CLMD

PIVOT 4A
LEARNER'S MATERIAL

EPP (Industrial Arts) G6

MELC based SLM

DepEd CALABARZON
Curriculum and Learning Management Division

EPP
(Industrial Arts)
Grade 6

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Guide in Using PIVOT 4A Learner's Material

For the Parents/Guardians

This module aims to assist you, dear parents, guardians, or siblings of the learners, to understand how the materials and activities are used in the new normal. It is designed to provide information, activities, and new learning that learners need to work on.

Activities presented in this module are based on the Most Essential Learning Competencies (MELCs) in **EPP (Industrial Arts)** as prescribed by the Department of Education.

Further, this learning resource hopes to engage the learners in guided and independent learning activities at their own pace. Furthermore, this also aims to help learners acquire the essential 21st century skills while taking into consideration their needs and circumstances.

You are expected to assist the children in the tasks and ensure the learner's mastery of the subject matter. Be reminded that learners have to answer all the activities in a separate sheet of paper.

For the Learners

The module is designed to suit your needs and interests using the IDEA instructional process. This will help you attain the prescribed grade-level knowledge, skills, attitude, and values at your own pace outside the normal classroom setting.

The module is composed of different types of activities that are arranged according to graduated levels of difficulty—from simple to complex. You are expected to :

a. answer all activities in your notebook;

b. accomplish the **PIVOT Assessment Card for Learners on page 38** by providing the appropriate symbols that correspond to your personal assessment of your performance; and

c. submit the outputs to your respective teachers on the time and date agreed upon.

Parts of PIVOT 4A Learner's Material

	K to 12 Learning Delivery Process	Descriptions
Introduction	What I need to know	This part presents the MELC/s and the desired learning outcomes for the day or week, purpose of the lesson, core content and relevant samples. This maximizes awareness of his/her own knowledge as regards content and skills required for the lesson.
	What is new	
Development	What I know	This part presents activities, tasks and contents of value and interest to learner. This exposes him/her on what he/she knew, what he/she does not know and what he/she wants to know and learn. Most of the activities and tasks simply and directly revolve around the concepts of developing mastery of the target skills or MELC/s.
	What is in	
	What is it	
Engagement	What is more	In this part, the learner engages in various tasks and opportunities in building his/her knowledge, skills and attitude/values (KSAVs) to meaningfully connect his/her concepts after doing the tasks in the D part. This also exposes him/her to real life situations/tasks that shall: ignite his/her interests to meet the expectation; make his/her performance satisfactory; and/or produce a product or performance which will help him/her fully understand the target skills and concepts .
	What I can do	
	What else I can do	
Assimilation	What I have learned	This part brings the learner to a process where he/she shall demonstrate ideas, interpretation, mindset or values and create pieces of information that will form part of his/her knowledge in reflecting, relating or using them effectively in any situation or context. Also, this part encourages him/her in creating conceptual structures giving him/her the avenue to integrate new and old learnings.
	What I can achieve	

This module is a guide and a resource of information in understanding the Most Essential Learning Competencies (MELCs). Understanding the target contents and skills can be further enriched thru the K to 12 Learning Materials and other supplementary materials such as Worktexts and Textbooks provided by schools and/or Schools Division Offices, and through other learning delivery modalities, including radio-based instruction (RBI) and TV-based instruction (TVI).

Enhancing/Decorating Finished Products How To Conduct Simple Survey Using Technology and Other Data-Gathering Method

Lesson

I

Industrial Arts play an important role in our economy. Many occupations and businesses belong to this area. Thousands are employed in different industrial works, both in rural and urban areas

This lesson will acquaint you with different products made of bamboo, wood, and metal that are designed, manufactured, and are sold both here and abroad. It will also discuss the following:

1. the importance and methods of enhancing/decorating bamboo, wood, and metal products.
2. demonstrates creativity and innovativeness in enhancing/ decorating bamboo, wood, and metal products.
    2.1 conducts simple survey using technology and other data - gathering method to determine.
        2.1.1 market trends on products made of bamboo, wood, and metal
        2.1.2 customer's preference of products
        2.1.3 types/sources of innovative finishing materials, accessories, and designs
        2.1.4 processes in enhancing/decorating finished products

Enhancing/Decorating Finished Products

1. Importance of enhancing/decorating bamboo, wood, and metal products
    1.1 Finished products tend to be more saleable to customers when enhanced and decorated.
    1.2 Enhanced and decorated finished products help maintain their durability to harsh elements.
    1.3. Finished products that are enhanced or decorated beautify the product itself.

