of color.



What's New

Elmer, Nicole, and Franz are Grade 6 pupils of La Carlota Elementary School. They were the participants of their Division for the Regional “Technolympics”.

Before the day of their respective events, the three decided to have a walk around the place and to familiarize themselves with their respective event area.

As they go to the venue, they were happy sharing their experiences. They stop by bazaar set up by other divisions. They were amazed how other divisions put up their booths with their learners’ outputs and their products.

Their attention was caught by several students who flock in one side of the venue. They saw students from that booth, making drawing of different photo laid in front of them. Some are about to start, some are in the middle of their sketching, and others are about to finish.

Elmer asked one of the students, “Is it difficult to draw a photo?”

“No, because this my hobby, I love drawing all the time”, the student replied.

The three learners concluded that making illustrations would be easy, if we love and enjoy our work, constant practice and learning the techniques in sketching, outlining and shading.



What is It

Products made from bamboo, wood, and metal are bare looking if there no enhancement or artwork added to it. This is the reason why many small cottage industry and handicraft makers in the country continue to create different products out of bamboo, wood and metal. They tried innovating and even adding accessories or to make it more saleable both locally and even in international markets.

In this lesson you will learn how sketching, outlining and shading can add beauty, thus increases the marketability of bamboo, wood and metal products.

What is Sketching, Outlining and Shading?

Sketching: is a practice of using a rough outline or it is draft version of an object. Sketching is a preparation or an idea of how something will look like.

Outlining: is the process of making an image on the outer parts of any shape or object using lines. To draw the outer edge of an illustration, diagram to emphasize the shape or image of the drawing. This step is also known as “inking of drawing”. It is done when you go over the lines used to produce a rough sketch with thick and dark ink to make it more distinct.

Shading: is the darkening or coloring of an illustration, diagram, or outline. Tracing and defining the outer edge or shape of the drawing, it is a technique that makes line drawing pop off and stimulate a three-dimensional look. It adds depth and contrast to your piece.

Steps in enhancing bamboo, wood, metal and other finished products through Sketching, Outlining and Shading

Step 1: Prepare all materials and tools needed for your project. Prepare the tools and materials such as pencil, eraser, assorted colored paint as touching materials, pencil brush or artist brush, accessories, and finishing materials for topcoat.



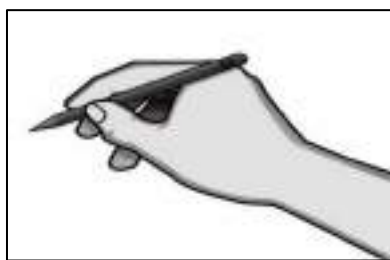
Pencils – there are two types of pencils used in drawing,

- H pencil usually used for sketching, it is numbered with 2H, 4H, 6H and 8H with 2H as the softest and 8H as the hardest.
- B pencil is used for shading, it is numbered 2B, 4B, 6B, and 8B.

Ready finished products made from bamboo, wood, or metal and the image or subject you want to put in your products.

Step 2: Make a sketch of your subject on the surface of the product.

- a. Hold your pencil nearly at the middle.



- b. Choose a specific subject to draw.

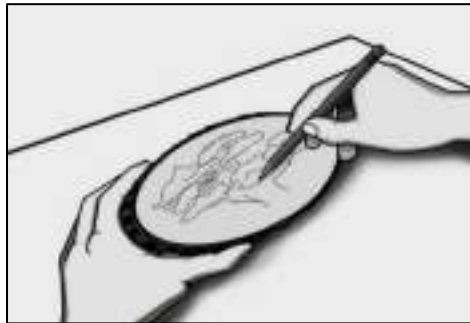
Look for an image that you like; it maybe an object or person. Take time to study the object before beginning to sketch. Use combination of primary or basic shapes like square, circle or rectangles.

- c. Start to sketch lightly.

Start sketching with a very light hand using short and quick strokes. This will allow you to test yourself of the different ways of drawing an object and will allow you to erase mistakes easier.

- d. Keep sketching or do gesture drawing.

It is continuous sketching until you achieve the forms, actions shape and poses, connecting lines that show movement of your subject.



Jofel D. Nolasco, Sketching on wood, 2019

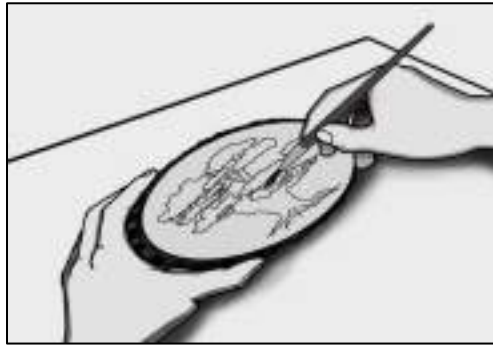
Step 3: Outline your sketched image or subject.

- a. Ready with your touching materials for outlining.
- b. Use fine tip pencil brush. Make an outline of your subject using light colored paint.
- c. Grip your pencil brush near the tip with your hand steady. Let your arm guide you over the lines not by the movement of your wrist.
- d. Make thick and bold lines for more detailed parts (outer lines) and thin lines for less detailed parts (inner lines).
- e. Use outline color that is the same with the final color of that particular part.
- f. Outline the subject or image color by color.

Note:

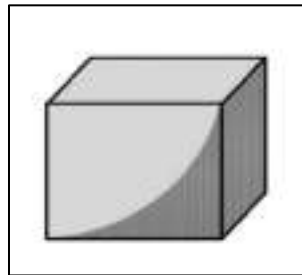
- To decrease the color tone of the paint, mixed it with white of the same type until you reach the desired tone.
- To increase color tone or darkened the paint, add a very little amount of black.

Step 4: Shade the outlined image or subject.

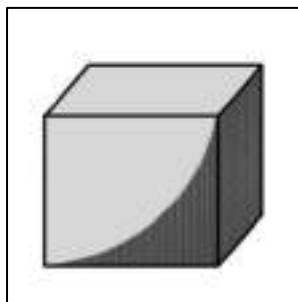


On this part, you will add texture to your work piece by shading. Shading may use three different techniques: hatching, cross-hatching, stippling.

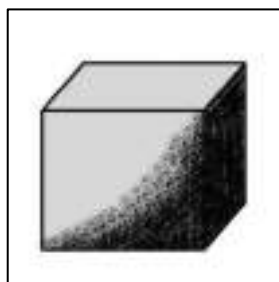
- a. **Hatching** is a series of parallel lines that create shadows in drawing.



- b. **Cross-hatching** is the use of two sets of lines. Second line is crossing over the first line to create a darker effect of shadow.



- c. **Stippling** involves by making shapes and images by using small dots.



1. Determine the direction of light source. This is a very important factor in creating a shadow effect and making your art piece more realistic.
2. Use color tones start with plain then add dark color starting from the direction against the light.
3. Make use of tone and contrast. As a rule, object away from light source need to be shaded.
4. Start with light shading to serve as a base. Make it darker going to the direction of a part that is away from light.
5. To make your artwork become real or three-dimensional, add a drop shadow. A drop shadow will determine the location of your object.
6. Observe the direction of the light, this will be also the direction of the shadow casted by your object.



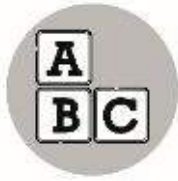
Jofel D. Nolasco, Painting the image on the wood, 2019

Step 5: Paint the inner part of the subject or image

- a. Check if the outlines are dried, start painting the inner part of each outline.
- b. Apply on each part a specific light-colored paint. This will serve a base.
- c. The tone of each color should be a bit darker in your outline.

Note:

It will be easy to identify the color tone that you want to use if you will have at least four separate containers that contains one-color with different color tone. Example: dark green, green, light green, and much lighter green.



What's More

Activity 1

Learning the Skill: Identifying Ideas

Directions: Read each sentence carefully. Put a check (✓) in your answer sheet if the statement is correct and cross (X) if it is wrong.

1. Use thin and soft lines when making a sketch.
2. Apply dark color as a base in the inner part of the subject.
3. Adding too much accessories will increase the attractiveness of a product.
4. Start applying color at the nearest part of the subject.
5. Applying finishes to a product will have a positive effect on its appearance and durability.
6. Only wood and bamboo products can be enhanced through sketching, outlining, and shading.
7. Mixing of color with white will increase color tone.
8. Outline color should be the same with the actual color.
9. Paint the specific part before outlining.
10. Add the accessories first before retouching.

Activity 2

Learning the Skill: Sequencing the steps.

Directions: Read each statement below, write in sequence the steps in enhancing products through sketching, outlining and shading. Use numbers 1 to 5 in ordering the steps on your answer sheet.

- _____ 1. Shade the outlined image or subject.
- _____ 2. Prepare all materials and tools needed for your project.
- _____ 3. Paint the inner part of the subject or image.
- _____ 4. Outline your sketched image or subject.
- _____ 5. Make a sketch of your subject on the surface of the product.

Activity 3

Learning the Skill: Writing Reflection

Directions: Read the question below. Write your reflection on your answer sheet.

1. Why is enhancing through sketching, outlining, and shading is important in the marketability of bamboo, wood and metal products?

Use the rubric below for the score.

Score	Description
5 points	Response addresses the question clearly and correctly with a written explanation
4 points	Response was provided with a short yet relative explanation.
3 points	Response addresses the question correctly, but 1 explanation provided is not related to the question given.
2 points	Response addresses the question correctly, but 2 explanations provided are not related to the question given.
1 point	Response was provided but was not able to explain.



What I Have Learned

Directions: Fill in the blank with the appropriate word from the box below. Write your answer on a separate sheet of paper.

basic shapes	drop shadow	cross-hatching
Outlining	white	sketching

1. To make your artwork become real or three-dimensional, add a _____ to determine the location of the subject.
2. _____ is a shading technique that uses two sets of lines.
3. To decrease the color tone of the paint, mixed it with _____ of the same type.
4. Use _____ like square, circle or rectangles in sketching an object.
5. H pencil is usually used for _____.



What I Can Do

Do It Yourself. Let us apply what you have learned from this lesson.

Directions:

1. Choose your own finished product or material (bamboo, wood, or metal).
2. Enhance it through sketching, outlining, and shading.
3. Follow the steps that you have learned.

Use the rubric below to score/rate the output

Criteria	Excellent 8-10	Good 5-7	Fair 1-4	Score
Design	Steps in sketching, outlining and shading of finished product were observed.	1-2 steps in sketching, outlining and shading of finished product was not observed.	3-4 steps in sketching, outlining and shading of finished product were not observed.	
Workmanship	The illustration is neatly done and with 81-100% accuracy	The illustration is neatly done with 61-80% accuracy	The illustration is messy and with 60 % accuracy.	
Appearance	Perfect with enough blending of colors used, attractiveness of tone and correctness of shading	Color blending, attractiveness of tone and correctness of shading are mostly to sometimes observed	Color blending attractiveness of tone and correctness of shading are rarely to or observed.	
Total Score				



Assessment

Directions: Read each question carefully. Choose the letter of the correct answer and write it on your answer sheet.

1. What is the primary purpose of shading in creating an image?
 - A. To darken or coloring of an image.
 - B. To make image more realistic.
 - C. To make an image.
 - D. To make the appearance of an image simple.
2. This is used to produce a rough sketch with thick and dark ink to make the figure of an image more distinct.
 - A. Shading
 - B. Outlining
 - C. Painting
 - D. Sketching
3. This is used as your model in making sketching, outlining, and shading.
 - A. Pencils
 - B. Brushes
 - C. Paint
 - D. Subject
4. What is added to an illustration to make it real or three dimensional?
 - A. Paint
 - B. Light
 - C. drop shadow
 - D. cast shadow
5. This is the process of overlaying dark colored paint in your base paint.
 - A. Shading
 - B. Outlining
 - C. Painting
 - D. Sketching
6. Tone refers to the _____ of color.
 - A. Smoothness and dullness
 - B. Darkness and brightness
 - C. Hue and saturation
 - D. Foreground and background
7. In creating an outline using paint, _____ brush should be used.
 - A. Fine-tip
 - B. Round-tip
 - C. Broad-tip
 - D. All answers are correct
8. Which of the following sentence states a correct procedure?
 - A. Apply finishing materials before shading.
 - B. Start shading from the source of light.
 - C. Start sketching using s fine-tip brush with paint.
 - D. Use dark colors in the parts with shade.

9. Making colored outlines should be done _____.
A. In inner parts
B. Color by color
C. In outer parts
D. To entire outline
10. What technique uses a series of parallel lines to create shadow in a drawing?
A. Cross-hatching
B. Hatching
C. Stippling
D. Sketching



Additional Activities

Look for sample products that were enhanced using sketching, outlining and shading. Rate the product using the rubrics in “What I can Do.”



Answer Key

Lesson 1

<p>What I Know</p> <p>1. A 2. A 3. D 4. B 5. C 6. A 7. D 8. B 9. B 10. C</p> <p>What's In</p> <p>1. Filler 2. Enhancement 3. Varnish 4. accessories 5. durable</p>	<p>What's More</p> <p>Activity 1</p> <p>1. / 2. x 3. x 4. / 5. / 6. x 7. x 8. / 9. x 10. x</p> <p>Activity 2</p> <p>1.4 2. 1 3. 5 4. 3 5. 2</p> <p>Activity 3</p> <p>Answers may vary</p>	<p>What I Have Learned</p> <p>1. Drop-shadow 2. Cross-hatching 3. white 4. basic shapes 5. sketching</p> <p>What I Can Do</p> <p>Teacher will check the output</p>	<p>Assessment</p> <p>1. A 2. D 3. D 4. C 5. A 6. B 7. A 8. B 9. B 10. B</p> <p>Additional Activities</p> <p>Teacher will check the output</p>
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Department of Education MELCs in EPP/TLE Grade 6 Industrial Arts pages 353 – 354

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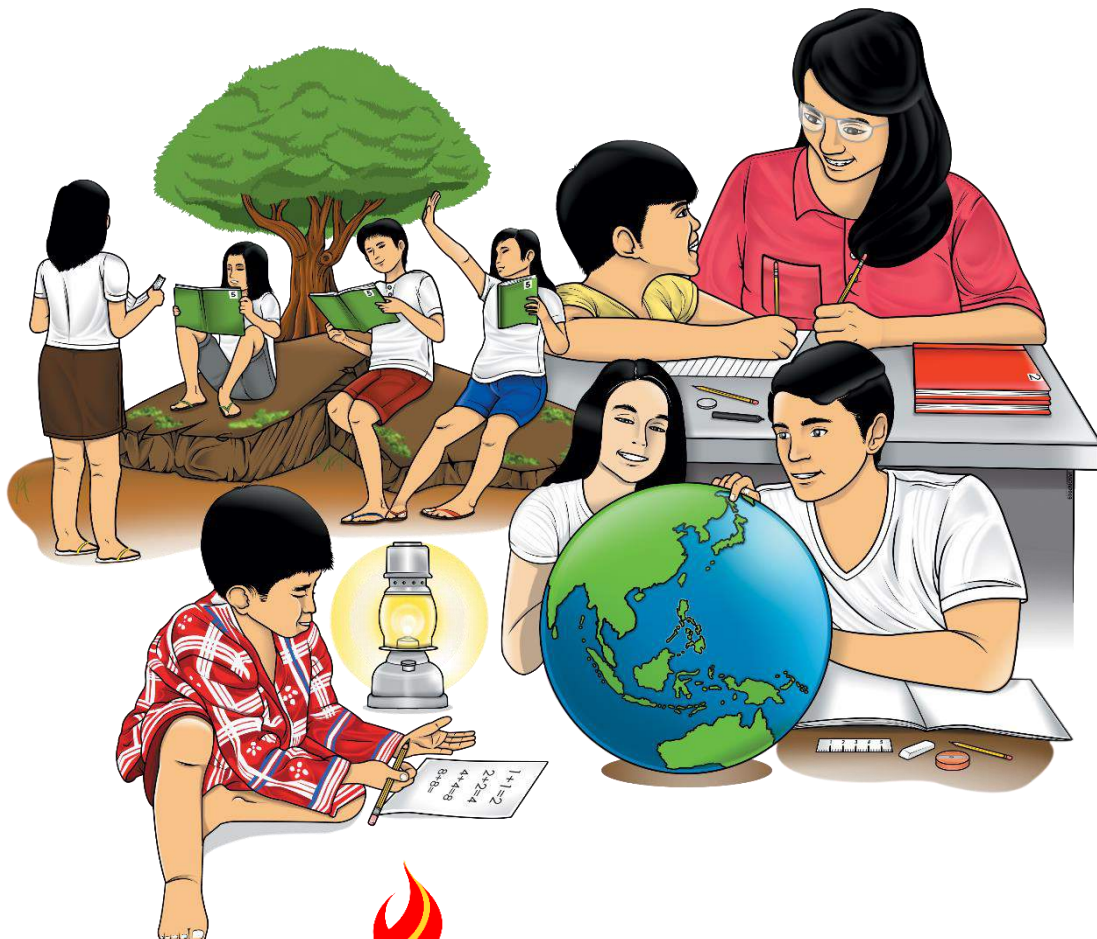
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Industrial Arts – Module 6: Constructing A Project Plan



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6

Technology and Livelihood Education Industrial Arts – Module 6: Constructing A Project Plan

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you to construct project plan. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the learning materials you are now using.

The module is divided into three lessons, namely:

- a. Policies on sustainable development in constructing the project plan
- b. Resourcefulness and Management skills in the use of time, materials, money and effort
- c. Assessing the quality of enhanced products using rubrics

At the end of this module, you should be able to:

- a. Construct project plan; (TLE6IA-0d-6)
- b. Consider deliberate policies on sustainable development in constructing the project plan;
- c. Demonstrate resourcefulness and management skills in the use of time, materials, money, and effort;
- d. Assess the quality of enhanced product using rubrics; and
- e. Refine product based on assessment made.



What I Know

Why is there a need for a project plan before we build our houses, bridges or even school buildings? Simple project in school?

What is the importance of a project plan?

In planning for a project and getting it materialized, one must know how to be resourceful in the preparation and accomplishment of a project plan. It is important to properly manage the different elements that we can associate in preparation and of a workable project.

Lesson

1

Policies on sustainable development in constructing project plan

Why do we need to construct a project plan? Project planning is essential in making and implementing a project that we desire. Starting a project requires careful planning on what to prepare, on how to do it and what to do with the finished product. It enables you to organize your ideas, save time, money and effort.



What's In

Directions: Which of the following project needs a plan? Put a **CHECK** (✓) before the number if it requires a project plan and **CROSS** (X) if doesn't require the plan. Write your answer on a separate sheet of paper.

- _____ 1. Building a house
- _____ 2. Cutting a plain sheet
- _____ 3. Constructing a table
- _____ 4. Making Dustpan
- _____ 5. Making artwork
- _____ 6. Connecting wires
- _____ 7. Preparing tools and materials
- _____ 8. Making card for parents
- _____ 9. cutting of lumber
- _____ 10. Applying varnish



What's New

Andy a Grade 6 learner, wanted to make a “Feather Duster” from recycled materials, the project he planned to develop in his EPP class but was not materialized due to the early closure of his school because of COVID -19 pandemic and he had to stay at home. He would like to start this project, so, he contacted his teacher Mr. Jose online, to get advice on what he will do to be able to start his project.

Mr. Jose was very happy hearing such eagerness of Andy in coming out with an EPP project. So, he instructed Andy to prepare first a project plan that will guide him throughout the development of the project. Mr. Jose patiently discussed the parts of the Project Plan. After, three days of meeting online, Andy is now ready to start his dream project.

Mr. Jose also assured Andy that he will be available anytime via online when he needs some help.

Why is project plan important according to Mr. Jose?

What is a project Plan? What are its parts?



What is It

A **Project plan** is a formal document designed to guide in the execution of a project. It must be prepared before starting because it serves as the key to a successful project.

Parts of a Project Plan

- A. Project Proponent - indicates the owner of the project
- B. Project Title - tells what the project is all about
- C. Project Objectives - tell the purpose of the project
- D. Working Drawing - shows the scale drawing of an object to be made or structure to be built intended for direct use by the workman.
- E. Bill of Materials - tell the materials to be used. This part contains the unit, quantity, description, the unit price and the total cost for every item needed.

- F. Tools Needed: tells the different carpentry or industrial tools, machines or gadgets needed in making the project
- G. Procedure: tells the exact steps in the preparation of the project. This will serve as the guide in project making.

Sample Project Plan:

A. Project Proponent: Juan Dela Cruz

B. Project Title: Extension Cord

C. Project Objectives:

1. To be able to make extension cord.
2. To create a simple project according to prepared plan.

D. Working Drawing:



Jofel D. Nolasco, Extension Cord, 2019

E. Bill of Materials:

Quantity	Unit	Description	Unit Price	Total Cost
1	piece	Convenience outlet	P 40.00	P40.00
1	piece	Male plug	P 38.00	P 38.00
5	meter	Electrical wire # 16	P 15.00	P 75.00
Total				P 153.00

F. Tools Needed



Pliers



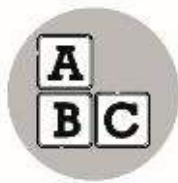
Screwdrivers



Wire Stripper

G. Procedure:

1. Prepare all materials and tools needed for the project.
2. Measure the parts of the wire to be peeled or stripped.
3. Peel off the skin by two centimeters.
4. Loosen the screw of the male plug.
5. Insert the wire into the male plug.
6. Twist both ends of the wire to keep the wires from making contact with each other.
7. Put the cover of the plug so the wire will not be exposed and cause electric shock.
8. Split the cord wires at the other end about 4 cm long, then follow procedure no. 3
9. Connect the wires to the connectors.
10. Open the convenience outlet then remove the screw.
11. Insert the wire connectors to the screws, tighten it and return the cover.



What's More

- A. Directions: Fill in the blanks with appropriate parts of the project plan listed Inside the box below. Write your answer on a separate sheet of paper.

Project Title	Working Drawing	Tools Needed
Project Objectives	Project Proponent	Procedure
Bill of Materials		

- _____ 1. shows the scale of an object to be made or structure to be built intended for direct use by the workman
- _____ 2. tells the different carpentry or industrial tools, machines or gadgets needed in making the project
- _____ 3. indicates the owner of the project
- _____ 4. tell the purpose/s of the project
- _____ 5. tells the exact steps in the preparation of the project. This will serve as the guide in project making.



What I Have Learned

Directions: Fill in the blanks with the correct answer or term found inside the box. Write your answer on a separate sheet of paper.

quantity

objective

money

procedure

tools

In making a Project Plan. The first thing you have to consider is to have your _____ (1) _____ where you will determine the purpose of the project. The List of Materials contains the _____ (2) _____, unit, and description of materials. The _____ (3) _____ will serve as your guide in making your project. _____ (4) _____ is also important in purchasing your material and other expenses. Following the plan and using appropriate _____ (5) _____ will give you not only quality output of the project but also keep you safe from any accident.



What I Can Do

Project Plan is an essential document design to guide project developer in starting a sustainable project. It is necessary before undertaking any project because it serves as guide in accomplishing the project. It gives the project implementer an idea on what needs to be done, how much to spend and what procedures to undertake.

Directions: Using the parts below construct your own project plan. Write it on a separate sheet of paper.

- A. Project Proponent: _____
- B. Project Title: _____
- C. Project objectives: _____
- D. Working Drawing: _____
- E. Bill of Materials: _____
- F. Tools Needed: _____
- G. Procedure: _____



Assessment

A. Directions: Read and answer each question. Write the letter of your answer in a separate sheet of paper.

1. What do you call a document designed to guide you in the execution of a project?
 - A. Building Plan
 - B. Action Plan
 - C. Project Plan
 - D. Project Proponent
2. Which part of the project plan contains the quantity of the materials to be used?
 - A. Working Drawing
 - B. Tools Needed
 - C. Procedure
 - D. Bill of Materials
3. It shows you the purpose of the plan.
 - A. Project Proponent
 - B. Procedure
 - C. Objective
 - D. Materials
4. Scissors, glue gun, pliers and cutter are examples of _____.
 - A. Materials
 - B. Tools
 - C. Furniture
 - D. Machine
5. The illustration of the structure to be built or made can be found in _____.
 - A. Procedure
 - B. List of Tools
 - C. Bill of Materials
 - D. Working Drawing

B. Directions: Match column A with Column B. Write the letter of the correct answer in your answer sheet.

A

1. Tells the exact steps in the preparation of the project.
2. Indicates the owner of the project
3. Shows the scale of an object to be made or structure to be built
4. Tells the purpose of the project
5. It contains the unit, quantity, description, the unit price and the total cost for every item needed

B

- A. Project Objectives
- B. Bill of Materials
- C. Procedure
- D. Working Drawing
- E. Project Proponent



Additional Activities

Directions: Create a simple project plan and observe the format below.

Project Plan

- a. Project Proponent:
- b. Project Title:
- c. Project Objectives:
- d. Working Drawing:
- e. Bill of Materials:

Quantity	Unit	Description	Unit Price	Total Cost

- f. Materials Needed:
- g. Procedure:

Rubrics used in rating the project plan.

Performance Criteria	Excellent 5	Good 3	Fair 1	Score
Completeness of Parts	6 Parts of the Project plan were used	4-5 Parts of the Project plan were used	3 and below parts of the Project Plan were used	
Content	The content of each part of the project plan is complete.	The content of each part of the project plan lack 1-2 needed information or data	The content of each part of the project plan lack 3-5 needed information or data	
Total				

Lesson 2

Resourcefulness and Management skills in the use of Time, Materials, Money, and Effort

Resourcefulness, effective and efficient management of the following elements are also considered in the preparation of a project, based on prepared plan: Time, Materials, Money and Effort.



What's In

Directions: Write Yes in your answer sheet if the following situation is essential in the preparation a project plan and No if not.

- _____ 1. The amount to be used in the preparation of the project should be given consideration.
- _____ 2. Prepare workable and attainable target.
- _____ 3. The kind and quality of materials need to be check before the start of a project.
- _____ 4. The bill of materials contains the unit, quantity and procedure in the preparation of the project
- _____ 5. A project plan is needed only in project costing ten thousand pesos or more.



What's New

Randy a Grade 6 learner of San Miguel Elementary School wanted to buy a new pair of shoes. He promised himself that he will not ask money from his Tatay and Nanay he wanted to have it through his savings. During class days, he sees to it that he would have save some of his baon. And on weekends, after doing his household chores, he thought of helping Aling Mameng in making kakanin to have extra income.

Weeks past, but Randy was not able to do his plan, he had a hard time managing his time doing his task at home, his homework and helping Aling Mameng.

What do you think is the problem of Randy?

Will he be able to manage his time? How?



What is It

Accomplishing task, activities or project need thorough planning and preparations. One would be able to achieve his or her goal, if he or she is resourceful enough in managing the time, money, materials and even the effort.

A resourceful person can achieve maximal results from minimal resources. Wise utilization of available resources on hand to implement a propose project. Being resourceful means one can find effective and efficient ways of doing things; they tend to be innovative and imaginative. Resourcefulness is the ability to find a way to achieve your goal or to make one.

Resourcefulness and Management skills in the use of the following:

1. Time – Time management is essentially the ability to organize and plan the time spent on activities in a day. It increases effectiveness and productivity. It is a key aspect of project management and involves skills such as planning, setting goals and prioritizing for a better performance.

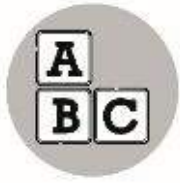
Time is an important element in the accomplishment of a project. Poor management of time will result to delayed accomplishment of project or task. Manage your time effectively and you will achieve your goals successfully.

Time Management includes:

1. Effective Planning
2. Setting goals and objectives
3. Setting deadlines
4. Delegation of responsibilities
5. Prioritizing activities as per their importance
6. Spending the right time on the right activity

Effective time management allows individuals to assign specific time slots to activities as per their importance.

2. Money – One of the most important thing in the accomplishment of a project or plan. Managing money or finances well will result to a better project implementation thus, make sure that is managed wisely to avoid wastage of materials.
3. Effort – The result of an action to achieve your goal. You must be persistent in pursuing your goal and achieving your desired project. Investing energy also sometimes means investing physical strength to do something. Follow strictly what is written in the plan to go away of errors and repetitions.
4. Materials – The supplies that you will need in making your project. Materials may include apparatus, equipment, tools, gears, machinery and other physical resources that are necessary for completing the different processes in project management.



What's More

Directions: Read the situations below. Tell whether it tells about wise use of Time, Money, Materials or Effort. Write your answer on a separate sheet of paper.

- _____ 1. Mr. Cruz always consider the amount she will be using in the preparation of his project.
- _____ 2. Nancy always prepares delicious and nutritious merienda for her younger siblings. She uses her strength to make them happy and satisfied.
- _____ 3. Mang Adong always arrive fifteen minutes before the scheduled meeting.
- _____ 4. Lando check the kind and the quality of wood he will be using in the construction of their side table.
- _____ 5. Linda always prepare her daily plan of activities ahead. This serves as her daily guide.



What I Have Learned

Directions: Fill in the blank with the appropriate word or terms from the box below. Write your answer on a separate sheet of paper.

Money	Time	Materials
Effort	Resourcefulness	Resourceful

1. A _____ person can find effective and efficient ways of doing things; they tend to be innovative and imaginative can achieve
2. _____ is the ability to find a way to achieve your goal or to make one.
3. _____ the most important thing in purchasing materials in the accomplishment of a project or plan.
4. _____ include apparatus, equipment, tools, gears, machinery and other physical resources that are necessary for completing the different processes in project.
5. _____ is the result of an action to achieve your goal.



What I Can Do

The Grade 6 learners of Mr. Ramos planned to make souvenir items to be sold during the city “Pasalamat Festival” as their income generating project.

If you were one of Mr. Ramos learner, what are you going to consider in the preparation of their project as a resourceful learner in terms of?

1. Time Management - _____
2. Money - _____
3. Materials - _____
4. Effort - _____



Assessment

I. Directions: Match column **A** with the simple description of terms found in column **B**. Write the letter of correct answer on your answer sheet.

A

1. Money
2. Effort
3. Resourcefulness
4. Materials
5. Time

B

- A. supplies that you will need in making your project
- B. effective, efficient and innovative ways of doing things
- C. It means investing physical strength to do something
- D. It should be managed wisely to avoid wastage or additional budget.
- E. It is a key aspect of project management and involves skills such as planning, setting goals and prioritizing for a better performance

II. Directions: Read the situations below. Tell whether it tells about management of Time, Money, Materials or Effort. Write your answer on a separate sheet of paper.

1. Using resources that are available in the locality in the preparation of a project.
2. Simeon sees to it that he is in the right condition before starting his work, he is 100 percent ready and is prepared.
3. Observing the allocated number of days in accomplishing of a plan or a project.
4. Checking the prices of the resources to be used that is durable but within allocated budget.
5. Observance of the objectives and activities in the planned task.

III. Directions: Tell what each situation demonstrates. Write in your answer sheet **E** - if it demonstrates effort, **M** for money, **MM** for management of materials, **T** for time and **R** for being resourceful.

- _____ 1. Keeping a journal and making a list of what needs to be accomplished for a day, a week or a month.
- _____ 2. Carlo buys cheap but durable materials for his project.
- _____ 3. Linda and Lowela check and compare all prices of the materials that they will use in their project before buying their needed materials.
- _____ 4. Allan's group use the skills they've learn in their EPP class in making the project.
- _____ 5. Reno check available materials that can still be used to lessen the amount in purchasing materials.



Additional Activities

List down the different activities or steps in the preparation of your previous project plan. Check whether you are managing your Time, money, materials and effort efficiently and effectively. Write your answer on your answer sheet.

1. Time _____

2. Money _____

3. Materials _____

4. Effort - _____

Lesson 3

Assessing Product Using Rubrics

The preparation of a product is a long way process. One must be resourceful enough in the choice of his materials to be used and he/or she must have a concrete plan in order to make it successful.



What's In

Directions: Write **True** if the statement is right and **False** if it is wrong.
Write your answer on a separate sheet of paper.

- _____ 1. Assessing a project plan will include list of workable criteria.
- _____ 2. Time is an important factor in the preparation and accomplishment of a plan.
- _____ 3. Any kind of materials can be used in making a project.
- _____ 4. Score or rating is essential in the final decision if the project passed or failed.
- _____ 5. Checking current prices of materials can be of help in selecting low cost but durable resources.
- _____ 6. Rubric is an essential tool in assessing a finish project.
- _____ 7. Performance in the rubric will tell the learners his or her score in the preparation of the output
- _____ 8. Parents and learners will not be guided on how their output will be rated using rubrics.
- _____ 9. There are at least 3 indicators in a rubric.
- _____ 10. Rubrics should not be shared or provided to the learners before doing their output, it should be given during the rating of the output or project.



What's New

Teacher Carlos wanted to give fair and just grades to all his Grade 6 learners in the submission of their EPP output. He informed them that they will have 1 project output per grading period for a total of 4 for the whole school year.

What should teacher Carlos' basis in giving grades or rating to his individual learners' output. When should teacher Carlos give the rubric/s to the learners so that they will be guided in the preparation of their project?



What is It

In assessing learners' output or project, an assessment tool called **Rubrics** is very essential in checking the quality of the output or project, including the preparation of a workable and attainable project plan.

What is a rubric?

Rubric is a "guide" that states what is expected in an assignment or project and helps to evaluate the learners' performance.

It is also a tool used to measure learners' work, a working guide for learners and teachers.

What is the importance of a Rubric?

Rubrics help learners, parents and teachers identify what quality work is. Learners can judge their own work and accept more responsibility of the final product.

Rubrics help the teacher to easily explain to the learners why they got the grade that they received. Parents who work with their children also have a clear understanding of what is expected for a project.

Why use Rubrics?

Rubrics improve learners end products and help increase learning. When learners received rubrics beforehand, they understand what is expected and how they will be evaluated, and they can prepare accordingly.

What are the parts of a rubric?

Rubric is a scoring guide use to evaluate performance, a product, or a project. It has three parts.

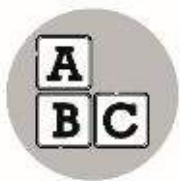
1.Performance criteria – describe the key elements of the learners’ work or product.

2.Rating scale – identifies levels of performance

3.Indicators – provide examples or concrete descriptors of the level of performance. This could be found under each sections of the rating scales.

Example of a rubric in assessing Project

Performance Criteria	Excellent 5	Good 3	Fair 1	Score
Workmanship & Creativity	The material is properly put together and neatly done.	The materials are put together but not so neatly done.	Some of the materials are not properly put together and not neatly done	
Materials Used	Uses 100% locally available/ indigenous materials.	Uses 75% locally available/ indigenous materials	Uses 50% locally available/ indigenous materials	
Procedure	Followed procedure correctly.	One-two steps was not applied correctly	Three or more steps not applied correctly	
Total				



What's More

Activity 1: Understanding the terms learned

Directions: Match the terms in column **A** with the appropriate meaning or description found in Column **B**. Write your answer in a separate sheet of paper.

A

___ 1. Rubrics

___ 2. Indicator

___ 3. Performance
Criteria

___ 4. Rating Scale

___ 5. Assessment

B

a. Identifies levels of performance

b. Describes the key elements of the learners work or product.

c. A tool used to measure learners work, a working guide for learners and teachers.

d. The process of checking or evaluating quality of the product

e. Concrete descriptors of the level of performance. This could be found under each sections of the rating scales.

Activity 2: Identification of the elements of rubrics

Directions: Read each statement below and Write **I** if it tells about the Importance of a rubric, **U** for uses of Rubrics and **P** for parts of a rubric. Write it in your answer sheets.

1. Rubrics improve learners end products and help increase learning.
2. Performance criteria describe the key elements of the learners' work or product.
3. Rubrics help learners, parents and teachers identify what quality work is.
4. Rubrics help the teacher to easily explain to the learners why they got the grade that they received.
5. Learners will understand what is expected and how they will be evaluated.



What I Have Learned

Directions: Fill in the blanks with the word or words from the list below that will make the statement correct. Write your answer on a separate sheet of paper.

rubric	rating scale	explain
descriptors	performance	

1. _____ are criteria that describe the key element of the learners work or product
2. _____ is a guide or an assessment tool that states what is expected in an assignment or a project.
3. To identify the level of performance _____ is provided.
4. Indicators provide concrete _____ of the level of performance of each learner.
5. Rubric helps teachers to clearly _____ to the learners how they are rated in their output or project.



What I Can Do

Directions: Read the situation below and answer the questions that follows. Write your answer on a separate sheet of paper.

The Grade 6 learners of Mr. Ortega will make a project in their EPP class. He emphasizes the use of cost efficient and locally available materials in the preparation of their project. Peter searched for available materials in their home. He used indigenous and recyclable materials as part of the material for his EPP project.

1. What kind of a learner is Peter?
2. Is he right in doing such thing? Why or why not?
3. How do you value your time, money, effort and material in making your project and for the accomplishment of your plan?



Assessment

I. Directions: Read and answer the test below. Write the letter of the correct answer on a separate sheet of paper.

1. What tool is used to guide learners in improving their project.
 - a. Rubrics
 - b. Evaluation form
 - c. Assessment
 - d. indicators
2. What part of the rubric identifies learners level of performance?
 - a. Performance
 - b. Indicators
 - c. Rating Scale
 - d. Tool
3. What will you do to get a rating of 5, as the highest in an output that used indigenous materials?
 - a. Use 75% indigenous material in making the project.
 - b. Use 50% indigenous materials in making the project.
 - c. Use 100% indigenous materials in making the project.
 - d. Use 100% imported materials in making the project
4. What will be your rating in workmanship, when your project was properly and neatly done?
 - a. 5 or excellent
 - b. 3 or good
 - c. 1 or fair
 - d. no score
5. What part of the rubric provides example and concrete descriptions of the level of performance in the preparation of the output?
 - a. Performance criteria
 - b. Rating scale
 - c. indicators
 - d. Score

II. Directions: Write **Yes** if the statement tells importance and uses of rubric and **No** if not. Write it on your answer sheet.

1. Rubrics help the teachers evaluate and give accurate ratings to the learners.
2. Parents have a clear understanding of what is expected of their children's project.
3. A Rubric is a tool in acquiring mastery of the lesson.
4. Rubrics can only be used by teachers and not the learners.
5. A Rubric is used to measure learners work, a working guide for learners and teachers.



Additional Activities

Look for a previous project you submitted to your teacher. Using the rubrics below assess your project and give your rating.

Performance Criteria	Excellent 5	Good 3	Fair 1	Score
Workmanship & Creativity	The material is properly put together and neatly done.	The materials are put together but not so neatly done.	Some of the materials are not properly put together and not neatly done	
Materials Used	Uses 100% locally available/ indigenous materials.	Uses 75% locally available/ indigenous materials	Uses 50% locally available/ indigenous materials	
Procedure	Followed procedure correctly.	One-two steps was not applied correctly	Three or more steps not applied correctly	
Total				



Answer Key

<p>Lesson 1</p> <p>What's In</p> <p>1. / 2. X 3. / 4. / 5. X 6. / 7. X 8. X 9. X 10. X</p> <p>What's More</p> <p>1. Working Drawing 2. Tools Needed 3. Project Proponent 4. Project Objective 5. Procedure</p> <p>What I Have Learned</p> <p>1. objective 2. quantity 3. procedure 4. money 5. tools</p> <p>What I Can Do</p> <p>Answer may vary Teacher will check the answer</p> <p>Assessment</p> <p>A. 1. C 2. D 3. C 4. B 5. D</p> <p>B. 1. C 2. E 3. D 4. A 5. B</p> <p>Additional Activities</p> <p>Answer may vary</p>	<p>Lesson 2</p> <p>What's In</p> <p>1. Yes 2. Yes 3. Yes 4. No 5. No</p> <p>What's More</p> <p>1. Money 2. Effort 3. Time 4. Material 5. Time</p> <p>What I Have Learned</p> <p>1. Resourceful 2. Resourcefulness 3. Money 4. Material 5. Effort</p> <p>What I can Do</p> <p>Answer may vary</p> <p>Assessment</p> <p>I. II. III. 1. T 2. MM 3. M 4. E 5. R</p> <p>Additional Activities</p> <p>Answer may vary teacher will check learners' responses</p>	<p>Lesson 3</p> <p>What's In</p> <p>1. True 2. True 3. False 4. True 5. True 6. True 7. True 8. False 9. True 10. False</p> <p>What's More</p> <p>Activity 1</p> <p>1. C 2. E 3. B 4. A 5. D 1. I 2. P 3. U 4. U 5. I</p> <p>Activity 2</p> <p>1. I 2. P 3. U 4. U 5. I</p> <p>What I Have Learned</p> <p>1. Performance 2. Rubric 3. descriptors 4. rating scale 5. explain</p> <p>What I Can Do</p> <p>Answer may vary</p> <p>Assessment</p> <p>I. II. 1. A 2. C 3. C 4. A 5. C</p> <p>Additional Activities</p> <p>Answer may vary</p>
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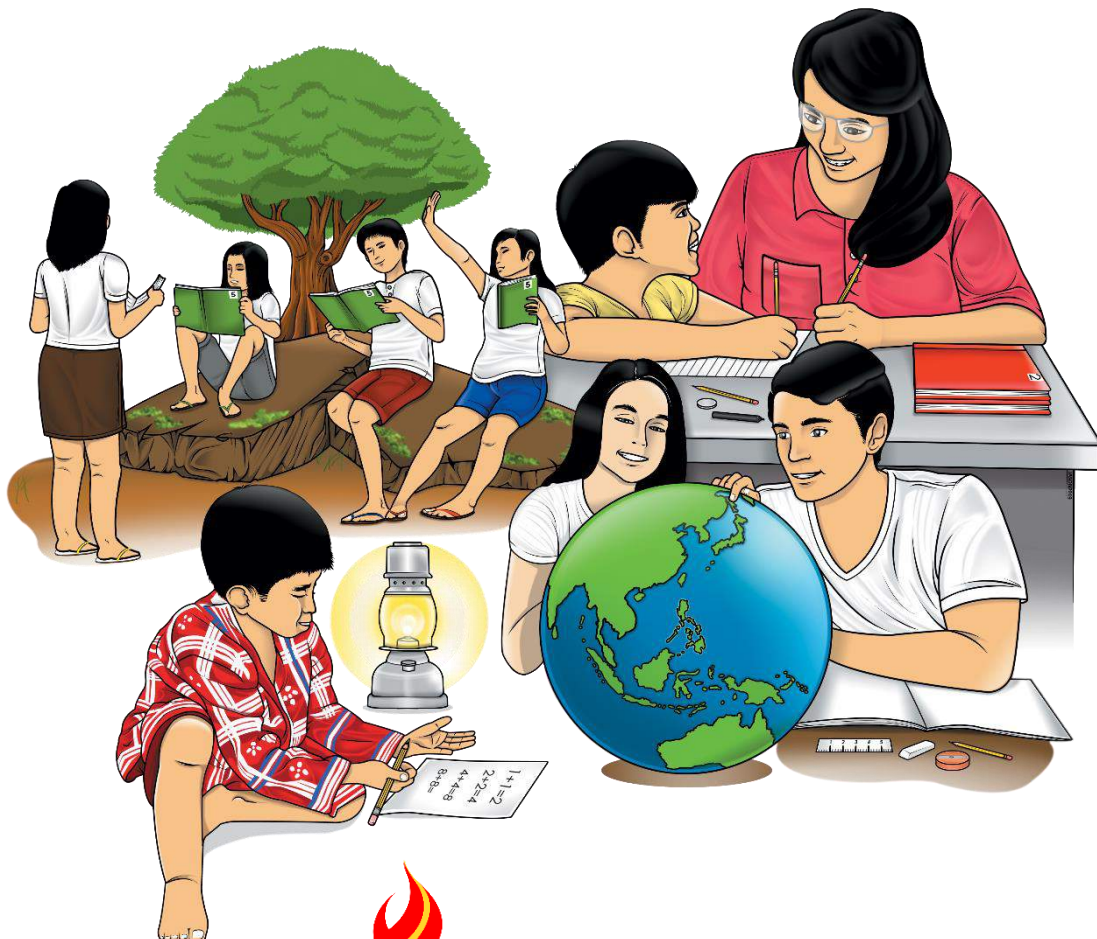
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Industrial Arts – Module7: Marketing Products



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TLE – Grade 6
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Industrial Arts Module 7: Marketing Products
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Technology and Livelihood Education

Industrial Arts – Module 7: Marketing Products

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

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Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you master the skills in marketing products. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

At your age, it is necessary that you can identify different tools and materials in working simple electrical gadgets. In many different situations, you may be using these tools and materials to construct electrical gadgets. You will be learning them all in this lesson.

The module is divided into two lessons, namely:

- a. Learn how to market products
- b. Steps in marketing products

At the end of this module, you should be able to:

- a. Market products (TLE6IA-0e-7);
- b. Apply creative packaging and labeling techniques on products made;
- c. Apply technology – assisted and other means of product marketing;
- d. Compute income from sales; and
- e. Prepare plan for mass production or creating new product.



What I Know

- I. **Directions:** Read each item below and choose the letter of the correct answer by identifying the parts of Project Plan. Write your answer on a separate sheet of paper.
- The part that tells who the owner of the project is.
A. Project Title
B. Working Drawing
C. Procedure
D. Project Proponent
 - It shows all the materials needed for the project.
A. Procedure
B. Project Title
C. List of Materials
D. Project Proponent
 - The part that gives the information about the dimension of the project.
A. Working Drawing
B. Project Title
C. Procedure
D. Rubrics
 - The step to step activity that learners will follow in the preparation of the project.
A. Procedure
B. List of Materials
C. Working Drawing
D. Project Title
 - It is the part that gives the name of the project.
A. Project Title
B. Procedure
C. List of Materials
D. Working Drawing
- II. **Directions:** Give your own answer to the situations below. Write your answer on a separate sheet of paper.
- Given the materials in making your project, what will you do to make it presentable?
 - How will you show your creativity in making your project?
 - Given all the steps on how to make your project. Discuss how you can save time in making your project?
 - You are about to finish your project and no materials left to use. How will you show your resourcefulness?
 - How will you market your product if lockdown will continue?

Lesson

1

Marketing Products

To make your product marketable to target customers one should consider creative packaging and labeling. There are various local products that are found in the community that are marketable if you only know how to market and package it.

There are local entrepreneurs that had been successful in introducing locally made products here and abroad.



What's In

- I. **Directions:** Rearrange the scrambled letters to form a new word. Write your answers on a separate sheet of paper.

_____ 1. YUQTIAN	number of materials needed for the project.
_____ 2. TOFFER	the result of actions to achieve one's goal.
_____ 3. METRAILAS	the supplies you will need for the project
_____ 4. NO NIEL	means to sell your product with the help of internet.
_____ 5. EXENSEP	the cost required to make the project.
_____ 6. UTCORPD	an item offered for sale
_____ 7. RAKMET	a place where buyer and seller meet.
_____ 8. DETGUB	creating a plan to spend your money.
_____ 9. ANCIFNALI	matters concerned with money
_____ 10. YGRATSET	a plan of action to achieve a goal.

II. **Directions:** Write **TRUE** if the statement is correct and **FALSE** if it is not correct. Write your answer in a separate answer sheet.

- _____ 1. A good product packaging can attract customers.
- _____ 2. Technology plays a big part in promoting products and processes.
- _____ 3. Bigger cost of production means bigger income.
- _____ 4. The more attractive the product packaging, the better its quality.
- _____ 5. Planning is important in creating new products.



What's New

Andy and his family lived in a barangay, away from the city. The only source of income is making charcoal “Uling” out of the tree branches and fallen trees from the nearby mountain or forest.

One market day, Andy accompanied his father to deliver the sacks of charcoal to their customer in the city. Along the way he saw different display of furniture made from bamboo. He was so amazed that many people check and buy furniture made from bamboo. He was encouraged to make a project out of it since their place was surrounded with bamboo.

Since their city was under Enhanced Community Quarantine (ECQ), Andy continued his project in school which is “Bamboo Fan Making”. He will do it while they are still on quarantine. He presented the finished product to his teacher online. His teacher was so amazed of the outcome of his project and suggested that it can be a source of income even at home. Andy was excited to start a small business with the help of his father. Andy consulted his teacher on how to market his bamboo made product.



What is It

In this lesson, you will be guided on how to introduce your product in the market. Product that will develop your creativity and strategy on how to reach your possible clients and markets. The different media platforms will be introduced to start your own business.

In a present market situation today, the possible questions are:

1. How do we improve the packaging, labeling of our products?
2. What possible marketing strategy will you apply?
3. How to compute for the business income?
4. How to plan in producing new products?

Every product that is available in the market has its own distinct packaging and labeling. Packaging and labeling are important because they add to the marketability of the product.

- Correct information in the product label will give the customers product satisfaction. The clearer the information of the product will encourage the buyer to patronize the said product.
- Appropriate marketing strategies are forms of promoting your products that may lead into bigger income.
- Promoting products online will create bigger opportunity to showcase your quality-products on the web.
- The best way of making the new product to be accepted by the market is to target the possible costumer that will buy and people who will patronize it.
- In computing the business income, to determine if the business is going well your total revenue must be more than your total expense so you will not have losses.

In order to succeed in the market, your product must be competitive. Most companies invest time, effort and resources on their product's packaging and labeling, to ensure that they are designed appropriately and are attractive and distinct.

Packaging and labeling are usually considered part of the overall "Marketing Strategy" to further improve the product. Packaging comes with labelling. The government requires the producers to follow the standards of labelling products. Labelling techniques should be easily understood by the customers.

Important information in your finished product labels must include the following:

- a. brand name;
- b. Logo;
- c. materials used;
- d. safety precautions; and
- e. supplier or manufacturer.

Functions of Packaging

1. Contain and protect the product;
2. Promote the product; and
3. Facilitate the storage, use and convenience of the product

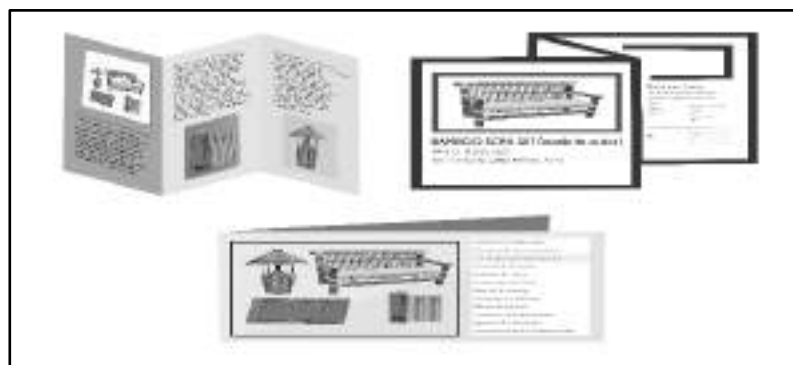
Purpose of Labeling

1. Provide information about the product
 - A. Content;
 - B. Features;
 - C. Instruction; and
 - D. Information about the product
2. Promote the products
 - A. Use of branding; and
 - B. Attractive, color marks

Good marketing strategy is important in order to earn income or profit from produced product.

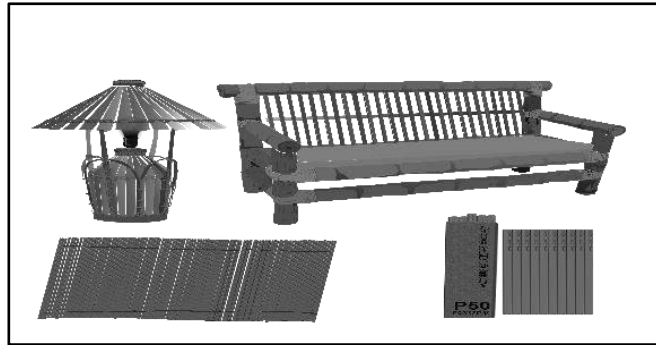
The following are the appropriate marketing strategies that can be applied in selling enhanced or decorated finished product.

1. Print Media - Finished products can be marketed in print advertisements such as newspaper, magazines, brochures and flyers.



Zandiv G. Abonado, Print Media,

2. **Product Display** - Finished products can be displayed and sold in exhibits, markets and bazaars.