2. Methods of enhancing/decorating bamboo, wood, and metal products

   2.1 Woodcraft and bamboo craft can be enhanced using a variety of methods and techniques. These include:

   Woodturning is a process of using a lathe to make various forms and shapes of wood.

   Hand carving is considered a woodcraft in which a sharp object is used to create designs on the wood. Various textures and surfaces can be created using this technique. Tools such as chip carving knife, gouges, and chisels are used.

   Pyrography is considered an art using a fire or heat to decorate wood or leather.

   Flocking technique lines the interior of drawers and boxers with a soft velvety finish.

   Inlaying combines several techniques that involve inserting decorative pieces in to a base object to incorporate new designs on the original product.

   Gilding is considered as a decorative technique in which powder is applied on wood or other materials to give a thin coating of gold. Methods of this technique include gluing, chemical gilding, and electroplating.

   Staining is used to color wood to give an illusion of texture. This may come in two varieties. First, pigment-based stain will color large pores of the wood, while dye-based stain color small pores of the wood.

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

   2.2 Metal craft Enhancing Techniques

   The following are some techniques used to enhance or add design elements on metal products:

   Engraving is a method of transferring a design on metal using a hardened steel tool called burin or graver to cut into the surface of the metal.

   Etching is a process used to make designs or pictures on a metal plate by using acid that produces corrosive action. In modern manufacturing, strong chemicals are used on other types of material.

   Adding metal enhancing media such as metal paints, copic markers and antiquing kits give color to the metal product. Metal paints may be applied using a brush or spray.

Texturing and embossing – In this technique, you will need hammers, metal stamps, stencils, and other materials to create imprints on the metal. Though there are new technologies used to emboss a metal with different textures, a hammer and nail can still be used to create your own design.

HOW TO CONDUCT SIMPLE SURVEY USING TECHNOLOGY AND OTHER DATA-GATHERING METHOD

2.3 Conducts simple survey using technology and other data-gathering method to determine the following:

2.3.1 Market trends on products made of bamboo, wood, and metal

Philippine products are in demand not only within the local market but also in the international market. Locally manufactured products intended for the global market have unique designs and high quality craftsmanship that demand higher value and earn profits for the entrepreneurs.

2.3.2 Customer's preference of products

Products are in the form of home furnishings, table tops, jewelry, decorative accessories, home accents, kitchen, and garden decors. Customers buying craft vary generally from tourists, collectors, business people, artists or artisans, people attending conferences and many others.

2.3.3 Types/sources of innovative finishing materials, accessories, and designs.

Aside from conducting a survey for the latest trends and customers' preferences of finished products, you must also know the types or sources of innovative finishing materials, accessories, and designs that you can apply to your products.

2.3.4 Processes in enhancing/decorating finished products

Though it is said that Filipinos are best known for their creative minds and hands, new trends in the market, and emerging strategies and techniques must be explored to allow local products to compete in the global market.

D

Learning Task 1: : Read each question carefully and choose the letter of the correct answer. Do it in a separate sheet of paper

1. Enhancing the products means _____

A. improving   B. beautifying   C. decorating   D. all of the above

2. What do you call a transparent finishing material that comes from gum, linseed oil, and resin?

A. Varnish   B. Enamel   C. stains   D. paint

3. What do you call the process of whitening or removing the color by sunlight exposure?

A. Pyrography   B. bleaching   C. preserving   D. dyeing

4. Which of the following materials cannot be recycled?

A. Milk cartons   B. Plastic water bottle   C. Glass container D. Napkin

5. What is the importance of recycling?

A. Recycling conserves natural resources   C. Recycling makes people busy

B. Recycling is fun   D. Both A and B

Learning Task 2: Identify the following methods of enhancing and decorating finished products based on the following drawing. Write your answer on a separate sheet of paper.

_____ 1.

_____ 4.

_____ 2.

_____ 5.

_____ 3..

Learning Task 3: In a card board, create a painting using this image. Use the following rubric to assess your activity.

Criteria	5	4	3	2	1
Creativity in enhancing					
Innovativeness in enhancing					
Creativity in decorating					
Innovativeness in decorating					
Total appearance					
TOTAL					

Fair   1-2   - 'I'll be presenting it with my family'.
Good   3-4   - 'I want to present it with my family and friends'.
Great   5   - 'I feel like , I want to join a painting contest and
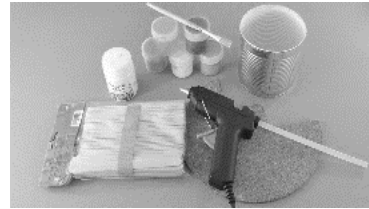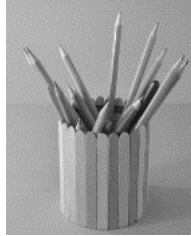   show it to every one'.