3. **Internet Marketing** - Finished products can be promoted through the internet, e-mail, and social networking sites.



To create new products or produce volume of products one must be guided with the following planning ideas.

1. **Product planning** - enhancement, packaging and distribution or selling. It includes adapting to current trends.
2. **Budget or financial planning** - developing effective strategies in managing capital or funds.
3. **Market planning** - a review on the current market situation, the capacity of the target market to buy the products. The promotions of the product should be considered.
4. **Competitive pricing** - the capacity to compete in pricing with the same products in the market.
5. **Innovating** - the capacity or the ability to improve or enhance existing product.

The following is an example of a plan in creating product for mass production.

Name of Product: Bamboo Straw

Image of the product:



Zandiv G. Abonado, Bamboo Straw,2020

A. Product Planning

Enhancement	From using a plastic which is hazardous to environment. Use of eco-friendly bamboo straw
Packaging	Use biodegradable material such as paper pouch
Distribution Scheme	On-line Delivery / Personal Delivery to target food establishments /groceries
Adaptation to market Trends	Use of safe-use , disposable and environment friendly drinking straw for milk-tea , shakes and juices .

B. Budget or Financial Planning

Sources of Capital	Personal Investment
Starting Capital	Php 50,000.00
Materials and Supplies	13,000.00
Labor	12,000.00
Promotional Expense	5,000.00
Projected Income	20,000.00
Projected volume of packs to be produced	1,000 packs

C. Market Planning

Current Market Situation	Employed, Teens and Students love to take snacks with juices, milk tea and drinks while watching TV, Doing on-line tasks, and even talking with friends
--------------------------	---

Target Customers	Snack house, Milk Tea stalls, Restaurants
Capacity of Target customers	Php 50.00-100.00
Promotions	Offering of buy 1 pack with free 5 straws

D. Competitive Pricing

Target Selling Price	Php 50.00 per pack
----------------------	--------------------

E. Innovation Plan

Innovation	Twirl Bamboo Straw
------------	--------------------

Computing for Business Income

The formula for the business income computation is as follows:

$$\text{Business Income} = \text{Revenue} - \text{Expenses}$$

1. **Business income** - is the amount earned from sales of a service or product after deducting the expenses incurred by the business.
2. **Revenue** - is the amount received in exchange for the products or services sold to customers. This is getting your selling price from the cost- pricing method multiplying it with the total items or product sold.
3. **Expense** - is the total amount of materials used and cost of labor in making project.

See the following examples of getting the business income.

Marco sold 50 pieces of bamboo picture frames in a month with a selling price of Php 150 each item. To get the total revenue, multiply the selling price of the item with the total item sold.

Given:

Number of bamboo picture frames sold 50 pcs.

Price per item.....Php150.00

Solution:

$$\text{Revenue} = \text{Selling Price} \times \text{Number of items}$$

Selling price Php 150.00

Total item sold x 50 pcs.

Total Revenue = Php. 7,500.00

1. To get the total expenses in making bamboo frames, get the total cost of the materials, then add the labor cost which is 20% of the cost of each item sold.

Unit	Quantity	Description	Unit Price	Total Cost
length	5	bamboo	Php 50.00	Php 250.00
bundle	10	Buri	30.00	300.00
can	1	Wood glue	70.00	70.00
bottle	2	varnish	40.00	80.00
Total Expenses				Php 700.00
Add: Labor				1,500.00
Over-all Expenses				Php2,200.00

Solution:

Over-all expenses = Total Expenses + Labor

Total expenses -----P 700.00

Labor (20% x P150) x 50 -----P 1,500.00

Over-all expenses -----P 2,200.00

2. To compute for the business income:

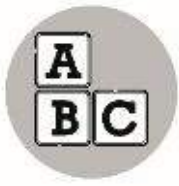
Solution:

Business Income = Revenue – Expense

Total Revenue - Php 7,500.00

Over-all Expenses - 2,200.00

Php 5,300.00 - Business Income



What's More

Activity 1

Directions: Supply the missing information to complete the table in computing for the over- all expenses. Copy and fill-in the table below on your answer sheet.

Unit	Quantity	Description	Unit Price	Total Cost
length	10	Plastic rattan	Php 5.00	Php (1)
bundle	(2)	Bamboo strips	30.00	150.00
Can	2	Wood glue	70.00	(3)
bottle	2	varnish	40.00	80.00
Total Expenses				(4)
Add: Labor				P 84.00
Over-all Expenses				(5)

Activity 2

Directions: Solve for the Business income. Using the formula $BI = R - E$. Write your answer with the solution on your answer sheet.

Given:

Danilo has Lampshade Products delivered to his contact costumers. He has a total revenue of Twelve Thousand Pesos (P12,000.00) and total expenses of Eight Thousand Two Hundred Seventy-Five Pesos (P8,275.00. Compute for the Business Income of Danilo using the formula.

Activity 3

Directions: Match Column A with Column B. Write the letter of the correct answer on a separate sheet of paper.

A	B
1. Competitive Pricing	A. is the amount earned from sales of a service or product after deducting the expenses incurred by the business.
2. Print Media	B. this is promoting the finished products through the internet, e-mail, and social networking sites
3. Expense	C. the capacity to compete in pricing with the same products in the market
4. Business income	D. developing effective strategies in managing capital or funds.
5. Internet Marketing	E. is the total amount of materials used and cost of labor in making project
	F. finished products can be marketed in print advertisements such as newspaper, magazines, brochures and flyers.



What I Have Learned

A. **Directions:** Copy the appropriate word from the box below that will make the sentence complete. Write your answer on a separate sheet.

strategy	buyer	market
product planning	product display	internet marketing

The best techniques in introducing a new product in the market is through social media and internet. The appropriate ____ (1) _____ is needed. The best way for a new product to be accepted, we must target possible ____ (2) _____.

There are many ways in introducing your new product may it through online, print ads and bazaar. First, ____ (3) _____ is needed to capture the possible clients and buyers on your product. Second, after making good packaging, joining bazaars is the best option for ____ (4) _____ where many people can see your advertisement of the product and get interested to buy it, and also reaching possible customers nationwide through ____ (5) _____ where you can post and show your product through online.

B. **Directions:** Give what is asked in the following. Write your answer in separate sheet of paper.

a. Give the three functions of packaging

1. _____
2. _____
3. _____

b. Give the two purposes of product label.

1. _____
2. _____



What I Can Do

Directions: Read Activities 1, 2 and 3 and do what is asked. Write your answers on a separate sheet of paper.

Activity 1

Martha starts an income generating project for her small business “Butong-Butong Delicacy”.

If you were Martha, what will be your strategies and considerations in marketing your product? Give at least 5.

1. _____
2. _____
3. _____
4. _____
5. _____

Activity 2

Supply the missing data needed for your “Butong-Butong” Delicacy.

Unit	Quantity	Description	Unit Price	Total Cost
Kilo	2	Brown Sugar	Php 45.00	Php (1)
Bottle	1	Vanilla	(2)	Php 22.00
Kilo	5	Grated Coconut	35.00	(3)
Total Expenses				(4)
Add: Labor				200.00
Over-all Expenses				(5)

Activity 3

Complete the needed information below.

Marla was attracted to the trending online selling of goods and products on social media. She ordered One (1) bundle of Stuffed Toys which costed her Five Thousand Pesos (P 5,000.00) plus additional One Thousand Pesos (P 1,000.00) for freight. She was able to sell the stuffed toys to Thirteen Thousand Four Hundred Pesos (P 13,400.00). How much was her Business Income?

Formula: Business Income = Revenue - Expenses

1. What are the given?
2. What is the solution?
3. What is her Business Income?



Assessment

- A. **Directions:** Classify the following marketing strategies found inside the box. Write your answer in the appropriate column. Use separate sheet for your answer.

Internet	Markets	Magazines	Newspapers	Ukay-Ukay
Exhibits	Online Selling	Lazada	Flyers	

Print Media	Product Display	Internet Marketing

- B. **Directions:** Choose the appropriate word inside the box to answer items 1-5.
Use separate sheet of paper.

Product Planning	Budgeting	Market Planning
Competitive Pricing	Innovating	Computing Cost

- _____ 1. Enhancement of the product.
- _____ 2. Capacity of the target market to buy the product.
- _____ 3. Capacity to compete in pricing
- _____ 4. Managing capital or funds
- _____ 5. Adapting to new trends

- C. **Directions:** Compute for the Business Income of Anna if her total sales for the month is Php 5,000.00 and her total expenses is Php 1,650.00. Use the formula below: Write your answer on your answer sheet.

$$(\text{Business Income} = \text{Revenue} - \text{Expenses})$$

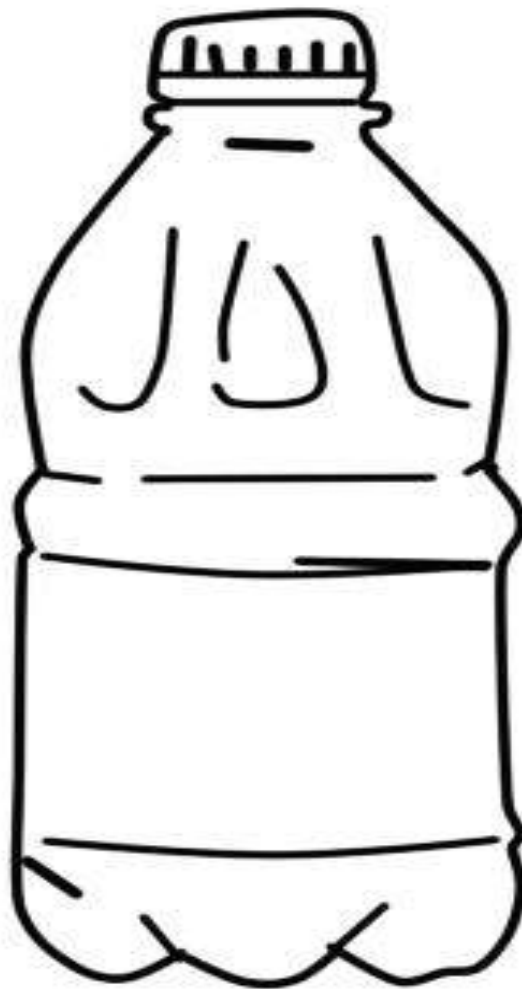
- D. **Directions:** Give at least 5 ways of packaging and labelling techniques in marketing products. Write it in your answer sheet.

1. _____
2. _____
3. _____
4. _____
5. _____



Additional Activities

Look at the sample bottle below. Based on your experience, give this product a name, design the possible packaging and labelling.



Jofel D. Nolasco, Bottle, 2019

Packaging and Labeling Rubrics

Criteria	Excellent 5	Good 3	Fair 1	Score
Packaging	All elements of good packaging are present <i>(It calls attention, it makes the brand and purpose clear, it awakens emotion, captures and call out benefits, designed for its target audience)</i>	1 to 2 elements of good packaging are lacking <i>(It calls attention, it makes the brand and purpose clear, it awakens emotion, captures and call out benefits, designed for its target audience)</i>	3 or more elements of good packaging are lacking <i>(It calls attention, it makes the brand and purpose clear, it awakens emotion, captures and call out benefits, designed for its target audience)</i>	
Product Naming	All elements of good product naming are present <i>(unique, easy to pronounce, with good identifiers, easy to remember, gives idea about the product-quality and benefits)</i>	1 to 2 elements of good product naming are lacking <i>(unique, easy to pronounce, with good identifiers, easy to remember, gives idea about the product-quality and benefits)</i>	3 or more elements of good product naming are lacking <i>(unique, easy to pronounce, with good identifiers, easy to remember, gives idea about the product-quality and benefits)</i>	
Marketability	All elements of good marketability are present (right product, right price, right packaging, right promotion, right target buyers)	1 or 2 elements of good marketability are lacking (right product, right price, right packaging, right promotion, right target buyers)	3-or more elements of good marketability are lacking (right product, right price, right packaging, right promotion, right target buyers)	
Total Score:				
Remarks:				



Answer Key

What Can I Do

Activity 1
Answer may vary

Activity 2
1. P90
2. P22
3. P175
4. P287
5. P487

Activity 3
1. P 5,000.00
P 1,000.00
P 13,400.00
2. P 13,400- (P 5,000.00 + P 1,000.00) = n
3. P 7,400.00 – business income

Assessment:
A.

Print Media	Product Display	Internet Marketing
Flyers	Exhibit	Online Selling
Magazine	Ukay-Lazada	
Newspaper	Market	Internet

B.

1. Innovating
2. Market planning
3. Competitive pricing
4. Budgeting
5. Product planning

C. Php 3,350.00

D. Answer may vary, teacher will check this part

What I Know

I.
1. D
2. C
3. A
4. A
5. A

II.
Teacher will be the one to check learners' answer

What's In
A.
1. Quantity
2. Effort
3. Material
4. Online
5. Expense
6. Product
7. Market
8. Budget
9. Financial
10. Strategy

What's More:
Activity 1
1. P50.00
2. 5
3. P140.00
4. P420.00
5. P504

Activity 2
P3,725.00

Activity 3
1. C
2. F
3. E
4. A
5. B

What I have Learned:
A.
1. Strategy
2. Buyer
3. Product Planning
4. Product display
5. internet marketing
B.
a. 1. Contain and protect the product
2. Promote the products
3. Facilitate storage
b. 1. Provide information
2. Promoting the products

References

Department of Education Curriculum Guide 2016, EPP 6, Industrial Arts pages 38 – 41

Department of Education MELCs in EPP/TLE Grade 6 Industrial Arts pages 353 – 354

Youtube.com/watch?V=NmDvo-miYDM

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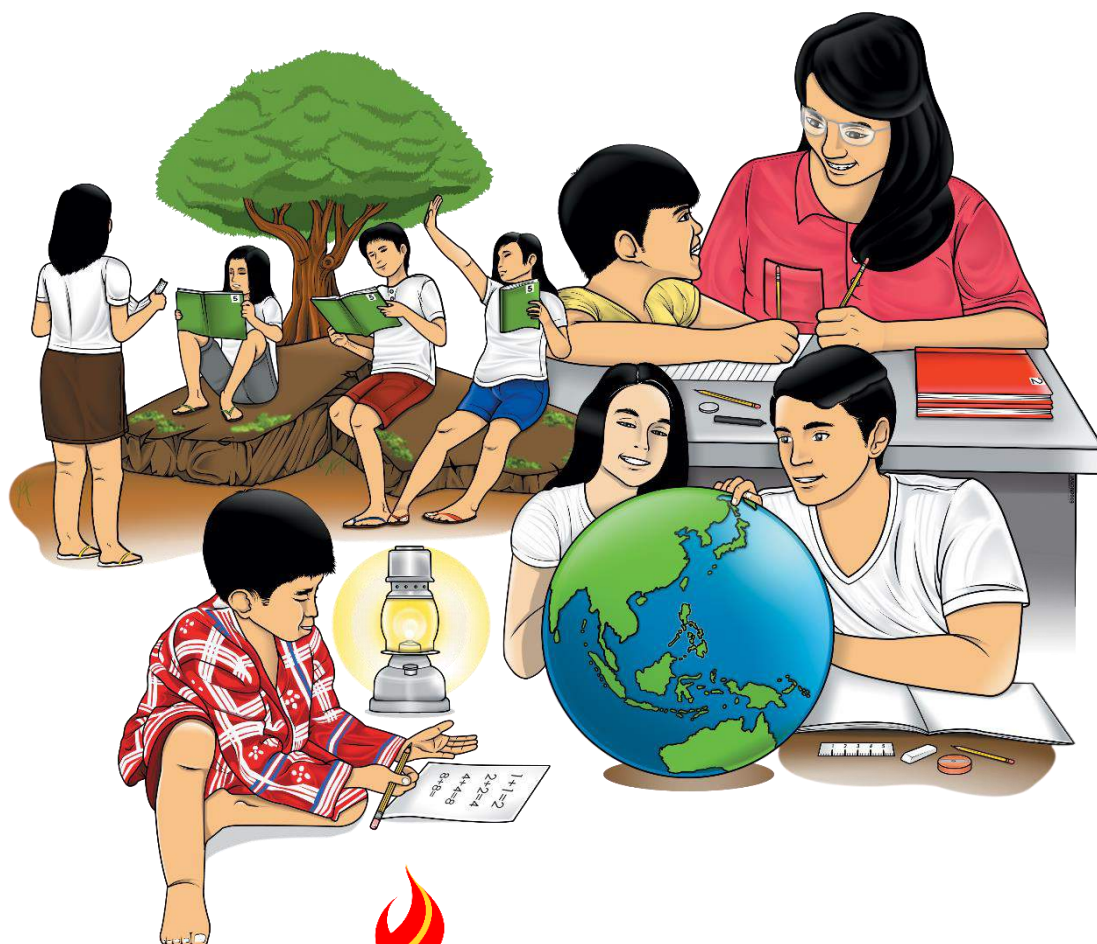
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Technology and Livelihood Education

Industrial Arts – Module 8: Simple Electrical Gadgets



TLE – Grade 6
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This module was designed and written with you in mind. It is here to help you master the skills in Industrial Arts. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using

At your age, it is necessary that you can identify different tools and materials in working simple electrical gadgets. In many different situations, you may be using these tools and materials to construct electrical gadgets. You will be learning them all in this lesson.

This module focuses on the following topics:

- a. Basic Materials and Tools needed in Making Simple Electrical Gadgets;
- b. Simple Electrical Gadgets and Their Uses;
- c. Safety and Health Habits in Making Simple Electrical Gadgets; and
- d. How to make Extension Cord.

After going through this module, you are expected to:

- a. Construct simple electrical gadget (TLE6IA-Of-8);
- b. Identify the materials and tools needed in working simple electrical gadgets;
- c. Identify simple electrical gadgets and their usage; and
- d. Observe safety and health habits in making simple electrical gadgets.



What I Know

Find out how much you already know by answering the following questions.

Directions: Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. If you have something to bend or cut like wires, what specific tool do you need?
 - A. hammer
 - B. pliers
 - C. screwdriver
 - D. wire stripper
2. What is the main function of electric drill?
 - A. to drive or pull nails out
 - B. to bore holes
 - C. to cut or bend tiny wires
 - D. to remove insulation from wires
3. If you saw an open wire, what should you use to wrap it so that it cannot cause injury?
 - A. plastic wrapper
 - B. electrical tape
 - C. rubber band
 - D. card board
4. What do you call a special tool that is used to strip or remove insulation from wires?
 - A. hammer
 - B. pliers
 - C. screw drivers
 - D. wire stripper
5. This gadget is used by other people to connect other devices that need electric supply which cannot be accommodated by a wall outlet?
 - A. lampshade
 - B. USB hub
 - C. electrical wires
 - D. extension cord

6. Which of the following does not belong to the group?
 - A. close wrench
 - B. female plug
 - C. male plug
 - D. cable and wire

7. It is a device used to check if there is a flow of current in electrical wires or cables.
 - A. electrical tester
 - B. volt meter
 - C. screw driver
 - D. thermometer

8. What tool and material do you need if you want to tap connection of wire especially on electrical board?
 - A. screw driver and screw
 - B. plier and wire
 - C. hammer and nail
 - D. soldering gun and lead

9. It is used to wrap two metals to avoid contact and to stop the flow of current.
 - A. conductor
 - B. insulator
 - C. plastic
 - D. tube

10. Electrical devices and connections may cause fire because of the following reasons EXCEPT.
 - A. overloading
 - B. follow load limit
 - C. short circuit
 - D. faulty electrical wire

Lesson 1

Simple Electrical Gadgets

You may have seen a carpenter or an electrician in your school. Have you observed what they are doing every day? Most of the time they construct or repair something to be of use in school. In doing their daily task it is obvious that they are using tools. Tools that are appropriate and proper for their safety.

In this module you will discover that there are proper tools to be used in making simple gadgets, with the different safety and healthy habits to be observed.



What's In

Directions: Write **TRUE** if the statement is correct and **FALSE** if not. Write your answer on a separate sheet of paper.

- _____ 1. In every project, planning is very important.
- _____ 2. Technology plays important role in creating new project.
- _____ 3. Simple electrical gadget needs simple tools.
- _____ 4. Safety measures are only for the user and not for everybody.
- _____ 5. Making or repairing simple electrical gadgets costs higher than to buy a new one.
- _____ 6. Construction of simple electrical gadgets can be a source of family income.
- _____ 7. There is no need to wear personal protective equipment in making simple gadgets only.
- _____ 8. Any tools can be used in any projects.
- _____ 9. Tools that are in good conditions are harmful since most of it are pointed and very sharp.
- _____ 10. Proper tools are the tools that have no defect.



Notes to the Teacher

Please help the learner to better understand the terms being introduced. Lesson is easy to understand when they can comprehend these words.

The words below are defined according to their function in this module. Take time to familiarize them, it will help you on your journey in this module.

New Words to Learn

1. **Electrical** – materials related to electricity or produce electricity.
2. **Gadgets** – a small device with a practical use, can be electrical or electronic device.
3. **Resistance** – to go against the flow of electricity in a circuit.
4. **Voltage** – potential electric power measured in volts.
5. **Insulation** – to separate two conducting bodies by means of non-conductor or insulator.
6. **Stripping** – to remove covering of electrical wire.
7. **Overload** – excess load resulting to overburden.
8. **Combustible** – something that is flammable, easily catch by fire.
9. **Female electric plug** – plug that contains hole where the male plug is inserted.
10. **Pound** – to strike repeatedly, as in hammer striking the nails.



What's New

Nowadays, households in our community are equipped with appliances and gadgets powered by electricity. There are instances that we will have to repair, improve, or install equipment and electrical lines in our home.

As a learner in Grade Six, do you:

1. know the basic tools and equipment in making simple electrical gadgets?
2. know the uses of basic tools and equipment?
3. repair some common gadgets like extension cords, doorbells, plugs, and simple lampshades? or
4. make your own simple electrical gadgets?



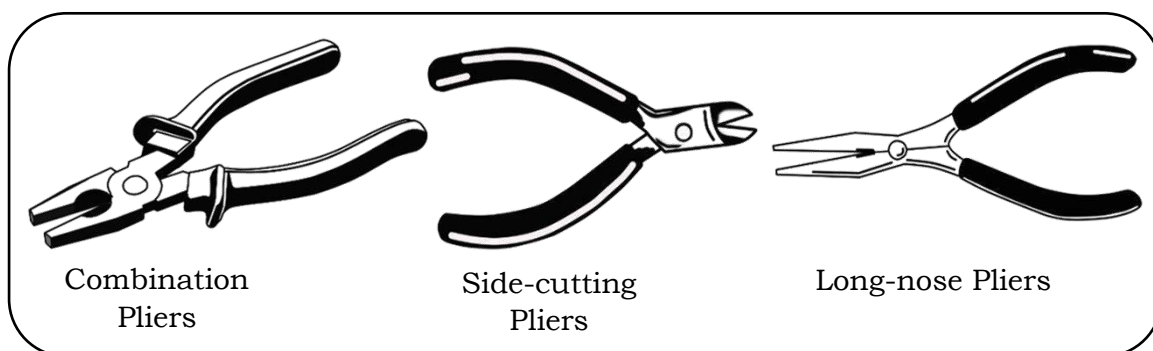
What is It

Basic Materials and Tools needed in Making Simple Electrical Gadgets

Tools play important roles. Without tools, work cannot be done. Every year, basic tools undergone improvement because of technology. But proper knowledge on the use of appropriate tools, encourage a person to work with eagerness and achieve desired output.

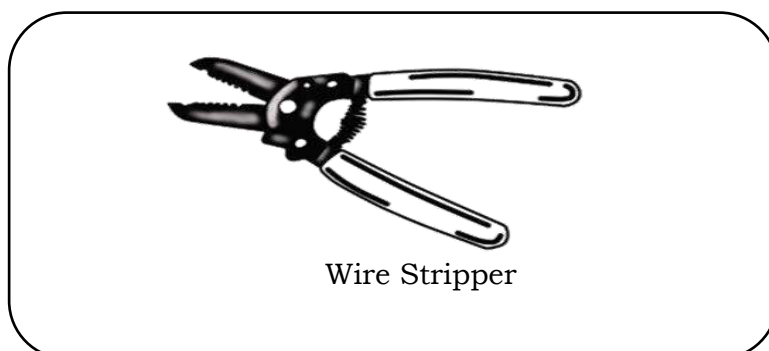
Here are some of the basic tools and their uses in making simple electrical gadgets.

1. Pliers



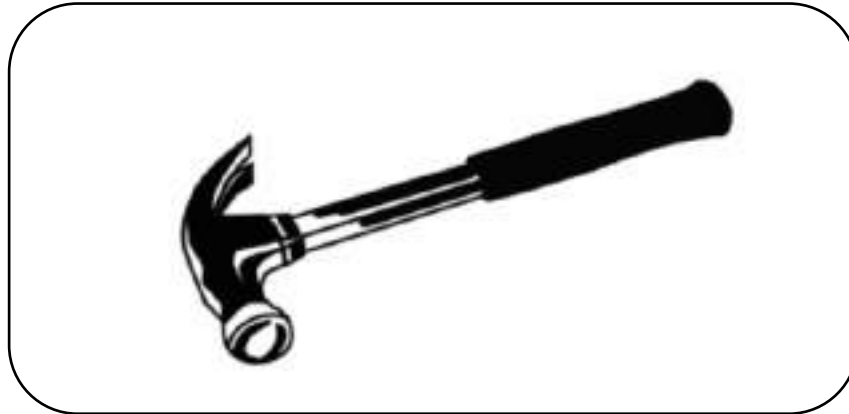
There are various types of pliers. The most common are long-nose pliers, side-cutting pliers, and combination pliers. Major functions of these pliers are to cut, hold, bend, and twist tiny object and wires.

2. Wire stripper



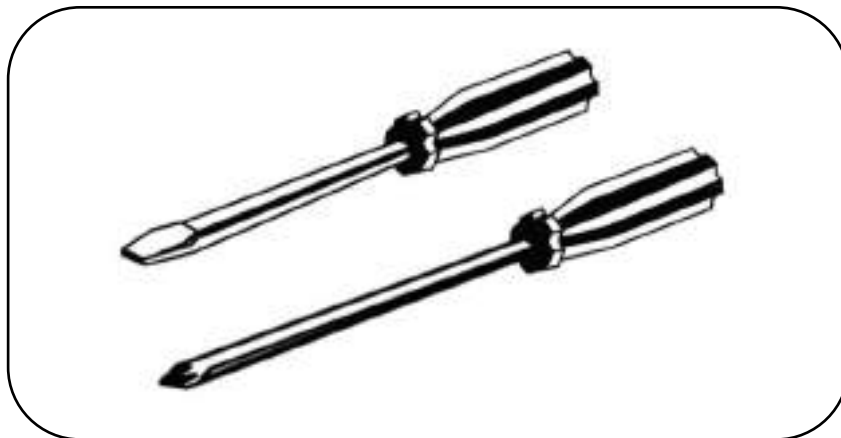
The function of this tool is to remove insulation from the wire to make connection.

3. Hammer



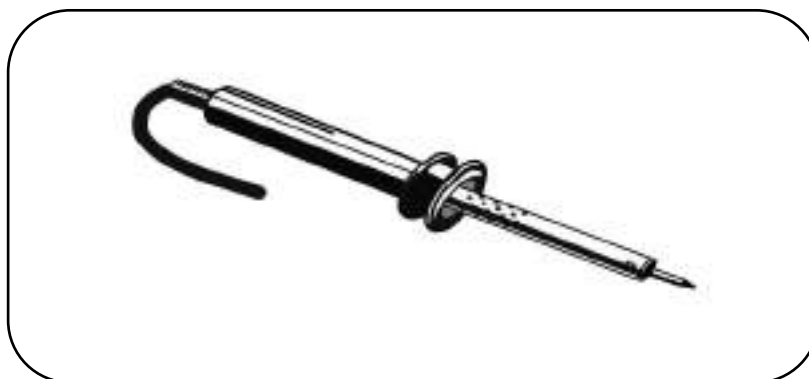
This is used to pound, to punch, to pull and to drive out nails and staple wires.

4. Screwdrivers



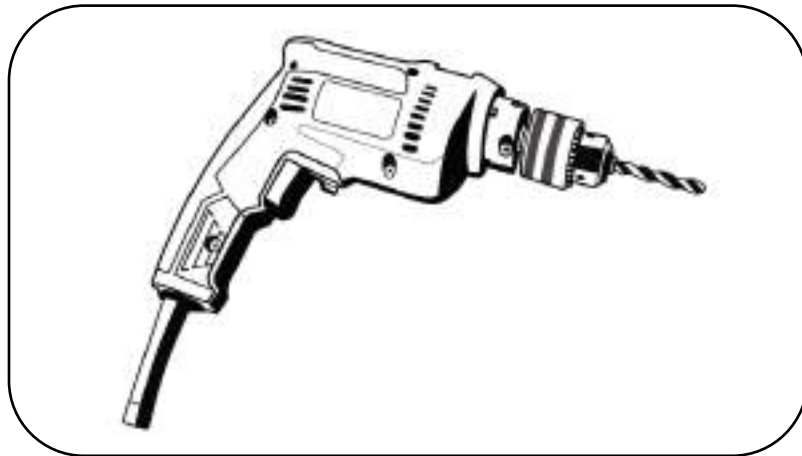
These tools come with different heads. The most common are flathead and Phillips head screw drivers. They are used to loosen and tighten screws.

5. Soldering tools



This tool is used to tap connection of wire which cannot be done by pliers especially on boards of electronic device or gadget. Example of these tools are soldering iron and soldering gun, usually accompanied with soldering lead for tapping connections.

6. Electric drill



This is used to bore holes on concrete surfaces or metal surfaces. It is equipped with different types of blades or drill bit for concrete, wood, and metal surfaces.

7. Electrical tape



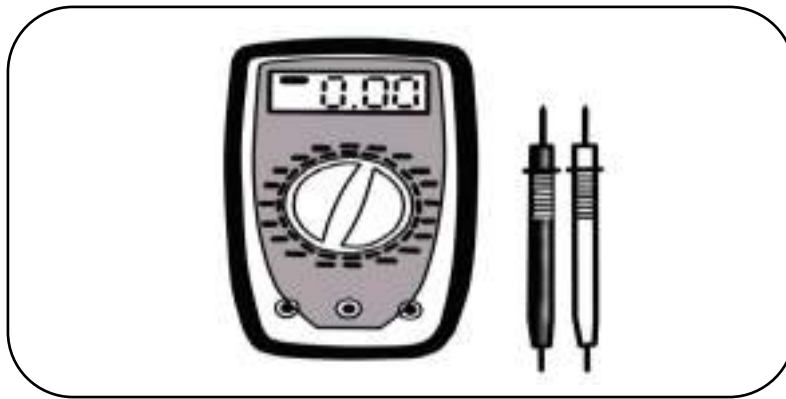
This is used to wrap open wires to avoid contacts with another wires. Main purpose of electrical tape is for insulation of connected open wire.

8. Cables and wires



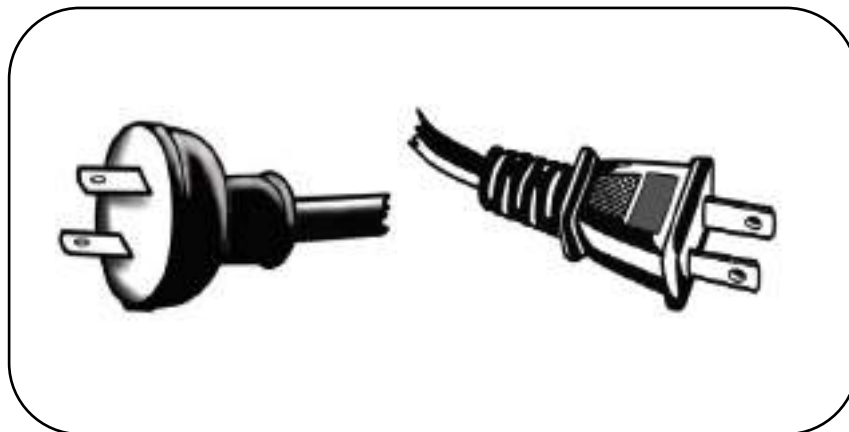
This comes with different gauge or sizes. They are important in making electrical connections.

9. Tester



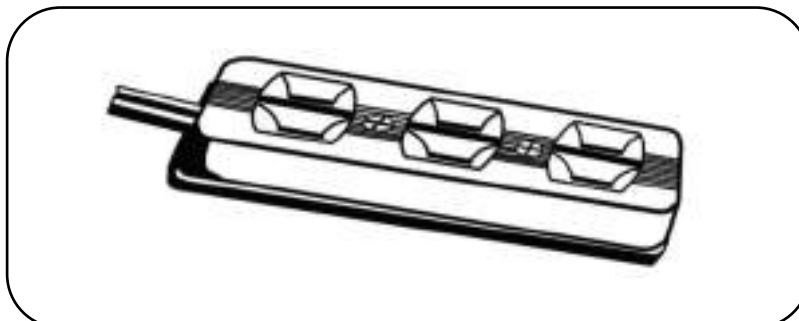
Tester is used to check the continuity of electrical flow. Testing is done before working to avoid the risk of electrical shock, while testing after work ensure that electricity flows properly on the gadgets made. This is also used to measure voltage of electric current.

10. Male plug



This is attached to one end of a gadget and used to insert to a female electrical socket to secure electrical connection.

11. Female outlet



This material is usually attached to the wall of houses with ready electric supply, from which a male plug is inserted to obtain electric supply. Sometimes it is found on the other end of improvised extension cord while male plug on the other end.

Simple Electrical Gadgets and Their Uses

Simple electrical gadgets are very useful especially at home. If you are looking for information and details on how to construct them, the best resources are books, magazines and internet. But if you consider the help of skilled person or experts it would be much better.

Here are some of the electrical gadgets we usually use at home.

1. Extension cord



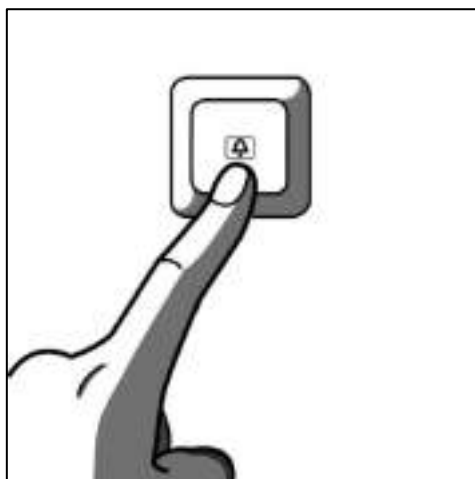
- It is made up of a male plug, female plug, and electrical wire.
- The length of the cord is usually 6 meters using a standard gauge No. 16 stranded electrical wire. Some people construct extension cord with their desired length depending on their need.
- It is assembled with the male plug on one end of the cord and the female plug on the other end.
- It is used to accommodate extra electrical devices needing electric supply.

2. Lampshade



- It is a kind of fixture used to cover a light bulb with the purpose to control and shade the light emitted by the light. Dim light is the result
- Lampshade can usually be found in bedroom or living room

3. Door bell



- A device usually placed at the gate or door of the house. When turned on, it creates a ringing, ticking or other sound which signals that there is someone knocking.

Here's How to Make Extension Cord

Materials:

Male electric plug (round)
Female electric plug
Electrical cord/wire (5 meters)

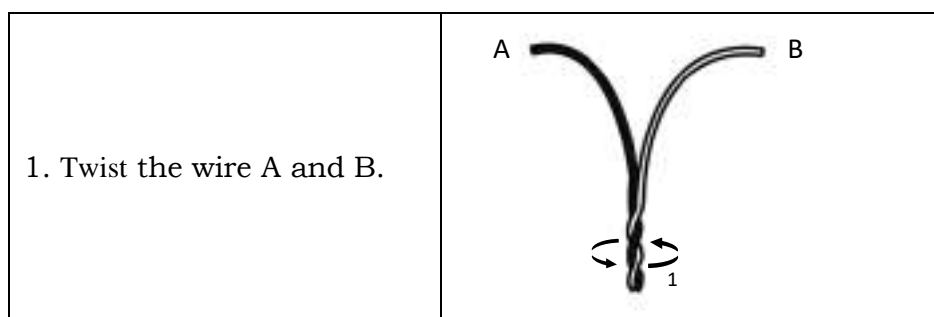
Tools:

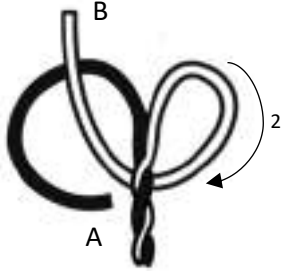
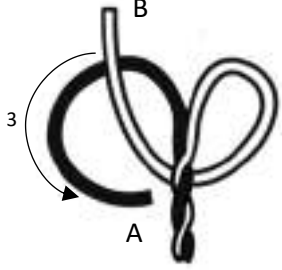
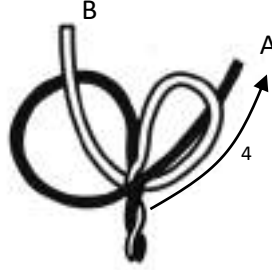

Screwdriver
Cutter plier
Combination plier
Wire stripper

Procedure:

1. Measure the wire 10cm from its end, then, separate it.
2. Strip the insulator cover or skin of each wire about 2cm from end.
3. Use a screwdriver to loosen the screw of the male plug to remove the cover.
4. Insert the cord into the hole of the plug then perform the **Underwriters knot** to serve as the lock of the wire to the hole, this is to protect the wire from loosening when the cord is accidentally pulled out.

Steps to perform Underwriters Knot:



2. Make a loop in wire B.	
3. Make a loop in wire A under wire B.	
4. Pass wire A through the wire B loop.	
5. Knot is complete.	

5. After the Underwriters knot, loosen the screw on the terminal point of the plug then twist the wire on the screw and lock the screw with screwdriver to secure connections.
6. Make sure that the wire is properly installed on the plug and no wire is exposed to each other to avoid short circuit.
7. Return the cover of the plug.
8. Repeat the same steps to secure connection of the cord to the female electrical plug.

After completing the process, you now have constructed a simple electrical gadget named extension cord.

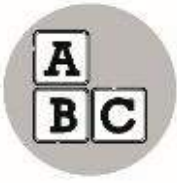
Safety and Healthy Habits in Making Simple Electrical Gadgets

In this part of the lesson we will give you some reminders to avoid risk of electrical related accident. As they say “Prevention is better than cure”. Working with electrical project is exciting and fun. But health and safety must also be given emphasis.

Here are some of the safe and healthy habits you should always remember:

1. Always wear personal protective equipment.
2. When handling electrical connection, wire and switches, make sure your hands are dry.
3. Concentrate on what you are working. Keep your focus to avoid accident.
4. When a gadget or device is new to you, do not attempt to operate or repair. Ask for assistance of an expert.
5. Avoid short circuit. It can cause fire. So do not overload electric supply.
6. Combustible materials should be kept away from electrical gadgets that emit heat, electrical wiring or connections.
7. Do not attempt to insert, metal, or wire into electric outlet with power supply on.
8. Keep the floor and all materials dry when working.
9. All accidents like faulty wirings, open wire, broken bulbs and others must be reported immediately to proper authorities.
10. Keep maintenance and regular checklist of all electrical gadgets.

Keep these reminders in mind because safety should always be your priority.



What's More

Activity 1: Evaluate Yourself

Learning the Skill: Evaluating oneself

Below are the good working practices you may consider when doing a project. Copy the table below on a separate sheet of paper. Please be honest with your answer.

Directions: Put a check (✓) in the column appropriate to you. Write your answer on a separate sheet of paper.

Practices	Yes	No	Reason
I prepare all the materials needed before starting any project.			
I read books and magazines or surf the internet on various crafts in order to enrich my knowledge.			
I am convinced that one's artistic talents are venues for generating income.			
I try my best to maximize the use of the materials I buy.			
I always leave my workplace clean and tidy.			
I start and finish a project without asking extra help from other people.			
I follow health and safety habits while doing my project			
I am open to suggestions and criticisms for the purpose of improving my work.			
I try to make useful objects out of materials that are considered trash.			
I consider artistic activities as a challenge to my talents and capabilities.			
Total			

Reflection:

Score	Working Practices	Description
8 – 10	Excellent	Congratulations! You possess the qualities needed in project making.
5 – 7	Good	You possess certain working practice in project-making but need little improvement.
4 below	Fair	You need to learn the good working practices needed in project-making for improvement.

Now, look at your NO answers. Examine each of the statement, and opposite each NO answer, write your reason why you answered NO.

Activity 2: Classify Objects

Learning the Skill: Classifying Objects According to Groups

Directions: Classify the following terms below as to group of tools and materials. Write your answer in a separate sheet of pad paper.

TOOLS	MATERIALS

Electrical tape
Pliers
Wire stripper
Hammer

Screwdrivers
Electrical cord
Soldering tools
Male electrical plug

Female Electrical plug
Electric drill
Tester

Activity 3: Write It

Learning the Skill: Writing Reflection

Directions: Read and understand each question. Make a reflection out of it.

1. What is the importance of using proper tools in working for your electrical gadgets?
2. Why skill is important in making electrical gadgets?
3. How can a skill in constructing simple electrical gadget promotes livelihood to oneself, family, and community?



What I Have Learned

- A. **Directions:** Complete the sentences by filling in the blanks with the correct word or phrase. Choose your answer from the box. Write it on a separate sheet of paper.

dry	doorbell	extension cord	additional income
functions	checked	flat head and Phillip	
emits heat	health and safety	underwriter's knot	

1. The tools and materials in making simple electrical gadgets must be identified to better understand their _____.
2. Always remember to observe _____ habits in making electrical gadgets.
3. Skill in making electrical gadgets can be good source of _____ for the family.
4. Simple electrical gadgets and electrical lines at home should be _____ regularly for improvement or repair.
5. Floor, tools and other materials should be _____ when working.
6. _____ to serve as the lock of the wire to the hole and protect it from loosening when the cord is accidentally pulled out.
7. _____ is used to accommodate extra electrical devices needing electric supply.
8. The most common are _____ screw drivers.
9. Combustible materials should be kept away from electrical gadgets that _____.
10. _____ is a device that usually placed at the gate or door of some houses.



What I Can Do

Directions: Complete the table of materials needed in making a 3-meter extension cord below. You can ask assistance from your parents for the price of each item. Write your answer on a separate sheet of paper.

Item No.		Item Description	Unit	Quantity	Unit Cost	Cost
1		Male plug (round or flat)				
2		2 gang female plug				
3		#14 stranded wire				
4		$\frac{3}{8} \times \frac{1}{2}$ wood screw				

- A. Make a diagram of the extension cord based on the materials stated above. Draw it on a separate sheet of paper.



Assessment

Directions: Read each question carefully, then, write the letter of the correct answer on a separate sheet of paper.

- _____ 1. What tool is used to remove insulator from electrical wire?
 - A. Pliers
 - B. Wire stripper
 - C. Soldering tools
 - D. Electric drill

- _____ 2. Which of the following does not belong to a simple electrical gadget?
 - A. extension cord
 - B. plugs
 - C. lampshade
 - D. Electric fan

- _____ 3. What is the fastest and easiest way to look for information and details on how to construct gadgets?
 - A. neighbors
 - B. internet
 - C. books
 - D. electrician

- _____ 4. In making electrical gadgets, it is not only on how to finish the project, but it is also about your _____.
 - A. health and safety
 - B. money
 - C. tools needed
 - D. time and effort

- _____ 5. What is the usage of a plier?
 - A. bend a wire
 - B. cut a wire
 - C. hold a wire
 - D. all answers are correct

- _____ 6. What is the first thing to do before making a project?
 - A. list all tools needed
 - B. make a plan
 - C. list the price of materials
 - D. make a diagram

- _____ 7. What is the result if all family members know how to construct electrical gadgets?
- A. an additional work for the family
 - B. an extra income for the family
 - C. a hobby for the family
 - D. no correct answer
- _____ 8. Which of the tools listed below is used to tap connection of wire?
- A. Screw drivers
 - B. Wire stripper
 - C. Soldering tools
 - D. Electric drill
- _____ 9. Who is the best person to call in case you have a new gadget or device that need repair or maintenance?
- A. Police
 - B. Fireman
 - C. Teacher
 - D. Technician
- _____ 10. Which of the following can be done by a grade six pupil like you?
- A. replace a worn-out bulb
 - B. repair an electric iron
 - C. replace of electric board
 - D. repair of electric fan



Additional Activities

After you complete your task in “*What I Can Do*”, you are now ready to construct your own extension cord. Remember your lesson about “how to construct a project”. That will be your guide in making this output. Bring in the class your constructed extension cords together with the project.



Answer Key

<p>What I Know</p> <p>1. B 2. B 3. B 4. D 5. D 6. A 7. A 8. D 9. B 10. B</p>	<p>What's More</p> <p>Activities 1 & 3</p> <p>Note: answer may vary depending on the personal experience of the pupils.</p> <p>The teacher is encouraged to facilitate the checking</p> <p>Activity 2:</p> <table><tr><td><p>Tools</p><p>pliers wire stripper hammer screw driver soldering iron electric drill tester</p></td><td><p>Materials</p><p>Electrical tape Electrical cord Male electrical plug Female electrical plug electrical plug</p></td></tr></table>	<p>Tools</p> <p>pliers wire stripper hammer screw driver soldering iron electric drill tester</p>	<p>Materials</p> <p>Electrical tape Electrical cord Male electrical plug Female electrical plug electrical plug</p>	<p>What I Have Learned</p> <p>1. functions 2. health and safety 3. additional income 4. checked 5. dry 6. underwriter's knot 7. extension cord 8. flat head and philip's 9. emits heat 10. door bell</p> <p>Assessment</p> <p>1. B 2. D 3. B 4. A 5. D 6. B 7. B 8. C 9. D 10. A</p>
<p>Tools</p> <p>pliers wire stripper hammer screw driver soldering iron electric drill tester</p>	<p>Materials</p> <p>Electrical tape Electrical cord Male electrical plug Female electrical plug electrical plug</p>			

References:

Department of Education Curriculum Guide 2016, EPP 6, Industrial Arts pages 38 – 41

Department of Education MELCs in EPP/TLE Grade 6 Industrial Arts pages 353 – 354

<https://lrmds.deped.gov.ph/pdf-view/14659>

<https://lrmds.deped.gov.ph/pdf-view/6918>

<https://en.wikipedia.org/wiki/Multimeter>

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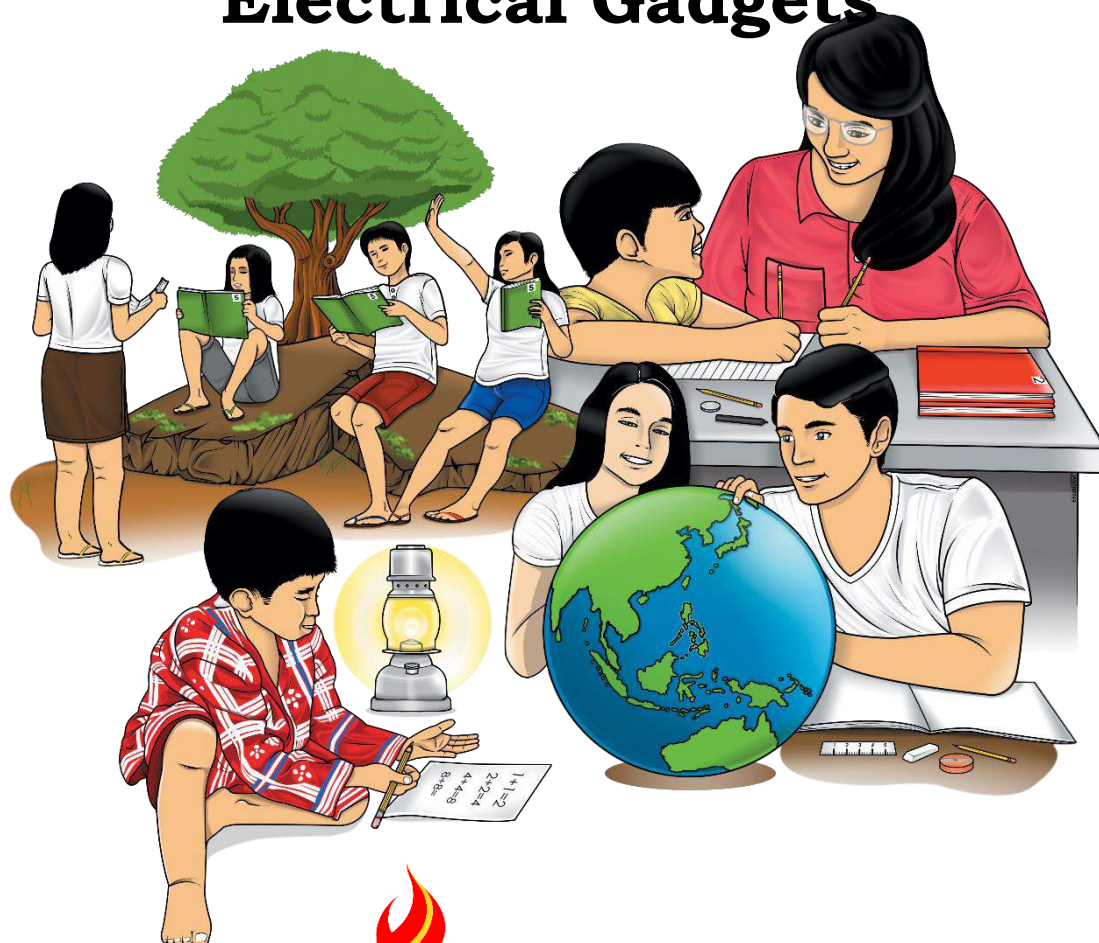
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Technology and Livelihood Education

Industrial Arts – Module 9: Protocols (Processes) in Making Electrical Gadgets



TLE– Grade 6
Alternative Delivery Mode
Industrial Arts – Module 9: Protocols (Processes) in Making Electrical Gadgets
First Edition, 2020

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**Technology and
Livelihood Education
Industrial Arts – Module 9:
Protocols (Processes) in Making
Electrical Gadgets**

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you master the skills in making simple electrical gadgets. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module focuses on the following topics:

- What to do before making electrical gadgets;
- What to do during the preparation of electrical gadgets; and
- What to do after working on electrical gadgets.

After going through this module, you are expected to:

- a. Explain the protocols (processes) in making electrical gadgets.
(TLE6IA-0g- 9)



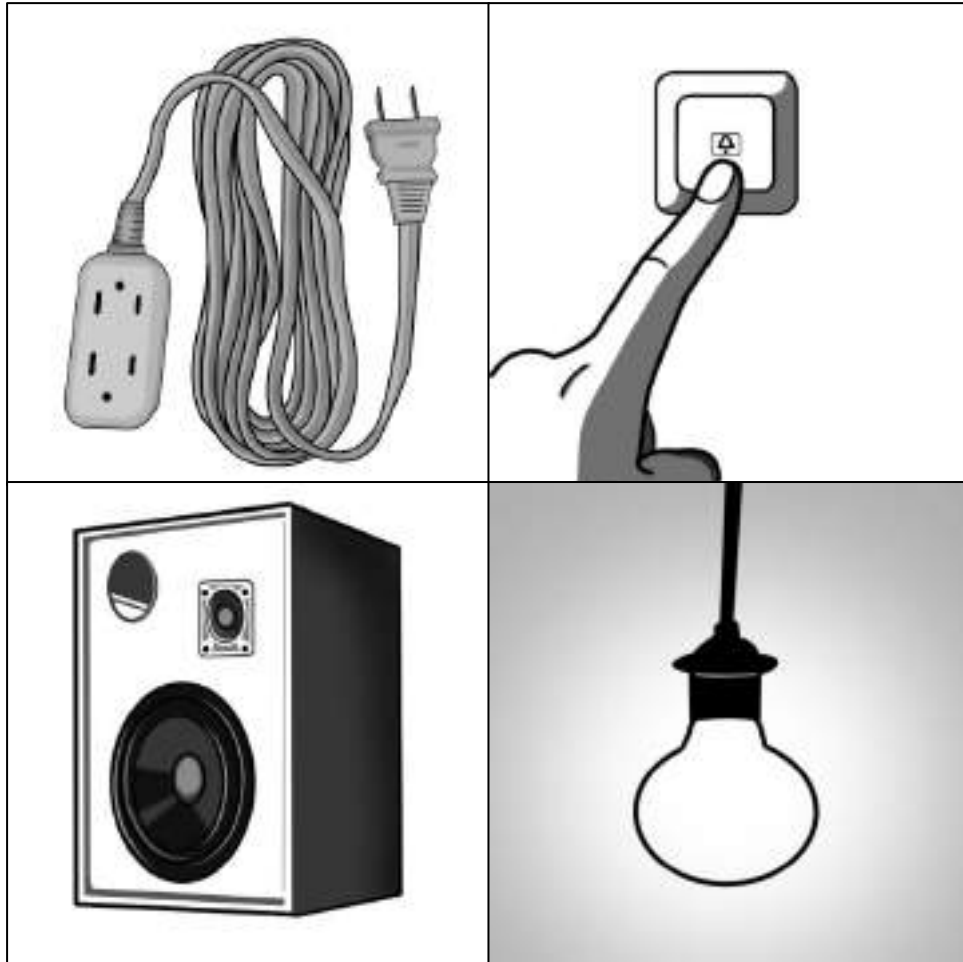
What I Know

Directions: Put a check (✓) mark if the statement is correct and (x) if it is wrong. Write your answer on a separate sheet of paper.