Learning Task 4: Find the given words by putting a circle inside the box. Copy and answer it in a clean sheet of paper.

A	Y	C	M	F	T	C	F	P	S
R	E	M	O	T	S	U	C	E	I
E	V	P	A	T	Y	S	F	O	I
V	R	A	E	R	E	T	U	U	O
I	U	S	S	E	C	O	R	P	S
T	S	R	E	N	H	A	N	C	E
A	T	F	S	D	U	P	I	T	C
V	T	M	A	R	K	E	T	I	R

CUSTOMER   INNOVATIVE

MARKET   ENHANCE

SURVEY   TREND

PROCESS   PREFERENCE

FURNITURE

SOURCES

A

Learning Task 5: Let's create a pen holder and candle holder using bamboo sticks. An example is done for you. Use the rubrics below to guide your work.

Instructions:

1. Prepare used can and bamboo sticks.
2. Clean the used cans. Paint the inner side of the cans. Let it dry. Polish the outer side of the cans with sandpaper so that the bamboo sticks can be glued better.
3. Paint bamboo sticks in different colors this make an item look interesting and nice.
4. Use stickers, ribbons, buttons, tags and other decorative elements.
5. Use glue gun as adhesive to attach bamboo sticks to cans. Quick drying multipurpose adhesive can also be utilize.
6. Feel free to use your imagination to come up with an outstanding output that can be given as gift or giveaways.
7. The following rubrics will be used to assess your output.

Category	**Fair (6)**	**Good (8)**	**Great (10)**
Plan	Plan does not show how the pencil will be held. Plan does not include dimensions or give an idea how it would work.	Plan shows a pretty good likeness of my project. The shape and use of the holder is shown. Dimensions may or may not be given.	Plan includes a detailed drawing of the pencil holder. It clearly shows where pencils will be held. Dimensions are given.
Creativity	Just ok...	Wow! (Has some excitement!)	This is amazing! Who would of thought of this!
Appearance	I will keep it inside my box.	I guess I'll just re-gift it!	Can I make another to give to my friend's Birthday as a gift?
Efficiency	My pencil won't stay in this!	My pencil goes in, but it is hard to get it in or out.	My pencil stays in great! There are other features too.
Durability	This pencil holder seems like it will break!	This pencil holder will probably last a few months.	Wow - I'll have this pencil holder forever!

PIVOT 4A CALABARZON IA G6

Effects of Innovative Finishing Materials and Creative Accessories on the Marketability of Products

Lesson

I

Innovation increases your chances to react to changes and discover new opportunities. It can also help foster competitive advantage as it allows you to build better products and services for your customers.

In this lesson, we will learn the following:

- discusses the effects of innovative finishing materials and creative accessories on the marketability of products.

- enhances bamboo, wood, metal, and other finished products through sketching, shading, and outlining.

Effects of innovative finishing materials and creative accessories on the marketability of finished products

You must have a deep knowledge of your product and the products of your competitor entrepreneurs so that you will always strive to be different and unique. People tend to get bored or not interested in buying the same products without innovations. You must know the strengths and weaknesses of your products.

A product is only expected to be saleable at a certain period of time but this could be prevented if some strategies and methods will be applied in enhancing and decorating products. You must never stop inventing new and better ways to enhance our products for the business to keep going. You have to deliver quality and marketable products for the satisfaction of your customers.

Enhancing bamboo, wood, metal, and other finished products through sketching, shading and outlining

A good design must be enhanced more to be attractive to customers. As you have learned the techniques in sketching, outlining, and shading, you will now be able to apply these in enhancing your finished products.

Sketching- It is a freehand drawing on the surface of the product.

Shading - Creating shades of lights and dark patterns in a composition or design, thus creating illusions of space and distance.

Outlining - A drawing in which the contours of a product are seen, thus emphasizing the shape of a design.

The different types of innovation that you are likely to run across include product, process, supply chain and marketing.

7 Reasons that businesses should incorporate to remain innovative

1. **Creative Development** – Qualities of innovative nature are essential for new businesses today. You can achieve growth by learning how to be creative. You need to learn this business skill to help make things of value from your creativeness. When you have this business skill, you will find that it opens up all kinds of opportunities and gives you the potential for a new market and helps you to keep up with the current trends.