1. Protocol is a detailed plan and procedures to be followed in formal situations.
2. Personal protective equipment should be worn while working with electricity.
3. Appliances marked with 110V capacity can be connected to 220V power source.
4. Wear loose clothes to feel comfortable while working with electrical gadgets.
5. Repairing or making electrical gadget does require close supervision of knowledgeable person.
6. Safety precautions should be put into consideration while working.
7. In making a gadget, we can use any other tools available in school or at home.
8. When working with electrical gadgets, ensure that the circuit breaker is in ON position.
9. Make a regular inspection of tools and equipment.
10. Circuit breaker is an electrical switch designed to protect an electrical circuit from damage caused by an overload or short circuit.

Lesson 1

Protocols (Processes) in Making Electrical Gadgets



Today, electrical gadgets can be seen and used anywhere. Some of it are homemade electrical gadgets since it is so easy to install depending on its operation or function.

Can you name some of the gadgets shown above?

Can you find these gadgets at home?



What's In

Matching Type

Directions: Match the tool in making simple electrical gadgets in column A with its appropriate pair in column B. Write your answer on a separate sheet of paper.

A

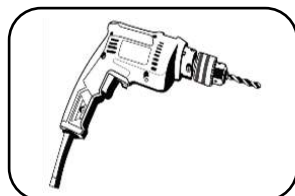
1.



2.



3.



4.

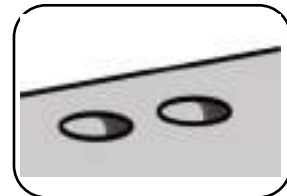


5.



B

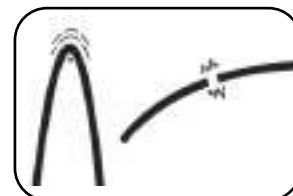
A.



B.



C.



D.



E.



Notes to the Teacher

To our beloved teachers:

The following words listed below are defined according to how they are referred to this module.

Please help the pupils understand these words.

We encourage you to provide examples as necessary.

Here are some words related to our lesson. Familiarize them before you proceed with this module.

1. **Protocol** – a detailed plan or procedure
2. **Live wire** – it is where the current flows.
3. **Electric shock** – a dangerous condition due to direct or indirect contact with energized conductor that may result injury to a person or damage to workplace.
4. **Electric panel** – is a component of an electricity supply system that divides an electrical power supply into subsidiary circuits, while providing circuit breaker for each circuit in a common enclosure.
5. **Circuit breaker** – an automatically operated electrical switch designed to protect an electrical circuit from damage caused by an overload or short circuit.
6. **Short circuit** – an abnormal connection between two nodes of an electric circuit intended to be at different voltages.
7. **Electric current** – is a flow of electricity through a wire or circuit.
8. **Electrical surge** – an unexpected, temporary increase in the current or voltage of an electrical circuit.
9. **Electric voltage** – is the pressure from an electrical circuit's power source that pushes current between two points.
10. **Direct current (DC)** – an electric current flowing in one direction only.
11. **Alternating current** – an electric current that reverses its direction many times a second at regular intervals, typically used in power supplies.



What's New

Electrical gadgets can provide fun and convenience at home or any working places. These tools can be useful in performing simple tasks.

Instead of buying electrical gadgets at store, you can make or repair one for yourself for household and school needs to save money. But before doing some of it, you must observe protocols in making electrical gadgets. Safety precautions should always be taken into consideration when working with electrical gadgets.

Have you ever done simple repair of gadget at home?

Or have you observed electricians doing repair in school or at home?

Is he or she observing safety procedures in doing the repair?

If not, then we will learn those things on this module.



What is It

If you are thinking of a project for you to work on, that is good. Especially when you plan to make a gadget that can be use every day.

Here are the protocols/processes in making electrical gadgets.

A. Before work

1. Familiarize yourself with the working place.
 - Locate the electric panel that contain circuit breakers. You must know how to shut it down, in case of emergency or before you start the work. Circuit breaker should have a label for easy identification and location
 - Locate the fire extinguishers, other tools and equipment needed
2. Inspect electrical tools and equipment.
 - Inspection of electrical tools and equipment should be done periodically to ensure its good working condition. Poor condition of working tools may result to high risk.

3. Wear personal protective equipment (PPE) – this should be done before servicing any of your appliances or gadgets.
4. If not sure of the process, seek assistance from qualified workers or electrician.
5. Ready all needed materials, tools and equipment.

Personal Protective Equipment (PPE)

a. safety clothes



b. insulating gloves



c. safety goggles



d. safety boots



e. safety helmet



B. During work

1. Work with dry hands.

Avoid water or any liquid substances when working with electricity. Working with wet hands will increase the conductivity of electric current.

2. Wear appropriate working clothes.

Avoid wearing loose clothes or ties. This may expose skin to electrical connections or rotating machinery.

3. Use appropriate or insulated tools.
Do not use damaged tools, broken plugs, damaged insulation or with worn out cords.
4. Check that the main switch of the circuit breaker is in the off position.
The main switch must always be in off position before working. Put a warning sign, so that no one can switch it on by accident.
5. Disconnect or power off gadgets before doing the repair.
Do not work with energized gadgets or equipment. Always use electrical tester to ensure if there is an electrical current that flows in it. It is much better to disconnect or power off gadgets and appliances from its source.
6. Check the specified electric voltage of each gadgets or appliances (110V or 220V) to avoid short circuit.
7. Connect gadgets to the exact power supply. Working with different specific electric current may cause explosion. Avoid connecting Direct current (DC) supply to alternating current (AC) supply.
8. Use wooden or bamboo ladder when working with receptacles at height. Aluminum or steel ladder may cause electrical surge that will ground you.
9. Always replace the parts with the same size specification and capacity.
10. Work away from any hot point sources to avoid electrical fire.
11. Avoid overloading of outlets. Plugging too many devices in one outlet will cause overheating and fire.
12. Observe safety instructions and warnings posted in the appliances. This can be found at the side or back portion of appliances.
13. Work under the supervision of a certified worker or person with enough knowledge.
14. Always pay close attention to what you are doing.

C. After work.

1. Check your work. Make sure that all electrical connections are correctly and securely connected. Open wire should properly cover with electrical tape.
2. Return tools and equipment in their proper places, toolbox or cabinet.
3. Remove and store all safety barriers used.
4. Keep the workplace clean and orderly.
5. Wash hands or clean yourself after working.

As a learner, making electrical gadgets is not an easy thing. Always follow the protocols above. Remember, safety and protection from electrical hazards are the primary criteria while making innovative gadgets at home. It is better to consult first or ask permission from your parents before doing simple gadgets or repair at home.



What's More

Instructions: Read, understand and do the different activities below. Write your answer in a separate sheet of paper.

Activity 1: Classifying and Sorting

Learning the Skill: Classify and sort protocols based on lesson learned

Directions: Read the list of the protocols below. Write them according to the category where they belong: BEFORE, DURING, or AFTER work. Copy the format of the table below. Use a separate answer sheet.

BEFORE	DURING	AFTER

- Circuit breaker must be in OFF position.
- Locate the place of fire extinguishers.
- Wear personal protective equipment.
- Pay close attention in your work.
- Work with dry hands.
- Wash hands or clean self.
- Assume all open wires are live wires.
- Be familiar with your workplace.
- Return all tools used in its proper place
- Replace parts with the same size specification.

Activity 2: Word Study Journals

There are words listed already in *What's In* which are related to our lesson. Each word was given a meaning for you to understand it.

It is now your turn to select five words from our lesson that you think it is hard for you to understand its meaning.

Write them and try to give own definition based on your understanding.

Learning the Skill: Defining Words in Context

1. First, read to see if the word is defined directly in the sentence.
2. If the word is not defined directly, read several sentences beyond the one in which the word first appears. These sentences may provide information about the definition of the word.
3. If possible, define the word based on your own past knowledge. You may have learned the word in an earlier grade, or you may be familiar with it because you hear it every day.
4. Figure out the meaning of the word by how it is used in the sentence and by the sentences around it.

Activity 3: Discover It

A



B



Learning the Skill: Compare and Explain

Directions: Read and do the activity in a separate sheet of paper.

1. Examine the two pictures above.
2. Compare the two workers by writing your observation inside the box.

Worker A	Worker B

3. Which worker observed the protocol or process in making electrical gadget?
Explain your answer using your previous observation.



What I Have Learned

Directions: Fill in the blank/s with appropriate word/s that will make the statement correct. Choose your answer from the box below. Write your answer on a separate sheet of paper.

PPE	periodically	short circuit
overheating	water	electric voltage
attention	electrical tape	safety precautions
	electrical tester	

1. _____ should always be taken into consideration when working with electrical gadgets.
2. Plugging too many devices in one outlet will cause _____.
3. Use _____ to ensure if there is an electrical current that flows in a wire or connection.
4. Always wear _____ before servicing any of your appliances or gadgets.
5. _____ is caused by connecting two electrical circuit intended to be at different voltages.
6. Avoid _____ or any substances when working with electricity.
7. Before doing a repair on gadgets or appliances, check the specified_____.
8. Inspection of electrical tools and equipment should be done _____ to ensure its good working condition.
9. Always pay close _____ to what you are doing.
10. Open wire should be covered properly with _____ to avoid injury.



What I Can Do

After studying this module, try to think if one of the light bulbs in your house goes out and you want to replace it with a new working bulb.

List down the procedures before, during and after you replace it. Follow the table below and prepare your answer in a separate sheet of paper.

BEFORE	DURING	AFTER



Assessment

Multiple Choice

Directions: Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. Which of the following does NOT belong to personal protective equipment while repairing an electrical gadget?
 - a. Thermal scanner
 - b. Safety boots
 - c. Safety cap
 - d. Goggles
2. What is the electrical equipment used to know if there is an electric current flow in a source?
 - a. tester
 - b. gauge
 - c. steel tape
 - d. screw driver
3. Why is it important to follow the protocols in making electrical gadgets?
 - a. To avoid fire caused by faulty electrical connections.
 - b. To make work in orderly manner.
 - c. To avoid injury while working.
 - d. All answers are correct.
4. Which of the following is NOT consider as a cause of injury while working with electricity?
 - a. Making a short circuit.
 - b. Switching off the circuit breaker first.
 - c. Doing repair without prior knowledge.
 - d. Putting of gadgets near the source of heat.
5. Which should always be consider when working with electrical connections?
 - a. Leave wire that is not in use.
 - b. Open wire is a live wire.
 - c. Connect all open wire.
 - d. Cut all the wires.
6. What is the importance of wearing safety/rubber gloves while working with electrical gadgets?
 - a. To avoid electrical surge.
 - b. To make hands free from dirt.
 - c. To follow the instructions of your teacher.
 - d. To earn additional grades from your teacher.

7. Why is it important to use electrical tools in good condition?
 - a. So that your classmates will follow you.
 - b. This will make your work fast and safe.
 - c. This will be checked by your teacher.
 - d. It will impress your teacher.

8. What should be done before leaving your workplace?
 - a. Check your work.
 - b. Leave the workplace.
 - c. Clean the working area.
 - d. Let the teacher check your work.

9. If you want to work with an electrical gadget but you are not familiar with it, to whom will you call for assistance?
 - a. your teacher.
 - b. your parents.
 - c. a certified worker.
 - d. your elder brother or sister.

10. The following should be checked when working with electrical gadgets except ONE, which one is it?
 - a. Load current of a gadget.
 - b. Specific voltage of a gadget.
 - c. Safety precautions and warnings.
 - d. Connect gadgets at power source.



Additional Activities

On this activity you need the help of your parents, electrician, or any of your neighbor with knowledge on how to repair simple electrical gadget. Remember don't do it by yourself.

1. Choose any simple electrical gadgets in your home that does not properly function or is worn out.

Example: light bulb, receptacle, extension cord, etc.

2. With their help and supervision, try to fix it.
3. Follow the protocols that you have learned.
4. You can take pictures or video as part of your portfolio.
5. Below is the rubric. This will be the basis of your performance.

Task Description	Out-standing 9-10	Highly competent 7-8	Competent 4-6	Not yet competent 2-3	Not achieved 0-1	Sub Total
Inspection						
Selection of tools and use						
Safety						
Workplace/ housekeeping						
Total Score						



CO_TLE-IA6_Module 9

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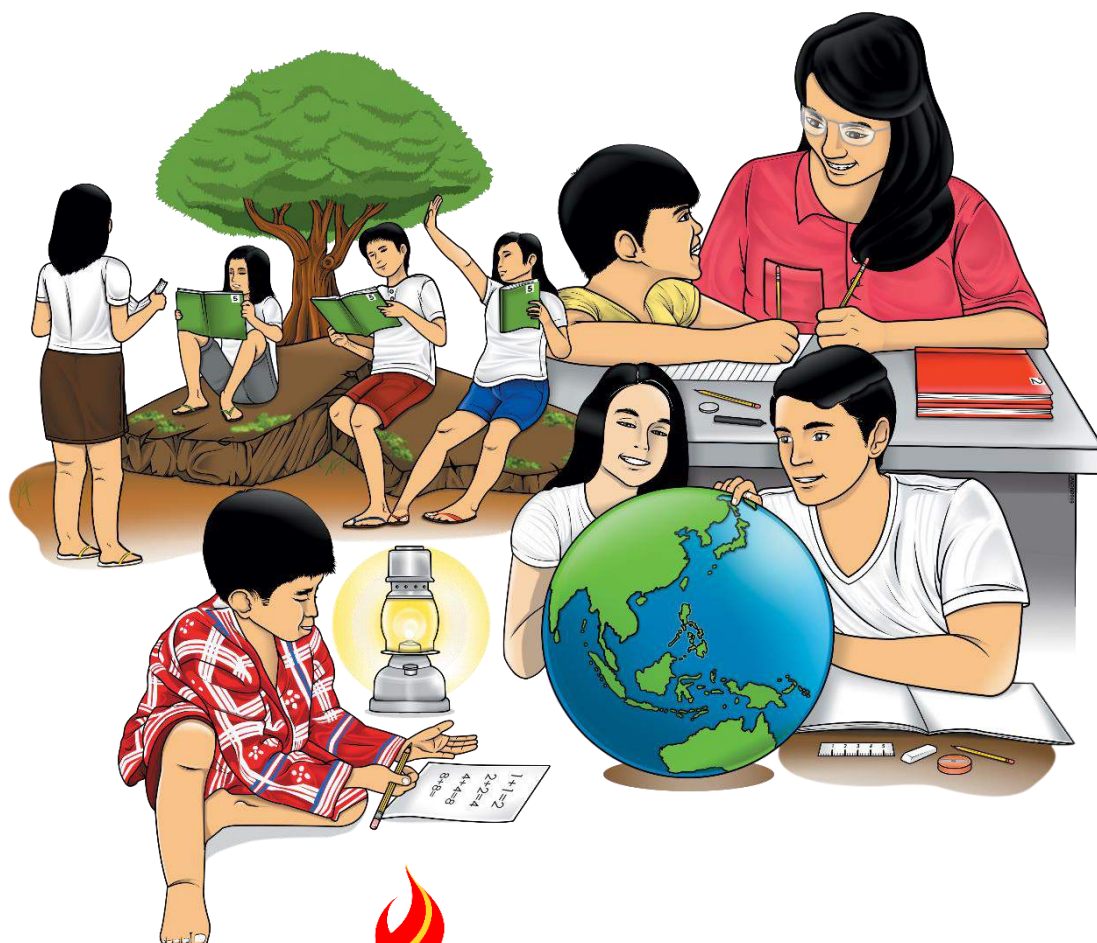
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Technology and Livelihood Education

Industrial Arts – Module 10: Simple Gadgets/ Furniture/ Furnishing at Home and in School



TLE – Grade 6
Alternative Delivery Mode
Industrial Arts – Module 10: Simple Gadgets/ Furniture/ Furnishing at Home and in School
First Edition, 2020

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Technology and Livelihood Education Industrial Arts – Module 10: Simple Gadgets/ Furniture/ Furnishing at Home and in School

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you master the skills in repairing simple gadgets/furniture/ furnishing at home and in school. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module focuses on the following topics:

- Where to get information about simple repair?
- What simple repairs one can do at home?
- How to assess or check your repaired project?

After going through this module, you are expected to:

- a. Repair simple gadgets/ furniture/furnishing at home and in school. (TLE6IA0h-10)
- b. Gather data on how to do simple repairs using technology or other methods.
- c. Repair broken furniture (chairs, cabinets and tables), doorknobs, extension cords, lampshades, other products and furnishing.
- d. Assess repaired gadgets/ furniture/ furnishing as to its reusability and functionality using rubric.
- e. Improve repair undertaken.



What I Know

Directions: Read each question carefully. Chose the letter of your answer and write your answer in a separate sheet of paper.

1. What do you call an object or something that is use in place of another?
A. replacement
B. original
C. preventive
D. local
2. Any work is made easy, fast and safe if you use _____.
A. genuine tools
B. imported tools
C. appropriate tools
D. localized tools
3. What is the usual cause of squeaking sound every time you close and open the door?
A. rust formed in door hinges
B. door is too old
C. door is not fit
D. door hinges is not compatible
4. The first step to do before repairing something is to _____.
A. determine the tools needed
B. determine the damage part
C. collect all the materials
D. put a nail to damage part
5. In order to prolong the usefulness of your things, it is a good thing to make a regular _____.
A. inventory
B. replacement
C. costing
D. maintenance
6. Which is NOT the benefit that can be derived in repairing gadgets or furniture?
A. save time
B. additional work
C. earn extra money
D. environmentally friendly
7. Which of the following belongs to finishing materials?
A. nails
B. varnish
C. lumber
D. glue

8. The following are the sources of information where we can get some ideas. Which is the most reliable source?
- | | |
|----------------------------|-------------------------|
| A. videos in YouTube | C. from experts |
| B. other sites in internet | D. from your classmates |
9. What method in applying finishes is the fastest among other methods?
- | | |
|-----------------|-------------------|
| A. brush method | C. dip coating |
| B. spray method | D. roller coating |
10. What is the importance of applying finishing materials in our project?
- | | |
|----------------------|----------------------------|
| A. it adds elegance | C. it gives protection |
| B. it prolongs usage | D. all answers are correct |

Lesson 1

Simple Gadgets/ Furniture/ Furnishings at Home and in School

In order to maintain the form, beauty and function of gadgets/ furniture/ furnishing at home and school we need services of the technicians or carpenters. Thus, it will require us to pay additional or extra expenses for the family.

For this, it is very important that any member of the family must have the basic skills and knowledge to do simple repairs to save the cost of repair services.



What's In

Directions: Read and analyze each statement. Identify whether the task listed below should be done, **BEFORE**, **DURING** or **AFTER**. Write the word in your answer sheet.

1. Cleaning of working area.
2. Determining of damaged part or area.
3. Paying attention in work.
4. Turning off the switch when working with electricity.
5. Replacing the parts with the same size specification.
6. Having an adequate ventilation in working area.
7. Wearing of personal protective equipment.
8. Using of appropriate tools.
9. Seeking assistance from the experts if the task is unfamiliar.
10. Retrieving of all tools.



Notes to the Teacher

To our beloved teachers:

The following words listed below are defined according to how they are referred to this module.

Please help the pupils understand these words.

We encourage you to provide examples as necessary.

Here are some words related to our lesson. Familiarize them before you proceed with this module.

1. **Repair** – to fix or restore something back in good condition.
2. **Maintenance** – to sustain the upkeep of tools so they stay in good condition.
3. **Detach** – to separate or disconnect.
4. **Replace** – to provide something new in place of another.
5. **Replica** – to copy or to make the same kind.
6. **Hinges** – a jointed device in which a swinging part turns.
7. **Squeaking** – high-pitched sound produced usually by friction of door hinges.
8. **Prevention** – to keep from happening, to hold not to happen, to prevent from happening.
9. **Prolong** – to continue using for a longer period. To lengthen in duration
10. **Strip** – to remove insulator or covering of electrical wire.
11. **Leaking** – dripping of water



What's New

A responsible family member should acquire basic knowledge and skills in doing simple repairs. As part of maintenance, repair is necessary in order to prolong the usefulness of your things at home and in school. There is no preference, both male and female are encouraged to do simple repairs. There are countless benefits derived from doing repair all by yourself. The most important is that you have your money for other expenses instead of paying it to others.

As member of a family and as a student, have you ever done simple repair of furniture or fixtures in your home? How about in school?



What is It

Proper care and maintenance of gadgets/ furniture/ furnishing at home and in school must always be taken into consideration. This is to ensure that your things are safe to use and in good condition.

Previously we discussed how to construct simple electrical gadget. We hope you can still recall those simple gadgets.

In this module you will be guided how to do simple repair of your things at home. We will suggest also some materials where you can gather information about simple repair and how to improve what you have repaired.

Where to get information about simple repair?

Sources of information about simple repair are available in many forms. You can use the technology or any other method in gathering information to further improve your skills.

Nowadays more and more people are using the **internet** to look for information and demonstration of skills they wanted to learn. Some are using **books** and **magazines** to get the necessary information or tips for a job. Others gather tips through research and readings of **articles** and **journals**.

While obtaining ideas from these sources is fun and exciting, still the best method to gather data is by consulting **experts** and **professionals**. Tips, ideas and technique from them are more reliable and competent.

Some of the simple repairs surely you can do at home.

I. Repair of Male Plug (Round and flat)

Materials:

5-meter wire no. 14 (Duplex)
or 5-meter wire no. 16 (Stranded)
1 male plug (round or flat)

Tools:

Cutter plier
Combination plier
Wire stripper
Screwdriver
(flat or Philips head)

Steps:

1. Measure about 10 cm. from the end of the wire and separate the two wires.
2. Strip the insulator cover or skin of each wire about 2 cm. from end.
3. Use a screwdriver to loosen the screw of the male plug to remove the cover.
4. a. **For flat male plug**, insert the wire in the hole provided at the end of the plug, then twist to secure connection. If the plug is screw type, loosen the screw then insert the wire and lock it with the screw to secure connection.

b. **For round male plug**, perform the underwriters' knot to serve as the lock of the wire to the hole, this is to protect the wire from loosening when accidentally pulled off.
- After the underwriters' knot, twist the wire and lock it with the screw to secure connection.
5. Secure that the wire is properly installed on the plug.
6. Return the cover of the plug. Make sure no wire is exposed to avoid electric shock.

II. Repair of leaking faucet

Materials:

New rubber washer (rubber gasket)

Tools:

Pipe wrench
Screwdrivers

Steps:

1. Cut off the water supply, by turning the gate valve on off position.
2. Detach the faucet using a pipe wrench. Make sure to cover the nut with a cloth or tape to avoid scratches while applying force on turning.
3. Loosen the nut and remove the valve system of the faucet.
4. Loosen the screw to remove the rubber washer or gasket.
5. Replace the rubber washer or the gasket with the new one of the same kind and size.
6. Put back the screw of the rubber washer or gasket, make sure it is installed properly.
7. Return the valve system of the faucet into its proper position.
8. Use the pipe wrench to tighten packing nut.
9. Allow the water to flow by opening the gate valve.
10. Check if the water flows properly and if the leakage has stopped.

III. Repair of a broken chair

Materials:

Wood brace
Wood glue
Nails

Tools:

Claw hammer
Crosscut saw
Chisel

Steps:

1. Gather all the materials needed.
2. Determine the parts of the chair that needs to be repaired. Collect them if they are still available.
3. Make a replica of the parts which are lost or damaged.
4. Connect the parts to be repaired using nails.
5. Apply wood glue on the parts to be joined or on parts that wiggle.
6. Install braces to make it stronger.

IV. Repair of door hinges

Materials:

All-purpose oil
Hinges
Screw

Tools:

Screwdriver
Chisel
Measuring tool

You may observe that your door produces a squeaking sound every time you close and open it. This sound is sometimes due to rust or the door does not fit properly on the jamb.

It can be repaired by applying oil to the hinges to eliminate squeaking sound. Loose screws can also be tightened to fix the hinges.

Steps in replacing damaged hinges

1. Gather all the tools and materials needed.
2. Unscrew the hinges to detach the door from the jamb.
3. Determine the part where the hinges are to be fixed by measuring the exact position.
4. Chisel the part where the hinges are to be placed.
5. Put the hinges in correct position.
6. Screw the hinges in the jamb and door.
7. Fix all the hinges.

Health Habits and Safety Precautions, to be observed in doing simple repairs.

1. Make sure that you have the right tools intended for a job to be done.
2. Wear comfortable clothing to allow freedom of movement but make sure that you have the right personal protective equipment.
3. Work on properly lighted area.
4. Use leather gloves in handling electrical work.
5. Inspect all tools before the start of the job.
6. Repair or replace defective tools before working to avoid accident.
7. Use only appropriate tools for the job to make your work easy, fast, and safe.
8. Seek expert's advice or guidance before doing the simple repairs so that you will be guided accordingly.
9. Clean the area after working.
10. Clean and return all tools to its proper places or cabinet.

How to assess finish project?

Make it a habit to always check or assess the project you have repaired. It is a way of knowing how functional your project is, and to become aware of hazard or possible accident.

You can use the simple rubric below to check how excellent is your work.

Rubric for Assessing Repaired Furniture

Criteria	Excellent 10	Good 9-5	Fair 4-1	Score
Materials and Tools	Materials and tools needed for specific repair are present and complete.	1 or 2 materials or tools needed for specific repair is lacking.	3 or more materials or tools needed for specific repair is lacking.	
Procedure	All the procedures or steps in making simple repair are followed and observed.	1 or 2 procedures or steps in making simple repair are not followed.	3 or more procedures or steps in making simple repair are not followed or observed.	
Workmanship	Repaired project has 3 distinct characteristics; (durable, safe and can be used again.	Repaired project has 2 distinct characteristics from the ones stated below (durable, safe and can be used again)	Repaired project has 1 distinct characteristics from the ones stated below (durable, safe and can be used again).	
Total Score:				
Remarks:				

In order to make our gadgets and furniture more attractive, durable and pleasing to the eyes they need finish.

The common types of finishing materials are: **paint**, **varnish** and **shellac**.

What is the common way of applying these finishing materials?

Finishing materials can be applied in various way depending on the materials you are using and the kind of finish you want to achieve.

Here are some methods of applying finishes.

1. **Brush method** – in this method natural brush or synthetic brush is used to apply different finishing materials.
2. **Spray method** – in this method an air compressor and a spray gun is use to apply finishes. Using this method is much faster than any other method.
3. **Dip coating** – this is done by dipping the item into the solution of the finished product. Wooden products are best applied in this method.
4. **Roller coating** – paint rollers are used in this method with a paint tray where you put the finishing material and dip the paint roller, then roll it to the surface you want to apply finishes.

What is the purpose of apply finishing materials?

They are called finishing materials or finishes because they are the last element we apply on our project. Our main reason here is to protect the materials we used in constructing the project and to enhance the appearance of our finished product.

Here are some of the purposes why we apply finishes on our product.

1. **Protection** – our product is protected from moist, heat and extreme temperature when it is covered with finishes.
2. **Decoration** – finishes and adds elegance to beautify the product.
3. **Sanitation** – cleaning a well-polished product is easy; such as dust and dirt can be easily wiped out.
4. **Saleability** – pleasing appearance and attractive design are highlighted by finishing materials that suit to our product, thus, it catches attention of buyers.
5. **Balance** – finishing materials allow us to blend the beauty, color and theme of our product to the different environment producing desirable effects.



What's More

Instruction: Read, analyze and do each activity. Write your answer on a separate sheet of paper.

Activity 1: Recall Me

Learning the Skill: Simple recall of lesson

Directions: List down five (5) purposes/ reasons of applying finishing materials in your project.

- 1.
- 2.
- 3.
- 4.
- 5.

Activity 2: You Decide

Learning the Skill: Evaluating of something

Directions:

1. Look for an ongoing repair (not a structural repair) in your home, in your neighborhood, or in school.
2. Use the “Rubric for Assessing Repaired Furniture” that you have learned in this lesson.
3. Use the rubric to assess the work of a person who makes the repair. Do not forget to ask permission to the person before doing this.
4. Make an interview if needed.
5. Complete the rubric by filling in the score based on your evaluation and don't forget to make your own remarks.
6. Show this to your teacher.

Activity 3. Explain to Me

Learning the Skill: Writing an essay.

Instructions: Write a simple essay about “Furniture Restoration: A Help to Environment”. Write your essay on a separate sheet of paper.



What I Have Learned

Directions: Fill in appropriate word/s to make the statement correct and complete. Get your answer from the box below and write it on a separate sheet of paper.

prolong	repair	proper care and maintenance	considered	reliable
rubric	spray	finishing materials	check valve	protection

1. _____ is done to prevent further damage and to improve the efficiency of the gadget/ furniture/ furnishing at home.
2. In order to extend the usefulness of gadget/ furniture/ furnishing at home, _____ should be done.
3. Experts and professionals are the most _____ sources of information.
4. _____ is used to assess a repaired item.
5. Paint, varnish and shellac are called _____.
6. There are four common methods of applying finishing materials and the fastest method is _____.
7. Applying finishing materials to a project is not only for decoration, sanitation, saleability and balance. It is also for _____.
8. Safety measure should be _____ in doing work to avoid accidents.
9. Turn the _____ in off position before servicing the leaking faucet.
10. Repair is necessary in order to _____ the usefulness of your things at home and in school.



1. With the help of your parents or guardian, look for a gadget/ furniture/ furnishing in your home that needs repair.
2. Plan on the repair you are going to do. Gather all the materials and list down the procedure.
3. Do the repair.
4. Make any documentation (before, during and after your repair). This will be submitted as part of your portfolio.
5. Don't put any finishes yet. This will be done in your next activity.
6. Write a reflection on the success of repair you have done.



I. Multiple choice:

Directions: Read each question carefully, then, write the letter of the correct on a separate sheet of paper.

1. Any work is made easy, fast and safe if you use _____.
A. genuine tools
B. appropriate tools
C. imported tools
D. localized tools
2. The first step to do before repairing something is to _____.
A. determine the tools needed
B. put a nail to damage part
C. collect all the materials
D. determine the damage part
3. Which is NOT a benefit that can be derived in repairing gadgets or furniture?
A. save time
B. earn extra money
C. additional work
D. environmental friendly
4. Which of the following belongs to finishing materials?
A. nails
B. glue
C. lumber
D. varnish
5. What is the importance of applying finishing materials in our project?
A. it adds elegance
B. it prolongs usage
C. it gives protection
D. all answers are correct

II. Sequencing:

Directions: Arrange the following steps according to the correct procedures in repairing a broken chair. Write number 1 as the first step to be followed by 2, 3, 4 and 5 as the last procedures. Write your answer on a separate sheet of paper.

_____ Make a replica of the parts of the chair which is lost.

_____ Determine the parts of the chair that need to be repaired. Collect them if they are still available.

_____ Gather all the materials needed.

_____ Install braces to make it stronger.

_____ Apply wood glue on the parts to be connected and on the parts that wiggle.



Additional Activities

A. Applying of finishing materials.

Instructions:

1. Take the project you have repaired.
2. Plan on what type of finishing materials to apply on your project.
3. Plan and choose the appropriate method of applying finishing material on your project.
4. Work out your plan.

B. Use the rubric we have discussed in this lesson to assess your output.



Answer Key

<p>Assessment</p> <p>I.</p> <ol style="list-style-type: none"> 1. B 2. D 3. C 4. D 5. D <p>II.</p> <ol style="list-style-type: none"> 3 1 2 5 4 	<p>What's More</p> <p>Activity I:</p> <ol style="list-style-type: none"> 1. Protection 2. Decoration 3. Sanitation 4. Sale ability 5. Balance <p>Activity 2 & 3</p> <p>A Note: answer may vary depending on the personal experience of the pupils.</p> <p>The teacher is encouraged to facilitate the checking.</p> <p>What I have Learned:</p> <ol style="list-style-type: none"> 1. repair 2. proper care and maintenance 3. reliable 4. rubric 5. finishing materials 6. spray 7. protection 8. considered 9. check valve 10. prolong 	<p>What I Know</p> <ol style="list-style-type: none"> 1. A 2. C 3. A 4. B 5. D 6. B 7. B 8. C 9. B 10. D <p>What's In:</p> <ol style="list-style-type: none"> 1. After 2. Before 3. During 4. During 5. During 6. During 7. Before 8. During 9. Before 10. After
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Technology and Livelihood Education

Industrial Arts– Module 11: The Principles of Five “S”



TLE – Grade 6
Alternative Delivery Mode
Industrial Arts – Module 11: The Principles of Five “S”
First Edition, 2020

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Technology and Livelihood Education

Industrial Arts – Module 11: The Principles of Five “S”

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by- step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you master the skills in recycling waste materials using the principles of Five “S”. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module focuses on the following topics:

- a. The five principles of Five “S”; and
- b. How each principle is implemented

After going through this module, you are expected to:

- a. Discuss each principle in relation to recycling waste materials.
(TLE6IA-0i-11)



What I Know

Matching Type:

Directions: Match the principles of Five “S” in column A with its appropriate English terms in column B. Write the letter of the correct answer on a separate sheet of paper.

A	B
_1. Seiri	a. sustain
_2. Shitsuke	b. sweep
_3. Seiketsu	c. sort
_4. Seiso	d. set in order
_5. Seiton	e. standardize
	f. sustain set

I. Multiple Choice

Directions: Read the questions below. Choose the letter of the correct answer and write it on a separate sheet of paper.

1. Which principle of Five “S” mean to identify and eliminate all unnecessary items from the workplace.
 - A. Seiri (Sort)
 - B. Seiso (Sweep)
 - C. Seiton (Systematize/ Set in order)
 - D. Seiketsu (Standardized)
2. What Principle of 5 “S” that says put all needed tools and materials and equipment in order they are to be used.
 - A. Seiri (Sort)
 - B. Seiso (Sweep)
 - C. Seiton (Systematize/ Set in order)
 - D. Seiketsu (Standardized)

3. Which principle means to clean the workplace thoroughly after service.
 - A. Seiri (Sort)
 - B. Seiso (Sweep)
 - C. Seiton (Systematize/ Set in order)
 - D. Seiketsu (Standardized)

4. Which principle will maintain high quality of cleanliness and orderliness in a workplace.
 - A. Seiri (Sort)
 - B. Seiso (Sweep)
 - C. Seiton (Systematize/ Set in order)
 - D. Seiketsu (Standardized)

5. Why should we practice 5 “S” in our workplace?
 - A. for cleanliness
 - B. for convenience
 - C. for efficiency and effectiveness
 - D. for sanitation

Lesson 1

The Principles of 5 “S”

One factor that a person will be able to work efficiently and effectively is the condition of the workplace. A systematic, clean and well-organized area is needed. Thus, it is very important for you to learn the principles of 5 “S”, so you can apply it in your daily work.



What’s In

Directions: Read each question carefully, then write the letter of your choice on a separate sheet of paper.

1. Which of the following is a must in doing simple repair at home or in school?
 - A. clean the workplace
 - B. observe protocols
 - C. use imported tools
 - D. check the area of work
2. Before doing simple repair, we should check that our tools are _____ to prevent accidents caused by faulty tool.
 - A. in the toolbox
 - B. brand new
 - C. complete
 - D. in good condition
3. Which should be done to ensure that the tools and equipment used are in good working condition?
 - A. repair
 - B. prevention
 - C. inspection
 - D. storage
4. What is the importance of wearing personal protective equipment while working?
 - A. for help and assistance
 - B. for readiness and style
 - C. for environmental sanitation
 - D. for safety and protection
5. What caused overheating and fire on an electrical outlet?
 - A. the temperature of the room
 - B. cleaning the outlet
 - C. uninstall outlet
 - D. place near hot point



Notes to the Teacher

Please help the learner to better understand the terms being introduced. Lesson is easy to understand when they can comprehend these words.

The words below are defined according to their function in this module. Take time to familiarize them, it will help you on your journey in this module.

New Words to Learn

1. Principle – statement used as a guide to achieve something.
2. Sustain – to continue to do what has been successfully started.
3. Instill – to develop to someone little by little a good value as habit.
4. Eliminate – to remove something that is not needed.
5. Workplace – a place where work is done.
6. Clutters – something that scatter or not arrange properly.
7. Efficient – produce good result without wasting materials, time, money, and effort or energy.
8. Effective – producing desired output.
9. Systematic – doing things with careful system or method.



What's New

Previously we have learned the importance of using the proper tools in working simple electrical gadgets. Can you still recall some of these tools?

Can you still name some of the simple gadgets and furniture you can repair at home?

After doing some simple repairs at home on in school, what are we going to do with the materials that were not used.



Jofel D. Nolasco, an Office, 2019

Look at the illustration above, what have you observed with the picture?

Is it a good place to do your work or task?

In this module, you will learn the principles of 5 “S”. These principles will guide and will help you make your workplace ideal for work and yourself to become productive.



What is It

The Principle of 5 “S”

Five (5) “S” is very famous among Japanese as they are the first to advocate this principle. It aims to provide an ideal workplace by organizing and eliminating waste around the area. Nowadays, 5 “S” is observed in so many workplaces in the country. Some industrial workplaces, manufactories, private and public schools, offices, and hospitals. The principle of 5S has a great impact on the value formation of individual towards work and self-development.

What does 5 “S” represent?

5 “S” represents five Japanese words:

Seiri (Sort), Seiton (Systematize/Set in order), Seiso (Sweep), Seiketsu (Standardized), and Shitsuke (Sustain).

How do we implement these principles?

Seiri (Sort)

There are things in the workplace that seem to obstruct or distract the smooth flow of the work. These things need to be identified and taken away from the worksite for disposal, recycling, or safekeeping.

Seiri or sort is the principle that means to sort through all items in a location and removing all unnecessary items from the workplace.

Goals:

- Reduce time loss looking for an item by reducing the number of items.
- Reduce the chance of distraction by unnecessary items.
- Simplify inspection.
- Increase the amount of available, useful space.
- Increase safety by eliminating obstacles.

How to Implement Seiri (Sort):

1. Check all items in a location and evaluate whether their presence at the location is useful or necessary.
2. Remove unnecessary items as soon as possible. Place those that cannot be removed immediately in a 'red tag area' so that they are easy to remove later.
3. Keep the working floor clear of materials except for those that are in use to production.

Seiton (Systematize/Set in order)

Once the workplace has been cleared of unnecessary items, this principle will follow.

Seiton means setting all needed tools, materials, and equipment in the order they are to be used.

Having a safe storage area where you can arrange your tools is suggested. It helps you find things needed for your job and to keep them when not in use.

Another way to set things in order is by putting labels on your storage cabinets and shelves so it would be easy for you to find things you are looking for.

Furthermore, setting things in order to prevent loss and waste of time because it will allow you to find and pick items when needed.

Goal:

- Reduce time in finding and picking of items needed.

How to Implement Seiton (Systematize/Set in order)

1. Arrange workstations in such a way that all tool / equipment is in proximity. Place components according to their uses, with the frequently used components being nearest to the workplace.
2. Arrange all necessary items so that they can be easily selected for use. Make it easy to find and pick up necessary items.
3. Assign fixed locations for items. Use clear labels, marks or hints so that items are easy to return to the correct location and so that it is easy to spot missing items.

Seiso (Sweep)

Seiso or sweep means to clean the workplace thoroughly. When do we need to clean? Cleaning should be one daily or every after work.

Tools, machines, furniture, and other equipment should be cleaned from time to time to make them last for a longer period.

Also, it is very important to clean the workplace not only for the equipment but for the safety of the people working in the place as well.

Goals:

- Improves the production process efficiency and safety, reduces waste, prevents errors and defects.
- Keep the workplace safe and easy to work in.
- Keep the workplace clean and pleasing to work in.

How to implement Seiso (Sweep)

1. Clean the workplace and equipment daily or after working.
2. Inspect the workplace and equipment while cleaning.

Seiketsu (Standardized)

This principle aims to maintain high quality of cleanliness and orderliness.

The place of work should be free of clutters, dust, litters, stains on tables, counters, and equipment. It is also advisable to sanitize the tools and the workplace when needed.

Integral part of this principle is assigning specific task, responsibility and rules for the individual of the workplace, to be aware of their duties.

Goal:

- Establish procedures and schedules to ensure the repetition of the first three 'S' practices.

How to Implement Seiketsu (Standardized)

1. Develop a work structure that will support the new practices and make it part of the daily routine.
2. Ensure everyone knows their responsibilities in performing the sorting, organizing and cleaning.
3. Use photos and visual controls to help keep everything as it should be.
4. Review the status of 5S implementation regularly using audit checklists.

Shitsuke (Sustain)

This means to have self-discipline to instill the habit of cleaning. Every worker should make it a part of his/her everyday routine to clean and put things in order before, during and after work.

This final step seems to be the most difficult. Oftentimes, we fail to sustain what we have started. In order to achieve this, one needs to focus on standards of practice. Regular inspection and evaluation will help us sustain good practice.

Goal:

- Ensure that the 5S approach is followed.

How to Implement Shitsuke (Sustain)

1. Organize training sessions.

1. Perform regular audits to ensure that all defined standards are being implemented and followed.
2. Implement improvements whenever possible. Worker inputs can be very valuable for identifying improvements.
3. When issues arise, identify their cause and implement the changes necessary to avoid recurrence.



What's More

Activity 1: Classifying the Principle According to Ideas Presented

Learning the Skill: Classifying Ideas

Directions: Choose the principle inside the box that is best describe by each sentence below. Write your answer on a separate sheet of paper.

Seiri (Sort)
Seiton (Systematize/Set in order)
Seiso (Sweep)
Seiketsu (Standardized)
Shitsuke (Sustain)

1. Instill the habit of cleaning.
2. Identify and eliminate unnecessary items.
3. Put all needed materials in order.
4. Clean the workplace thoroughly after service.
5. Maintain high quality of cleanliness and orderliness.

Activity 2: Understanding the words better

Learning the Skill: Defining a word through scrambled letters

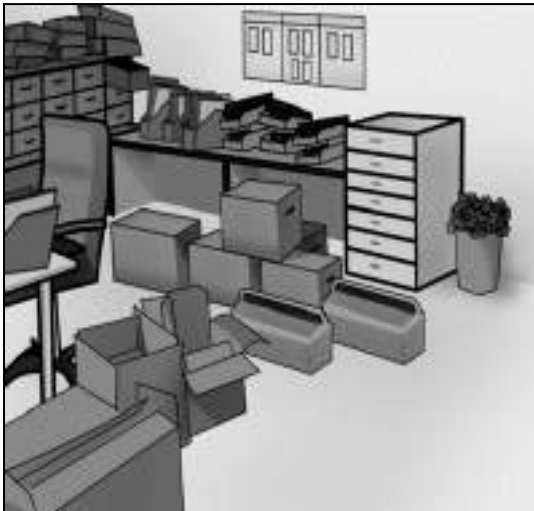
Directions: There are scrambled letters before each item. Read the sentence that defines the word and arrange the scrambled letters to form the correct word described by each sentence. Write your answer on a separate sheet of paper.

olga	1. This refers to the aim or objective.	
listiln	2. This word means, to develop to someone little by little a good value as a habit.	
antisus	3. To continue to do what has been successfully started.	
scultter	4. Something that scatters or not arranged properly.	
cienteffi	5. Produce a good result without wasting materials, time, money, effort or energy.	
creakplow	6. A place where work is done.	
efectfive	7. Producing desired output.	
actisystem	8. Doing things with careful system or method	
incripple	9. Statement used as a guide to achieve something	
inatemile	10. This means to remove something that is not needed.	

Activity 3: Understanding the words better

Learning the Skill: Comparing and contrasting two objects

A



B



Directions: Do the activity below. Write your answer on a separate sheet of paper.

1. Look at the illustrations above.
2. Between the two illustrations, which do you think is an ideal workplace?
3. Why do you think that it is an ideal workplace? Give at least three (3) reasons for your answer based on what you have learned from this module.



What I Have Learned

Directions: Try to recall what you have learned and complete each statement below and write your answer on a separate sheet of paper.

1. _____ is a principle famous among Japanese.
2. 5's stands for five Japanese words which are; _____, _____, _____, and _____.
3. The objective of 5's principle is to provide enough space to work _____ and _____.



What I Can Do

1. Together with your parents or guardians, (for safety) try to visit a workplace or an industrial shop in your community and check the present situation.
2. Observe if the present situation the principle of 5 “S” is properly implemented.
3. Through your observation, try to formulate recommendations based on the principle of 5 “S”.



Assessment

Directions: Read the test items below. Choose the letter of the correct answer and write it on a separate sheet of paper.

1. Which of the principles of Five “S” below will improve production process efficiency and safety, reduces waste, prevents errors and defects?
 - A. Seiri (Sort)
 - B. Seiso (Sweep)
 - C. Seiketsu (Standardized)
 - D. Seiton (Systematize/ Set in order)
2. What is the ultimate goal of Seiketsu?
 - A. To simplify inspection.
 - B. To establish procedures.
 - C. To keep the workplace safe and easy to work in.
 - D. To ensure that the 5 “S” approach is followed.
3. Which principle of Five “S” that one achieved standard of practice?
 - A. Seiri (Sort)
 - B. Seiso (Sweep)
 - C. Shitsuke (Sustain)
 - D. Seiton (Systematize/ Set in order)

4. Which activity can be done under Seiton or Systematize?
 - A. Remove unnecessary items.
 - B. Cleaning the workplace.
 - C. Putting labels on storage cabinet.
 - D. Assigning specific tasks to individual workers.
5. What are needed in order to maintain standards inside the workplace?
 - A. A lot of workers
 - B. New tool and equipment
 - C. Cleanliness and safety
 - D. Regular inspection and evaluation
6. Why we should practice 5 “S” in our workplace?
 - A. for cleanliness
 - B. for convenience
 - C. for sanitation
 - D. for efficiency and effectiveness
7. One factor to increase productivity is to follow the_____.
 - A. 4 A’s
 - B. 3 R’s
 - C. 5 “S”
 - D. 3D
8. What characteristic does one need to possess in order to produce desired output?
 - A. skill
 - B. talent
 - C. efficiency
 - D. effectiveness
9. _____is to produce good result without wasting materials, time, money, and effort or energy.
 - A. skill
 - B. talent
 - C. efficiency
 - D. effectiveness
10. When do we need to practice 5 “S” in the workplace?
 - A. Once a week
 - B. Sometimes
 - C. Everyday
 - D. If you have time



Additional Activities

On a separate sheet of paper, copy the table below, check each principle based on the frequency they are to be applied in your own household.

Area in the house	Frequency of Applying 5 “S”		
	Daily	Weekly	Monthly
1. Kitchen			
2. Living Room			
3. Dining Room			
4. Garden			
5. CR			
6. Bed Room			
7. Laundry Room			
8. Backyard			
9. Garage			
10. Floor			



Answer Key

<p>1. Assessment</p> <p>2. B</p> <p>3. C</p> <p>4. C</p> <p>5. D</p> <p>6. D</p> <p>7. C</p> <p>8. D</p> <p>9. C</p> <p>10. C</p>	<p>What's I Have Learned</p> <p>5's</p> <p>Seiri</p> <p>Seiton</p> <p>Seiso</p> <p>Seiketsu</p> <p>Shitsuke</p> <p>Efficiency and</p> <p>effectively</p>	<p>What's More</p> <p>Activity. 1</p> <p>1. Shitsuke/Sustain</p> <p>2. Seiri/Sort</p> <p>3. Seiton/Set in Order</p> <p>4. Seiso/Sweep</p> <p>5. Seiketsu/</p> <p>Standardized</p> <p>Activity 2</p> <p>goal</p> <p>instill</p> <p>sustain</p> <p>clutters</p> <p>efficient</p> <p>workplace</p> <p>effective</p> <p>systematic</p> <p>principle</p> <p>eliminate</p> <p>Activity 3</p> <p>Answers may vary</p>	<p>What I Know</p> <p>I. Matching Type</p> <p>1. c</p> <p>2. a</p> <p>3. e</p> <p>4. b</p> <p>5. d</p> <p>II. Multiple Choice</p> <p>1. A</p> <p>2. C</p> <p>3. B</p> <p>4. D</p> <p>5. C</p> <p>What's In</p> <p>1. B</p> <p>2. D</p> <p>3. C</p> <p>4. D</p> <p>5. D</p>
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<p>Additional</p> <p>Activities</p> <p>Note:</p> <p>The teacher will</p> <p>facilitate checking.</p> <p>Answers may vary.</p>	<p>What's In</p> <p>1. B</p> <p>2. D</p> <p>3. C</p> <p>4. B</p> <p>5. D</p>
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Department of Education Curriculum Guide 2016, EPP 6, Industrial Arts pages 38 – 41

Department of Education MELCs in EPP/TLE Grade 6 Industrial Arts pages 353 – 354

B. Online Source

[https://en.wikipedia.org/wiki/5S_\(methodology\)](https://en.wikipedia.org/wiki/5S_(methodology))

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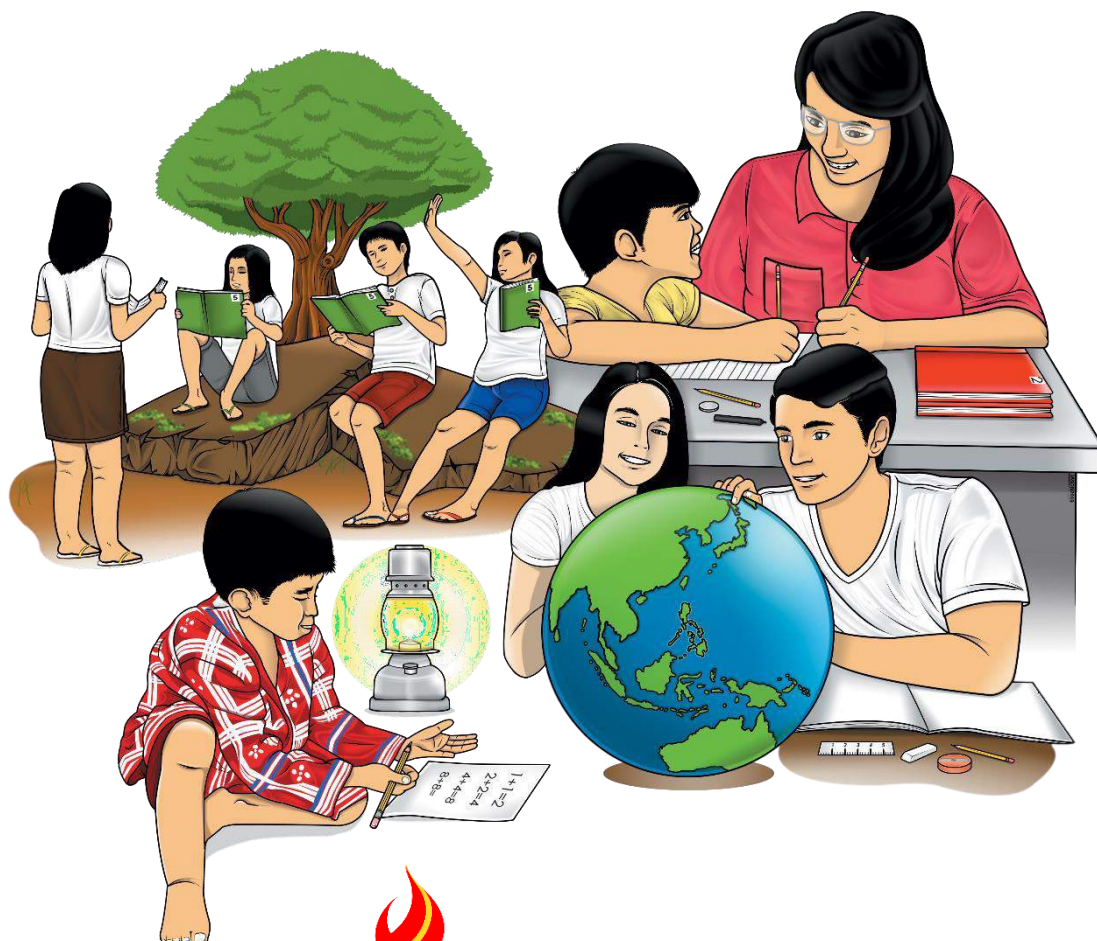
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Technology and Livelihood Education

Industrial Arts – Module 12: Recyclable Products/ Waste Materials



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Industrial Arts – Module 12: Recyclable Products/ Waste Materials
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Technology and Livelihood Education

Industrial Arts – Module 12: Recyclable Products/ Waste Materials

Introductory Message

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In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you master the skills in recycling waste materials. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using

This module focuses on the following topics:

- a. Different types of waste materials that can be recycle; and
- b. Waste materials that are Recyclable.