2. **Continuous Improvement** – Innovation gives organizational sustainability when you are making continual improvements and repackaging and re-branding. Any good manager will recognize the need to innovate and grow the business skills to increase their creativity.

3. **Reinforce Your Brand** – Develop brand is to promote business. This process reveals information to help leaders to learn other ways to be more innovative. It is important because it is recognized as one of the main drivers for success. It gives organizational sustainability such as brand maintenance.

4. **Making the Most of What You Have Already** – It is not all about creating a new product or service which you can sell, but you also need to focus on your existing business procedures to improve your efficiency, find some new customers, increase your profits and cut down on the amount of your waste. When you are continually innovating and improving on the practices of your business, you will likely also attract better staff and keep more of your existing staff.

5. **Responding to Competition and Trends** – Innovation can help you see what exists now in opportunities or which ones will likely pop up in the near future. Businesses which are successful don't only respond to the current needs of their customers, but usually predict the future trends and come up with an idea, service or product that can meet the future demand quickly and effectively. In this way you can stay ahead of your competition as trends, technology or markets shift.

6. **Having a Unique Selling Point** – Generally, consumers will see innovation as something which adds value to products or a company. When this is used the right way, it can give you an advantage commercially, especially in a market that is saturated or shifting rapidly. It can get your more positive exposure in the media and your customers will be more willing to pay the extra money for something that is well-designed and new, rather than picking the less exciting and cheaper rival.

7. **The Use of Social Media** – Including the use of social media in your innovation campaign is great for managing, motivating and getting focused in your business. When you use it in your business, you are drawing ideas from a wide range of people on the social networks, giving you a successful outlet to find new ideas for your business.

D

Learning Task 1: Read the statement carefully and choose the best answer inside the parenthesis, write it on a clean sheet of paper.

1. Enhancing a product means (**improving, beautifying, decorating**) the appearance of the product.
2. Decorating the product or may be done by putting (**drawing, accessories, finishes**) on the surface of the product.
3. One method of enhancing/decorating a product includes (**sketching, measuring, cutting**).
4. A drawing which shows the contour of a product is (**sketching, outlining, shading**).
5. Creating lights and dark pattern on the surface of a product is (**shading, drawing, outlining**).
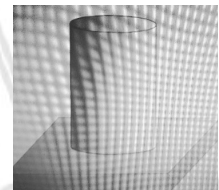
6. (**Smoothening, Planning, Sawing**) is the process of removing lint and rough edges on wood.

7. The process of applying point, varnish, and coloring materials to improve appearance of a product is (**finishing, painting, varnishing**).

8. (**Planning, Monitoring, Evaluating**) involves thinking what to do and how to go about making the project.

9. (**Planning, Monitoring, Evaluating**) is the process of checking whether the project followed the standards in making a good quality project.

10. The bases for evaluating a project are the (**criteria, statements, standards**) found in the scorecard for judging a finished product.
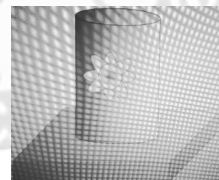
E

cv

Learning Task 2: Illustrate a bamboo vase in a card board. Apply the methods of enhancing or decorating products. Follow the procedure. (The picture is just an example.)

Sketch first your product and follow it with an outline. Draw a bamboo vase.

Apply the decorations by drawing the details and start shading the product. For the bamboo vase, add flowers or leaves on each container and add beads.

Finish shading the rest of the product to see the results.

A

Learning Task 3: Enumerate the following answer. Write your answer in a clean sheet of paper

1. Give the three importance of enhancing or decorating finished products.

2. What are the reasons why we need to be innovative?

3. Make an actual bamboo flower vase. Enhance it.

Constructing a Project Plan/ Marketing Products

Lesson

I

This lesson will provide you knowledge with the following;

1.6 constructs project plan.

1.6.1 considers deliberate policies on sustainable development in constructing the project plan

1.6.2 demonstrates resourcefulness and management skills in the use of time, materials, money, and effort

1.6.3 assesses the quality of enhanced product using rubrics

1.6.4 refines product based on assessment made

-markets products,

In preparing a **project plan** for enhancing the finished product, consider the drawing of the product to be enhanced as a guide. You must make sure that the policies of sustainable development are followed in making the project. Wise management of resources and skills should be implemented.

Product marketing is a process of promoting and selling a product to a customer. Also product marketing is defined as being the intermediary function between product development and increasing brand awareness. For example, product management deals with the basics of product development within a firm, whereas product marketing deals with marketing the product to prospects, customers, and others. Product marketing, as a job function within a firm, also differs from other marketing jobs such as social media marketing, marketing communications ("marcom"), online marketing, advertising, marketing strategy, and public relations, although product marketers may use channels such as online for outbound marketing for their product.