After going through this module, you are expected to:

- a. Identify recyclable products/ waste materials made of wood, metal, paper, plastic and others. (TLE6IA-0i- 12)



What I Know

A. **Directions:** Choose the letter of the best answer and write your answer on a separate sheet of paper.

1. Cellphones, DVD, CD, computers, televisions, electronic toys and appliances are called__.
 - A. Industrial waste
 - B. Construction and demolition waste
 - C. Electronic waste
 - D. Medical waste
2. Which of the following are commonly called garbage from homes and commercial establishments?
 - A. Electronic waste
 - B. Industrial waste
 - C. Medical waste
 - D. Municipal solid waste
3. Which of the following are examples of construction and demolition waste?
 - A. CD, DVD, cellphones
 - B. Processed foods, pesticides, cement
 - C. Needles, syringes, surgical waste
 - D. Concrete, wood, metals
4. Needles, syringes, radioactive waste are called_____.
 - A. Medical waste
 - B. Solid waste
 - C. Electronic waste
 - D. Industrial waste
5. This waste is best described as leftovers from extraction and production processing of paper, plastic, steel and others.
 - A. Electronic waste
 - B. Industrial waste
 - C. Medical waste
 - D. Solid waste

6. It is a process of converting or transforming waste materials into reusable products.
 - A. Reducing
 - B. Reusing
 - C. Recycling
 - D. Refusing

7. What is the importance of identifying recyclable materials from other waste?
 - A. Gives different kinds of recyclable materials.
 - B. Creates great file of waste in our barangay.
 - C. Increases waste disposal of our community.
 - D. Minimizes the volume of waste materials thrown every day.

8. What will happen if we do not practice recycling?
 - A. All waste materials will rot away in due time.
 - B. Surroundings will be cleaner and greener.
 - C. Recyclable materials will scatter everywhere.
 - D. We can minimize garbage.

9. Who can practice recycling?
 - A. Only the professionals.
 - B. Those who produce more waste.
 - C. Only those who to sell the product.
 - D. Everyone who is interested can develop a skill in recycling.

10. What will happen if there is improper waste management in your place or community?
 - A. Spread of diseases will be minimized.
 - B. Flood control will be implemented.
 - C. Successful environmental protection.
 - D. Waste and recyclable materials will scatter everywhere.

Lesson 1

Recyclable Products/ Waste Materials

Proper waste management is encouraged to prevent the harmful effects of wastes to both human and environment. How can a pupil like you, contribute to waste management? Perhaps the answer to this is, if you are able to identify recyclable products and wastes materials.



What's In

“Are wastes not really a problem?” Of course, every one of us is really having a hard time disposing our waste at home or in our workplace. It is just good that we have previously discussed the principles of 5S because it will help us make our home and workplace become more ideal.

By the way, can you still recall what this 5S stands for? Can you enumerate the five Japanese words and their English term? Very good if you can. One of the Principles in 5S is seiri (sort) which means to identify and eliminate unnecessary item in the workplace. In eliminating them, we may consider those things which are recyclable and can be made into useful object.

Directions: Choose the principles of 5 “S” inside the box that is best described by the sentences below. Write your answer on a separate sheet of paper

Seiri (Sort)
Seiton (Systematize/Set in order)
Seiso (Sweep)
Seiketsu (Standardized)
Shitsuke (Sustain)

1. Instill the habit of cleaning.
2. Identify and eliminate unnecessary items.
3. Put all needed materials in order.
4. Clean the workplace thoroughly after work.
5. Maintain high quality of cleanliness and orderliness.



Notes to the Teacher

To our beloved teachers,

The words below are defined according to how they are referred to this module.

Please facilitate and help the pupils understand the meaning of each word. It is important that pupils understand the words so that they can comprehend their lessons well.

The words below are defined according to their function in this module. Take time to familiarize them. It will help you on your journey in this module.

New Words To Learn

- a. Recycling – to convert or transform a material into another material that can be used.
- b. Products – refer to different items produce and used.
- c. Conservation – planned management of natural resources
- as not to waste the resources.
- d. Disposal – getting rid of things that are no longer needed.
- e. Variant – different kinds or classes.
- f. Reuse – to use again for some or another purpose.
- g. Junk – refers to old paper, metal, plastic, wood, glass and tires.
- h. Junkshop – a place that buys and sells junk products.
- i. Pharmaceutical – relating to medicine production.



What's New



Jofel D. Nolasco, waste/garbage, 2019

What do you see in the picture?

Do you regard them as problem? It is necessary to throw them all away?

Problem on waste disposal is an environmental issue. We tend to throw away things we perceived as waste and wish to never see them again. Some of these materials are found in streets, dumpsites, landfills, rivers and even on the seashore.

These materials are not waste and can be recycled. Recycling is the process of turning materials into new, simple and useful products.

Recycling is the best way to conserve energy and solve problem on waste management.



What is It

What are the different waste materials that can be recycled?

Waste materials include containers and packages made of plastic, polystyrene, paper, glass, metal, rubbers and others. Some of the wastes do not decompose but can be recycled.

Different types of waste materials that can be recycled



1. **Electronic waste** – cartridge, CD, DVD, cellphones, computers, television, appliances, electronic gadgets and toys.



2. **Industrial waste** – leftovers from extractions and production processing in making paper, steel, cement, processed food, pesticides, pharmaceutical and others.



3. **Construction and demolition waste** – concrete, G.I. sheets, woods, metal, plastic, glass, doors and window.



4. **Medical waste** – pharmaceutical waste, needles, syringes, radioactive waste and food waste.



5. **Municipal solid waste** – waste commonly called garbage from home and commercial establishment.



Jofel D. Nolasco, waste/garbage, 2019

6. **Other type of waste** – wastes found at home which can be converted into something useful and/or decorative.

Waste materials that are Recyclable

In saving energy and conservation of environment, recycling is the best way. Here are some of the recyclables that can be found in our surroundings.

Wood

Wood waste coming from houses, construction sites, and old furniture can be processed and introduced as new products. They can be turned into wood tiles, garden accessories, wooden utensils, chairs, and wooden decorations at home.

Metal

Tins and cans as packaging or container of food and drinks are made of metal and aluminum. They are good materials for recycling. They are even sold to junkshops where companies of food and drinks buy them to be reused to conserve energy and other resources.

Paper

Old newspaper, old notebooks, old letters, cardboards, junk office papers and paper packaging are example of paper waste.

These materials can be processed and recycled into something useful and unique like paper basket, paper-Mache, paper flowers, paper bags and other decorative paper figures.

Plastic

Empty plastic bottles and containers of soft drinks, water, oil, and other products are great recyclable materials. The plastics are soft and bendable. They can be cut with scissors and cutters to form them into figures like flowers, animals, butterflies, and other decorative products. Huge plastic bottles are even made as pots for flowers and vegetables.

Glass

Glass among others is the easiest material to reuse or recycle. Empty bottles of various products come with different variant, color and sizes. They are best turned into wall decors, flower vases, and holder of artificial or fresh flowers. Empty wine glasses add elegance on the wall and cabinets of the house when displayed artistically.

Rubbers and tires

Recycling rubbers and tires are discovered recently. Tires of motorcycle and trucks are made into beautiful animal figures which make our school garden more attractive.



What's More

Activity 1: Understanding the words better

Learning the Skill: Defining a word through scrambled letters

Directions: There are scrambled letters before each item below. Arrange the scrambled letters to form the correct word. Use the clue words or sentences provided. Write your answer on a separate sheet of paper.

ueser

1. Using a material again for some other purpose. _____

ductpros

2. Refers to different items produced and used. _____

antivar

3. Different kind or class _____

lasopsid

4. Getting rid of things that no longer needed _____

clinger

5. To convert or transform a material into new, simple and useful products. _____

vationerscon

punkjosh

elbadargedoi

elbadargedoi

kunj

6. Planned management of resources as not to waste the resources

7. A place that buys and sells junk products.

8. Materials or wastes that decompose

9. Materials or waste that do not decompose

10. Materials that are old and no longer in use.

Activity 2: Waste I Know

Learning the Skill: Brainstorming

Directions: Below are the different types of waste. List down at least five (5) examples that belongs/ or under each category. Write your answer on a separate sheet of paper.



A. Electronic waste

- 1.
- 2.
- 3.
- 4.
- 5.



B. Medical waste

- 1.
- 2.
- 3.
- 4.



C. Industrial waste

- 1.
- 2.
- 3.
- 4.
- 5.



D. Municipal solid waste

- 1.
- 2.
- 3.
- 4.
- 5.

Activity 3: Creative Thinking

Learning the Skill: Creating something

Directions: Below are examples of recyclable materials. Give possible items that can be made from them. Write your answer on a separate sheet of paper.

1. Plastic bottles: _____
2. Colored wine bottles: _____
3. Rubbers and tires: _____
4. Old papers: _____
5. Tins and cans: _____



What I Have Learned

Directions: Recall the facts and write your answer on a separate sheet of paper.

How do we classify waste materials?

Waste materials can be classified as _____ and _____

What are the common waste materials found in our community?

There are many kinds of waste materials in our community such as containers and packages made of _____, _____, _____, _____, _____, _____ and others.

What are the other sources of waste materials in our community?

Some sources of waste materials in the community are:



What I Can Do

Directions: Based on the situation presented below, analyze and write a paragraph on what you're going to do on a separate sheet of paper.

Everyday, you go to school and you notice that there are lots of empty plastic bottles scattering around. You know the possible hazard that they can bring to human and to the environment.

As a student of your age, what is the best thing that you can do to solve that problem?



Assessment

Directions: Choose the letter of the best answer and write your answer on a separate sheet of paper.

1. In what group of waste materials do computers, television, electronic toys and appliances belong to?
 - A. Industrial
 - B. Medical
 - C. Electronic
 - D. Construction and demolition
2. What do we call the materials or substance which are discarded after primary used?
 - A. waste
 - B. product
 - C. recyclable
 - D. construction
3. What is the process of turning waste materials into useful products?
 - A. Reducing
 - B. Refusing
 - C. Extraction
 - D. Recycling
4. Which of the materials can be recycled into something useful like basket, flowers, toys and other decorative figures?
 - A. Paper
 - B. Plastic
 - C. Rubber tires
 - D. Bottles
5. Which of the following are examples of construction and demolition waste?
 - A. Wood and metals
 - B. Cellphones and television
 - C. Surgical waste and needles
 - D. Cement and processed foods
6. Which of the following are commonly called garbage from homes and from commercial establishments?
 - A. Industrial Waste
 - B. Electronic Waste
 - C. Municipal Solid Waste
 - D. Medical Waste

7. These are considered as old or discarded material that can be found at home on in commercial establishments.
 - A. junks
 - B. products
 - C. substance
 - D. decorative figures
8. What will happen if we practice recycling recyclable waste or products?
 - A. We can minimize garbage or waste.
 - B. All waste materials will rot away in due time.
 - C. Dumpsite will be filled with lots of waste.
 - D. Recyclable materials will scatter everywhere.
9. What is the importance of identifying recyclable materials from other waste?
 - A. Helps our local government.
 - B. Gives households time to collect waste.
 - C. Knows the volume of waste materials collected.
 - D. Gives us the opportunity to reduce, reuse and recycle.
10. What will happen if there is improper waste management in your place or community?
 - A. Spread of diseases will be minimized.
 - B. Flood control will be implemented.
 - C. Successful environmental protection.
 - D. Waste and recyclable materials will scatter everywhere.



Additional Activities

- A. Below are examples of recyclable waste materials found in your community. List down at least three (3) examples of a new product that can be made from them. Write your answer on a separate sheet of paper.

1. Glass: _____, _____, _____
2. Wood: _____, _____, _____
3. Paper: _____, _____, _____
4. Plastic: _____, _____, _____
5. Metal: _____, _____, _____



Answer Key

<p>What's More</p> <p>Activity 3</p> <p>Note: The teacher will facilitate checking. Answers may vary.</p> <p>What I have Learned</p> <p>1. Biodegradable 2. Non-biodegradable plastic polystyrene paper glass metal rubber 3. Electronic Waste Industrial Waste Construction Waste Medical Waste Municipal Solid Waste</p>	<p>What's More</p> <p>Activity 1.1.</p> <p>Reuse Products Variant Disposal Recycling Conservation Junkshop Biodegradable Non-biodegradable Junk</p> <p>Activity 2</p> <p>Electronic Waste Medical Waste Industrial Waste Municipal Solid Waste</p> <p>Note: The teacher will facilitate checking. Answers may vary.</p>	<p>What I Know</p> <p>1. C 2. D 3. D 4. A 5. B 6. C 7. D 8. C 9. D 10. D</p> <p>What's In</p> <p>1. Shitsuke 2. Seire 3. Seiton 4. Seiso 5. Seiketsu</p>
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<p>Assessment</p> <p>1. C 2. A 3. D 4. A 5. A 6. C 7. A 8. A 9. D 10. D</p>	<p>Additional Activities</p> <p>Note: The teacher will facilitate checking. Answers may vary.</p>
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<https://en.wikipedia.org/wiki/Waste>

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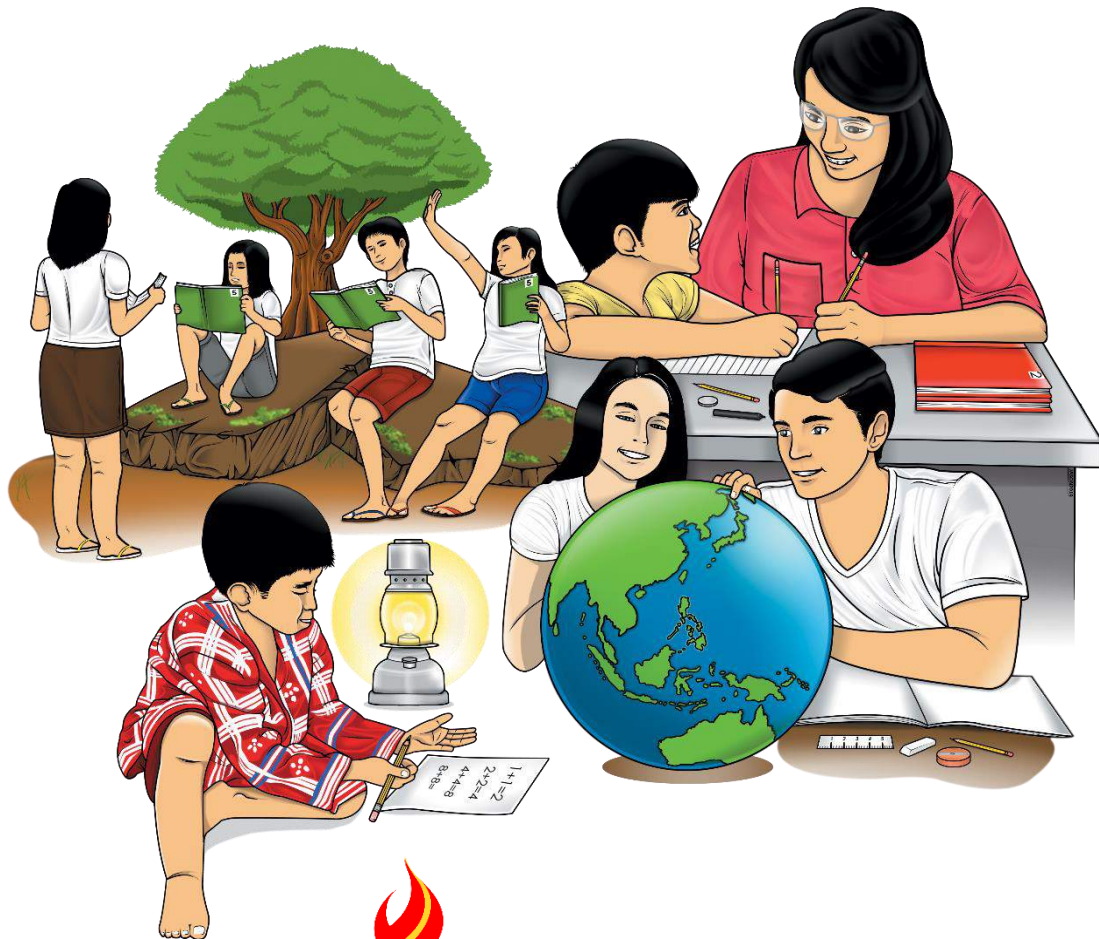
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Technology and Livelihood Education

Industrial Arts – Module 13: Process and Importance of Recycling



TLE-IA – Grade 6
Alternative Delivery Mode
Quarter 2 – Module 13: Process and Importance of Recycling
First Edition, 2020

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What I Need to Know

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This module focuses on the following topics:

- a. Process of recycling; and
- b. Importance of Recycling

After going through this module, you are expected to:

- a. Explain the process and the importance of recycling.
(TLE6IA-0j- 13)



What I Know

Multiple Choice

Directions: Choose the letter of the best answer and write your answer on a separate sheet of paper.

1. It refers to the proper disposal of waste materials.
A. Reduce
B. Reuse
C. Recycle
D. Waste management
2. It means to lessen the volume of garbage or waste.
A. Reduce
B. Reuse
C. Recycle
D. Waste management
3. It refers to the sources of supply and support from which we take materials we need.
A. Product
B. Creativity
C. Resources
D. Budget
4. John is always able to handle the situation and make way to find solution. What character trait does he possesses?
A. Creativity
B. Resourcefulness
C. Patience
D. Tactful
5. These are agents or materials such as soap and bleaches used to disinfect recyclable materials.
A. Sterilizing
B. Soap
C. Bleach
D. Disinfectants
6. Recyclable materials gathered from junkshops and landfills are prone to dirt and germs. What is the proper way to handle these materials?
A. Let the materials dry before working .
B. Sterilize the materials before working.
C. Work on the materials immediately.
D. Let the materials dry for few days before working.
7. What do we call the materials or waste that do not breakdown or decompose?
A. Biodegradable
B. Non-biodegradable
C. Waste
D. Materials

8. "Recycling provides income to the family." What does it mean?
- A. Recycling can destroy the budget of the family.
 - B. Recycling makes extra expenses for the family.
 - C. Recycling wastes energy of the family.
 - D. Recycling produces products that can be sold and earn money out of it.
9. If we recycle materials like wood from construction and demolition waste, what contribution have we made to our environment?
- A. More trees will be cut down for lumber.
 - B. Natural resources will be damaged
 - C. Natural resources will be exploited.
 - D. Less trees can be cut down and natural resources will be preserved.
10. There are two ultimate characteristics that are greatly needed in recycling. What characteristics could it be?
- A. Pride and resourcefulness
 - B. Boastfulness and pride
 - C. Creativity and boastfulness
 - D. Resourcefulness and creativity



What's In

Recycling is not an easy job for a person to do but, it is known as the best way on how to manage trash.

In your previous module you have learned how to identify different types of waste materials as well as the principle of 5 "S".

We have prepared an activity for you. Try to answer the test to find out how much you have learned from your previous lesson.

Directions: Choose a word from the box that is best described by the statement in each item below. Write your answer on your answer sheet.

Municipal solid waste	Construction and demolition waste
Three RS	Systematized/Set in order
Sweep	Standardized
Recycling	Sort
Electronic waste	Sustain

- _____ 1. Put all the needed tools and materials in order.
- _____ 2. Clean the workplace.
- _____ 3. Form the habit of cleaning.
- _____ 4. Maintain quality of cleanliness.
- _____ 5. Reduce, reuse, recycle
- _____ 6. Identify and eliminate all unnecessary items.
- _____ 7. Cell phones, computers, TV, DVD, appliances
- _____ 8. Garbage from homes
- _____ 9. Concrete, wood, metal, plastic doors
- _____ 10. To transform into something usable.



Notes to the Teacher

To our beloved teachers:

The following words listed below are defined according to how they are referred to this module.

Please help the pupils understand these words.

The words below are defined according to their function in this module. Take time to familiarize them, it will help you on your journey in this module.

New Words to Learn

1. Waste management – refers to proper disposal of waste
2. Reduce – to lessen the number of (example: to lessen the volume of garbage)
3. Resources – source of supply and support
4. Resourcefulness – ability to handle situation
- able to make way of finding solution.
5. Sorting – to separate thing from another according to category, kind or quality.
6. Disinfectants – agents or materials used to disinfect.
7. Sterilizing – the process of cleaning the recyclable materials using disinfectants (example: to make free of germs).



What's New

Look around a place where you live or in your school. You may realize that waste material had become problem of our society today and of the future to come.

It is because most of the things we use are disposable. We throw them away after we use and buy a new one. We forget to reuse, reduce, and recycle.

Now it is very important for you and for others to know the processes of recycling and enjoy the benefit it would bring to you and to the environment.



What is It

What is recycling?

Recycling is the process of turning old and used materials into usable new products. Recyclable materials such as wood, glass, metal, paper, rubber and plastic can be gathered in places around us. It maybe from houses, offices, schools, waste management centers, and from junk shops.

Majority of these materials are non-biodegradable or those that do not breakdown or decompose. These types of materials should be given emphasis in recycling.

How can we start our recycling process?

The whole process of recycling is presented step-by-step below.

Recycling Process



1. Collect



2. Segregate



3. Sort



4. Clean



5. Process

1. Collecting

This is the first step of recycling, done by gathering recyclable waste materials from different sources. Example of which are from houses, offices, waste management centers and junkshops.

2. Segregating

This is separating the collected waste materials into recyclable from not recyclable or biodegradable from non-biodegradable.

3. Sorting

Collected materials are classified according to their category or kind. Examples are papers, plastics, glass, metal, wood and others.

4. Cleaning

This focuses on washing, sterilizing, and disinfecting. This is to ensure that the items are free of germs and harmful bacteria. Spraying of disinfectants can be also considered.

5. Processing

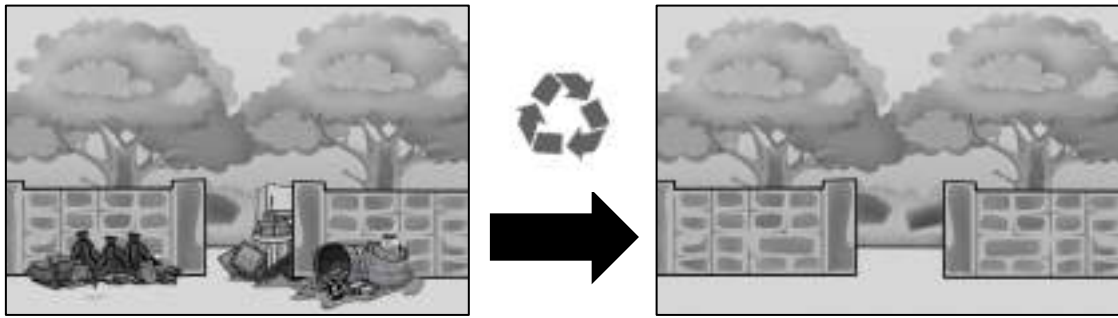
This is now the final step wherein you start working with your materials turning them into useful new products.

How does recycling affects us?

Recycling is vital to waste management. It teaches us proper waste segregation making our surroundings clean. An individual, a family and a community can have a lot of benefits derived from recycling.

Listed below are some importance of recycling.

- ❖ Recycling promotes discipline to individual who follow the reuse, reduce and recycle principle.
- ❖ Recycling instills the value of unity and cooperation among members of community.
- ❖ Recycling encourages resourcefulness among individuals who creatively process waste materials into useful products.
- ❖ Recycling preserves natural resources.
- ❖ Recycling provides income to the family.
- ❖ Recycling reduces expenses. Instead of buying new products, we can save money when we use recyclable materials.
- ❖ Recycling saves energy. Fuels in manufacturing products are saved when we recycle.



- ❖ Recycling reduces pollution caused by waste.
- ❖ Recycling promotes employment. Recycled products can be sold, and we can earn money out of it.



What's More

Activity 1: Understanding the word better

Learning the Skill: Defining a word through scrambled letters

Directions: There are scrambled letters before each item. Read the sentence that defines the word and arrange the scrambled letters to form the correct word that best described in each sentence. Write your answer on your answer sheet.

- | | | |
|--|--|-------|
| <u>Edu</u> <u>cer</u> | 1. This means to lessen the volume of garbage. | _____ |
| <u>ces</u> <u>resour</u> | 2. Source of supply and support. | _____ |
| <u>rot</u> <u>ings</u> | 3. To classify materials according to category, kind or quality. | _____ |
| <u>infec</u> <u>distant</u> <u>s</u> | 4. Agents or materials use to disinfect. | _____ |
| <u>il</u> <u>iz</u> <u>ing</u> <u>ster</u> | 5. The process of cleaning to make free of germs. | _____ |

Activity 2 Analysis

Learning the Skill: Situational Analysis

Directions: Write **TRUE** if the statement is correct and write **FALSE** if the statement is incorrect. Write your answer on your answer sheet.

1. Recycling brings so many benefits to us and to our surroundings.
2. Turning waste material into functional new items is called recycling.
3. Family and community can save money through recycling.
4. One can always buy new things so there is no need for recycling because it is just a waste of time, money, and effort.
5. Resourcefulness and innovative skills all not required when recycling.

Activity 1.3 Define Me

Learning the Skill: Defining Words

A. Match column A with column B. Write only the letter of the correct answer on your answer sheet

A	B
1. collecting	A. This is the final step of recycling where in you start working with your materials, turning them into useful new products.
2. segregating	B. Collected materials are classified according to category or kind.
3. sorting	C. Collected materials are separated as recyclables and not recyclables.
4. cleaning	D. Gathering of recyclable materials from different materials.
5. processing	E. Washing, sterilizing and disinfecting recyclable items.



What I Have Learned

Directions: Below are the things to remember in this lesson. Fill in the blanks with the correct words to make the statement true. Write your answer on a separate sheet of paper.

Here is what you should remember:

_____ is the process of turning old and used materials into usable new products

How does recycling help the environment?

Recycling plays a vital role in _____ conservation and _____ waste segregation.

What are the processes involve in recycling?

Recycling starts with _____ of waste materials, _____, _____, _____, and _____.

Is recycling really important?

Recycling is important to community and environment because it reduces pollution, provides livelihood, saves money and energy, promotes discipline and employment, and most importantly it instills the value of unity and cooperation among members of family and community.

-



What I Can Do

- A. **Directions:** Inside the box are the steps involved in recycling. Arrange the following steps that follow the process in recycling. Write your answer on a separate sheet of paper.

Segregating	Cleaning	Sorting	Collecting	Processing
-------------	----------	---------	------------	------------

Step 1. _____

Step 2. _____

Step 3. _____

Step 4. _____

Step 5. _____

- B. **Directions:** Reflect on the following questions and answer it on a separate sheet of paper.

1. Think of a community where recycling does not exist.
What is likely to happen in this community?
2. If you are given an opportunity to encourage your classmates and friends about recycling, what would you do or say to encourage them?



Assessment

Multiple Choice

Directions: Choose the letter of the best answer and write your answer on a separate sheet of paper.

1. The final step of recycling where you start working with your materials then producing into useful products is known as _____.
A. Sorting
B. Processing
C. Collecting
D. Cleaning
2. _____ is classifying collected materials according to category or kind.
A. Sorting
B. Processing
C. Collecting
D. Segregating
3. It is the process where non-recyclable and recyclable materials are being separated.
A. Sorting
B. Processing
C. Collecting
D. Segregating
4. It is the first step of recycling where you gather materials from different sources.
A. Sorting
B. Processing
C. Collecting
D. Segregating
5. Washing, sterilizing and disinfecting recyclable items is involved in this process.
A. Sorting
B. Processing
C. Collecting
D. Cleaning
6. Cleaning is one important step in recycling. What is the importance of this step?
A. for sanitation purposes
B. for enjoyment
C. for extra work
D. for extra expenses
7. These are agents and materials used to clean and sanitize items.
A. finishing materials
B. tools
C. disinfectants
D. personal protective gears

8. To ensure the safety and health of person while recycling, the best thing to do is _____.
A. wear personal protective equipment
B. used available tools in working
C. work with the project with bare hands
D. All of the above
9. When working on the project that is new to you, what is best thing to do before you start?
A. Ask assistance from your classmates.
B. Ask the assistance of experts.
C. Ask the assistance of a friend.
D. Ask assistance of person available.
10. What do you call the process of turning old and used materials into usable new products?
A. Refilling
B. Reducing
C. Recycling
D. Recollecting



Additional Activities

Directions: Read and reflect on the questions below. Write your answer on separate sheet.

A. What do think are the wonderful effects of recycling? Cite as many as you can.

1. To yourself: _____

2. To your school: _____

3. To your environment: _____

B. Directions: Put a check mark (✓) under SA if the statement shows importance of recycling. If not, put a check mark (✓) under SD.

Importance of Recycling	SA (Strongly Agree)	SD (Strongly Disagree)
1. Recycling preserves natural resources.		
2. Recycling reduces pollution caused by waste.		
3. Recycling contradicts with the principle of 3R's (reduce, reuse, recycle)		
4. Recycling provides income to the family.		
5. Recycling promotes employment.		
6. Recycling is a waste of time and can cause extra workload for the family.		
7. Money can be earned through selling of recycled products.		
8. Lots of energy is lost when someone in the family engaged in recycling.		
9. Natural resources will be endangered if more and more people continue to do recycling.		
10. Recycling brings livelihood to family and community.		



Answer Key

	<p>What I Know</p> <p>1. D 2. D 3. C 4. B 5. D 6. B 7. B 8. B 9. B 10. B</p>	<p>What's In</p> <p>1. Systematized/ Set in order 2. Sweep 3. Sustain 4. Standardized 5. Three R's 6. Sort 7. Electronic Waste 8. Municipal solid waste 9. Construction and demolition waste 10. Recycling</p>	<p>What's More</p> <p>Activity 1.1</p> <p>1. reduce 2. resources 3. sorting 4. disinfectants 5. sterilizing</p> <p>Activity 1.2</p> <p>1. True 2. True 3. True 4. False 5. False</p> <p>Activity 1.3</p> <p>1. D 2. C 3. B 4. E 5. A</p>	<p>What I Have Learned</p> <p>1. Recycling 2. Energy, proper 3. Collecting, segregating, sorting, cleaning, processing</p>
<p>Additional Activities</p> <p>A. Answers may vary. Teacher will facilitate checking</p> <p>B.</p> <p>1. SA 2. SA 3. SD 4. SA 5. SA 6. SD 7. SA 8. SD 9. SD 10. SA</p>				

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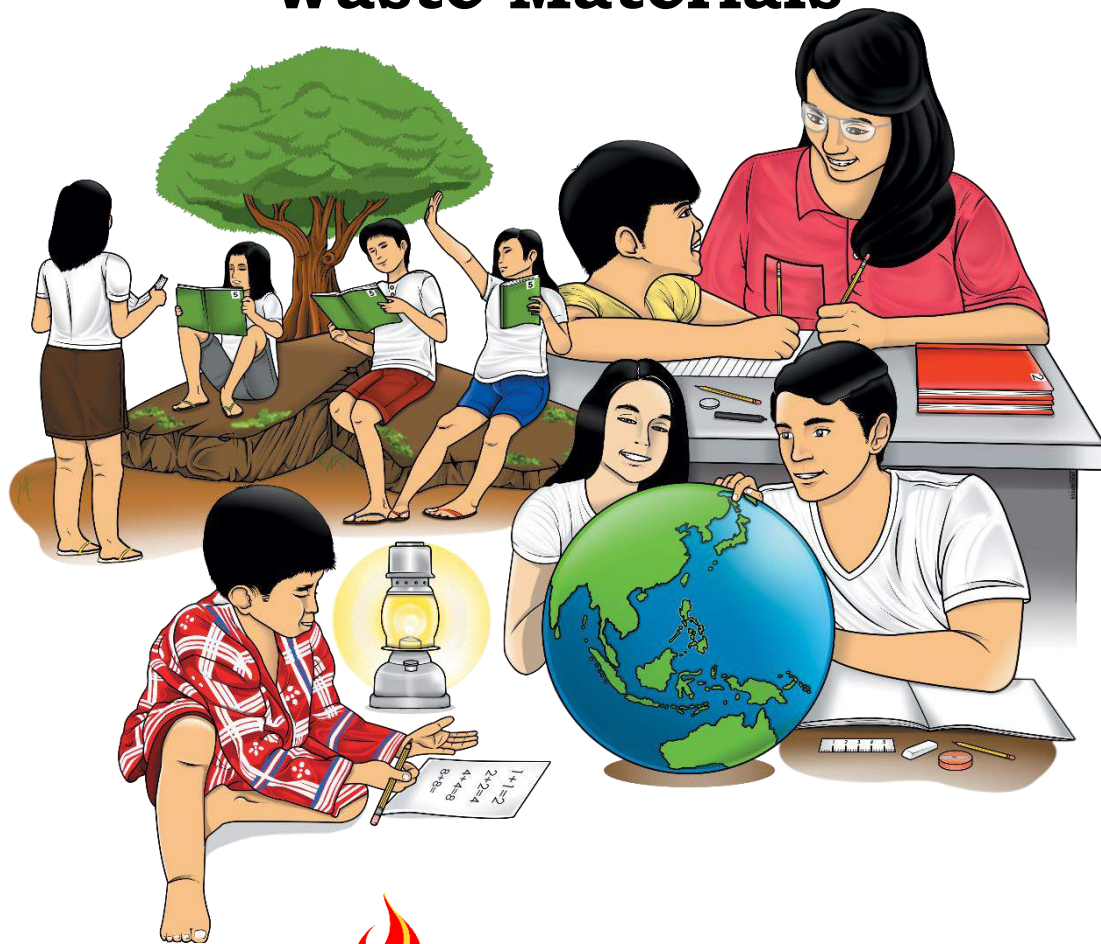
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Technology and Livelihood Education

Industrial Arts – Module 14: Products from Recycling of Waste Materials



TLE-IA – Grade 6
Alternative Delivery Mode
Quarter 2 – Module 14: Products from Recycling of Waste Materials
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Technology and Livelihood Education

Industrial Arts – Module 14: Products from Recycling of Waste Materials

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module was designed and written with you in mind. It is here to help you master the skills in identifying waste materials for recycling. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using

This module focuses on the following topics:

- a. List of recyclable waste materials; and
- b. Products from recyclable waste materials

After going through this module, you are expected to:

- a. Recycles the identified products/waste materials into functional items (binding of used papers into notebooks, or memo pad; bottled plastics into lampshades, flowers, plants, etc. (TLE6IA-0j- 14)



What I Know

Directions: Read each sentence carefully and choose the letter of the best answer.
Write your answer on a separate answer sheet.

1. Paper is the primary material on this recycled item.
 - a. scrap book
 - b. wind chime
 - c. pencil holder
 - d. flower holder
2. Which of the following materials can be used to beautify walls or cabinet?
 - a. wine bottles
 - b. used tires
 - c. wood
 - d. metal
3. Which of the following materials can be utilized as chairs, wooden tiles and other wooden utensils?
 - a. paper
 - b. metal
 - c. glass
 - d. wood

4. It refers to the materials that can be cut, painted and turned into beautiful pencil holders.
a. tins and cans b. bottle c. paper d. wood
5. These materials can be transformed to garden decorations such as birds, swans, and other figures.
a. used tires b. papers c. heavy metal d. wood
6. In what part of a project plan tells the reason/s why you want to make that project?
a. Title of the project c. Bill of Materials
b. Project objectives d. Procedure
7. Why we must practice recycling?
a. to reduce waste c. to protect our environment
b. to save money d. all answers are correct
8. The following materials are considered recyclable. Which among these is NOT included?
a. used newspapers c. used tires
b. used surgical gloves d. used plastics
9. It is the part of a plan where you make a model look of your project.
a. List of tools needed c. bill of materials
b. Project objectives d. Working drawing
10. What are the best recyclable materials you can recycle?
a. Waste materials that can be found in your community.
b. Waste materials that can be found in other places.
c. Waste materials that can be in some hospitals.
d. Waste materials that come from abroad.

Lesson 1

Recycles Identified Materials into Functional Items

Identifying recyclable materials around you is very important. Choosing one among these materials is suitable for you to work on is another thing.

We choose to recycle things that will benefit us especially to our house, garden, or workplace. We can reduce the bulk of waste, we can have extra income, and we can have enjoyable recreational activities which we and our other family members can work on together.

In this module we will learn more about recycling. What materials within our locality can be used and turned into functional items?



What's In

Directions: The following illustrations below show the process of recycling. Arrange them in correct sequence. Write number 1 for step 1 and so on. Write your answer on a separate sheet of paper.

A.



B.



C.



D.



E.





Notes to the Teacher

To our beloved teachers:

The following words listed below are defined according to how they are referred to this module.

Please help the pupils understand these words.

New Words to Learn

1. Suitable – something that is proper to use.
2. Decoration – ornament or things that are used to add beauty to a place or site.
3. Wall decors – refer to decorations on the wall.
4. Garden decors – refer to decorations on the garden.
5. Kitchen utensils – instruments used in kitchen for cooking.



What's New

Recycling is very interesting and exciting in the sense that it will challenge your creativity and resourcefulness.

A lot of recyclable materials can be made into various unique and useful new products. Recycled items serve a purpose to households, offices and even to gardens. They can be beautiful and elegant decorations too.

Did you see any recyclable materials that are turned into unique and useful products in your school? In your community?

What makes them to become useful products?



What is It

Listed below are some recyclable materials and products that can be made out of them.

Paper



Jofel D. Nolasco, file of newspaper, 2019

- ❖ Old newspapers and other scratch papers can be made into paper charcoal.
- ❖ Paper is the most important ingredient in making paper mache with different unique figures.
- ❖ Clean and tidy papers can be cut into uniform sizes, then bind them into scrap books, memo pads and notebooks.

Plastic bottles



- ❖ They can be made into beautiful plastic flowers.
- ❖ Can be cut in uniform sizes, painted and displayed as unique desk organizers.
- ❖ They can be used also as materials in constructing plant boxes for vegetable garden.

Tins and cans



- ❖ Tins and cans can be cut and painted turning them into useful pencil holders.
- ❖ They can be made into lanterns and other Christmas decors.

5

Empty wine bottles



- ❖ They can be made as decorative flower holder.
- ❖ Colored wine bottles can also be made into wall decorations.
- ❖ They can also be painted and hanged on corners as decorations.
- ❖ Can be arranged on the cabinet artistically.

Empty plastic bottles



- ❖ They can be cut and used as pots both for flowers and vegetables.
- ❖ They can be cut with design as pots for hanging plants.
- ❖ Some of these plastic bottles are cut and formed as animals for garden decors.

Wood



- ❖ Wood from house and construction wastes can be turned into wooden tiles, chairs, tables, kitchen wooden utensils, and other garden decorations.

Tires



- ❖ Used tires can be made into different garden decorations. There are people who are experts and very creative in cutting and forming tires into different figure, like birds, swan and other animals suitable for garden decorations.

Have you ever tried recycling? If you do, then it is sure that you had experienced that feeling of joy and success.⁶

But if you have not tried recycling yet, it's okay. We will introduce to you some of the suggested recycle projects that you will surely love to make.

In module 6, it was presented and discussed to you the importance of a Project Plan. Planning is essential in every project we make especially recycling.

To recall, here are the parts of a Project Plan.

- Project Title** – tells what the project is all about.
- Project Objectives** – tell the purpose/s of the project.
- Bill of Materials** – tell the materials to be used. This part contains the unit, quantity, description, the unit price and the total price for each item needed.
- Tools Needed** – tells about the different tools, machines or gadgets needed in the making of the project.
- Procedure** – tells the exact steps in the preparation of the project.

- This will serve as the guide in project making.

F. **Working Drawing** – shows the scale drawing of an object to be made; or structure to be built, intended for direct use of the workman.

Knowing the parts of a project plan, you can now recycle identified materials into functional items.

The first project is a desk organizer made, out of empty plastic bottles.

A. Project Title: Desk Organizer

B. Project Objectives:

1. To create a simple project according to the prepared plan.
2. To be able to make a desk organizer out of empty plastic bottles.

C. Bill of Materials:

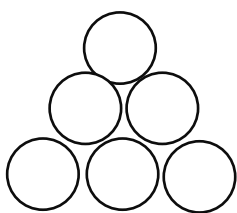
Quantity	Unit	Description	Unit Price	Total Price
6	pcs.	Empty plastic bottle (1 liter)	₱ 1.00	₱ 6.00
1	meter	Decorated lace	₱ 10.00	₱ 10.00
1	pc.	Glue stick	₱ 5.00	₱ 5.00
			Total	₱ 21.00

D. Tools Needed:



E. Procedure:

1. Clean the bottles and let it dry.
2. Measure around 2 ½ - 3 inches from the base of the bottle going up then mark it all around.
3. Cut the mark area using a sharp cutter. Set aside the upper part of the bottle for future recycling projects.
4. Smoothen the cut edges using scissor.
5. Cover all the edges with decorated lace.
6. Glue together the six receptacles in manner seen below



7. Decorate with sticker, labels or anything to make it colorful and attractive.

Note: Always observe safety measures when using sharp tools.

F. Working Drawing:



The second recycle project we will introduce is tin can pencil holder.

A. Project Name: Tin Can Pencil Holder

B. Project Objectives:

1. To be able to recycle identified materials into useful items or products.
2. To be able to create a tin can pencil holder.

C. Bill of Materials:

Quantity	Unit	Description	Unit Price	Total Price
3	pcs.	Tin cans (sizes of your choice)	₱ 0.00	₱ 0.00
3	pcs.	Scrap cloth or paper enough to cover the tin can	₱ 0.00	₱ 0.00
3	pcs.	Glue stick	₱ 5.00	₱ 15.00
1	meter	½ inch wide ribbon	₱ 5.00	₱ 5.00
		Total		₱ 20.00

D. Tools Needed:



E. Procedure:

1. Remove the top cover of the can the can opener.
2. Smoothen the edges of the can by pounding it with a ball pen hammer.
3. Wash the can with soap and water. Let it dry under the heat of the sun.
4. Glue the cloth or paper all around the side of the can and let it dry.
5. Glue the ribbon around the top and bottom edges of the can.
6. Repeat the same procedure for the rest of the cans.
7. Glue together the ten can holders. You can arrange the can depending on their sizes and height.

F. Working Drawing:



Note: Always observe safety measures when using sharp tools.

What have been presented to you are just simple recycled projects. These encourage you to be creative in discovering more projects to do.



What's More

Activity 1: Using Imaginations

Learning the Skill: Imagining Ideas

Directions: Using your imagination and creativity, try to list down possible projects that can be made, out of the following items listed below. Write your answer on a separate sheet of paper.

1. Colored wine bottles:

2. 5-liter empty plastic bottles:

3. Old magazines:

4. Colored bottles of soft drinks:

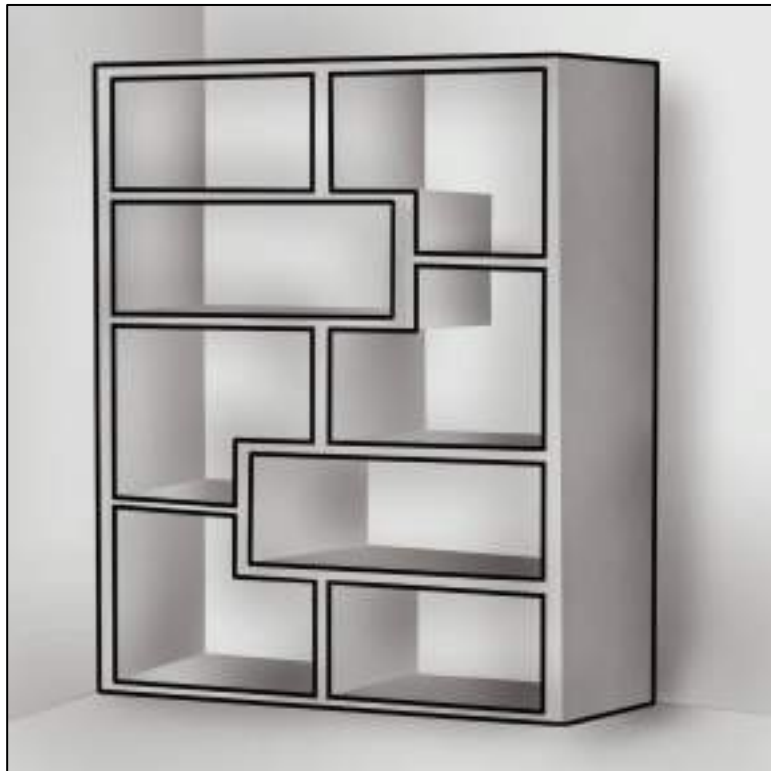
5. Tins and cans:

Activity 2: You Can Do It!

Learning the Skill: Creating and designing something

The cabinet below is empty.

1. Redraw it.
2. Using your resourcefulness and creativity, draw something that can be put on this cabinet to make it more beautiful and attractive.
3. Label the kind of recyclable materials you use.
4. Do this in a separate sheet of paper.



Jofel D. Nolasco, Cabinet, 2019

Activity 3: Make a Message

Learning the Skill: Writing a free verse poem.

1. Make at least 3-stanza-poem with 3 to 4 lines in every stanza, related to (3Rs) – reduce, reuse, and recycle.
2. You can use English or Filipino language in expressing your ideas.
3. Use separate sheet of paper for this activity.



What I Have Learned

Directions: Choose the correct word/s inside the parenthesis to make the statement true. Write your answer in a separate sheet of paper.

1. Materials like paper, plastic, glass, wood, metals and tins are called _____ materials. (**waste, toxic, recyclable**)
2. Recyclable materials usually came from _____ that we usually consume every day. (**food packages, industrial waste, animal waste**)
3. Each of these materials are useful when converted into _____ needed at homes, offices, schools and gardens. (**functional items, trash, foods**)
4. Recycling supports the proper waste management program and brings - _____ to people. (**danger, disaster, livelihood**)
5. Creativity and _____ is very important in recycling. (**money, resourcefulness, support**)
6. _____ is the process of converting waste materials into useful and functional items. (**reusing, reducing, recycling**)
7. _____ can be recycled into memo pads and scrap book. (**papers, plastic bottles, tins and cans**)
8. _____ can be made into beautiful plastic flowers. (**paper, plastic bottles, tins and cans**)
9. In project plan, the _____ tells you the unit, quantity and price of materials needed. (**project title, project objectives, bill of materials**)
10. The _____ is the step-by-step process in project making. (**project objectives, tools needed procedure**)



What I Can Do

Directions: Read and do the activity below. Write your plan in a separate sheet of paper.

1. Look for available recyclable materials in your house or community.
2. Make a project plan on how to transform it into functional and useful item.
3. Do the recycling according to your project plan.
4. Always observe safety precaution while handling sharp and pointed tools.



Assessment

A. Multiple choice:

Directions: Read each sentence carefully and choose the letter of the best answer. Write your answer on your answer sheet.

1. What do you think is the most suitable recyclable materials to be used in making a scrapbook and memo pads?
c. Papers and cardboards c. tins and cans
d. Plastic bottles d. electronic waste
2. Which of the following materials can be used to beautify walls or cabinet?
a. wine bottles b. used tires c. wood d. metal
3. Which of the following materials can be utilized as chairs, wooden tiles and other wooden utensils?
a. wood b. metal c. glass d. paper
4. It refers to the materials that can be cut, painted and turned to beautiful pencil holders.
a. tins and cans b. bottle c. paper d. wood
5. These materials can be transformed to garden decorations such as birds, swans, and other figures.
a. used tires b. papers c. heavy metal d. wood
6. In what part of a project plan tells the reason/s why you want to make that particular project?

- a. Title of the project
 - b. Project objectives
 - c. Bill of Materials
 - d. Procedure
7. Why we must practice recycling? 13
- a. to reduce waste
 - b. to save money
 - c. to protect our environment
 - d. all answers are correct
8. The following materials are considered recyclable. Which among these is NOT included?
- a. used newspapers
 - b. used surgical gloves
 - c. used tires
 - d. used plastics
9. It is the part of a plan where you make a model look of your project.
- a. List of tools needed
 - b. Project Objectives
 - c. Bill of Materials
 - d. Working Drawing
10. What are the best recyclable materials you can recycle?
- a. Waste materials that can be found in your community.
 - b. Waste materials that can be found in other places.
 - c. Waste materials that can be in some hospitals.
 - d. Waste materials that come from abroad.



Additional Activities

In this activity you are going to use your imagination on how and what materials will be used to produce certain recycled products.

Direction: Put a check mark (/) under each column of recyclable materials that is best to use in producing recycled item listed below.

Recycled Products	Tins and Cans	Plastic Bottles	Papers	Wood	Metal	Colored Bottle	Rubber and Tires
1. Notepads							
2. Desk Organizers							
3. Colored Basket							
4. Pencil Holder							
5. Swans on Garden							
6. Wooden Tiles							
7. Wall Decors							
8. Cabinet Decors							
9. Colored Flowers							
10. Paper Mache'							



Answer Key

<p>What I Know</p> <p>A.</p> <p>1. A</p> <p>2. A</p> <p>3. B</p> <p>4. A</p> <p>5. A</p> <p>6. D</p> <p>7. B</p> <p>8. C</p> <p>9. A</p> <p>10. A</p>	<p>What's In</p> <p>A. 2</p> <p>B. 5</p> <p>C. 3</p> <p>D. 4</p> <p>E. 1</p>	<p>What's More</p> <p>Note: The teacher will facilitate the checking.</p> <p>Answers of pupils may vary from one another</p>	<p>What I Can Do</p> <p>Note:</p> <p>Answers may vary. Teacher may facilitate the checking.</p>	<p>What I Have Learned</p> <p>1. recyclable</p> <p>2. food packages</p> <p>3. functional items</p> <p>4. livelihood</p> <p>5. resourcefulness</p> <p>6. recycling</p> <p>7. papers</p> <p>8. plastic bottles</p> <p>9. bill of materials</p>
<p>Additional Activities</p> <p>Note:</p> <p>Note: The teacher will facilitate the checking.</p> <p>Answers of pupils may vary from one another</p>	<p>What's More</p> <p>Note: The teacher will facilitate the checking.</p> <p>Answers of pupils may vary from one another</p>	<p>Assessment</p> <p>1. A</p> <p>2. A</p> <p>3. A</p> <p>4. A</p> <p>5. A</p> <p>6. B</p> <p>7. D</p> <p>8. B</p> <p>9. D</p> <p>10. A</p>		

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https://en.wikipedia.org/wiki/Tire_recycling

https://en.wikipedia.org/wiki/Paper_recycling

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