There are 6 parts of a project plan such as follows:

1. Name of Project– the project to be done.
2. Objectives- the reason for making the project.
3. Materials- the list of the materials and their description.
4. Design or Drawing of the Project- a illustration of the project to be done.

5. Procedure- steps in making the project accompanied by illustration for clarity and understanding.

6. Evaluation- check the quality of the finished product. A scorecard or a rubric is used for evaluating the project. It consists of a set of criteria with questions to be answered by the student, the teacher and the parents.

SAMPLE PROJECT PLAN IN ENHANCING A FINISHED PRODUCT

I. Name of the Project: Decoupage Wooden Jewelry Box

II. Objectives

1. Use appropriate materials and tools.
2. Follow the correct procedure in enhancing a jewelry box.
3. Produce an enhanced jewelry box with good quality.

III. Materials and Tools

IV. Design or Sketch

<div align="center">Before   After</div>

V. Procedure

1. Smoothen the jewelry box using a sandpaper.
2. Paint the edges, drawer knobs, and inside drawers of the jewelry box using brush and paint.
3. Place scrapbook papers as decoupage decorations on the boxes of the jewelry box. Cut the papers within the same size of the drawers leaving a 2 to 3 mm gap of allowance to make the painted edges visible. Use a cutter to create a hole in the knobs of the drawers.
4. Glue the scrapbook papers on the drawers.
5. Add stickers as decorations on the drawers.
6. Polish the jewelry box by applying combination of glue and water. A finishing top coat can also be used.
7. Let it dry.

VI. Evaluation

Criteria	Excellent 10	Good 8	Fair 6	Score
Procedure in product enhancement	The procedures in enhancing the product are followed excellently	The procedure in enhancing the product are followed but has unpolished parts	The procedure in enhancing the product are not followed	
Creative design	The product enhanced is very attractive and creative	The product enhanced is well made	The product enhanced is simple	
Resourcefulness and management skills	Wise management of resources is excellently used in making the project	Wise management of resources is used well in making the project	Wise management of resources is not used in this project	
Product enhancement	The product is excellently enhanced	The product is created well	The product is not enhanced to be creative or attractive	
TOTAL				

Packaging is the science, art and technology of enclosing or protecting products for distribution, storage, sale, and use. Packaging also refers to the process of designing, evaluating, and producing packages. Packaging can be described as a coordinated system of preparing goods for transport, warehousing, logistics, sale, and end use. Packaging contains, protects, preserves, transports, informs, and sells. In many countries it is fully integrated into government, business, institutional, industrial, and personal use.

Package labeling (American English) or **labelling** (British English) is any written, electronic, or graphic communication on the package or on a separate but associated label.

Labeling Finished Product

Packaging comes with labeling. The government requires that we follow the standards of labeling products. Labeling terminologies should be easily understood by the customers. Important information in your finished product labels must include the following... **brand name, logo, materials used, safety precautions, and supplier or manufacturers.**

D

Learning Task 1: Write **TRUE** if the sentence is correct and **FALSE** if it is wrong. Write your answer in a clean sheet of paper.

_____1. The assessment of the product is important before mass production.

_____2. Making project plan is done after finishing your project.

_____3. Observe health and safety measure while doing the project.

_____4. Preparing all materials needed is the first step in procedure in doing the project.

_____5. Making and following of the project plan got a good result in the project being made.

_____6. Doing the project benefits that we can get out of the product must be considered.

_____7. Expensive materials are used when making the project.

_____8. It must know the appropriate tools and materials needed.

_____9. Designing project plan helps you to become conscious in any project.

_____10. Itemize the steps to do before you start the project.

E

cv

Learning Task 2: Make an essay with minimum of 5 sentences. In your own opinion, what is the importance of being resourceful and how this trait affects your managerial skills in using time, materials, money and effort? Explain. Write your answer in a clean sheet of paper.

_____

_____

_____

_____

_____

A

Learning Task 3: Create your own label of products. Use the standards below to derive an output.

Brand Name: _____

   Logo:

   Materials used: _____

   Safety precautions

   Supplier or manufacturers: _____

Create a group message/ group chat using messenger or telegram or social media. Make an online selling of your preferred product for marketing.

Compute the income from sales. Make sure that you will have profit.

Sold 450 kl of kalabasa in a month with a selling price of PHP 85 per kilo.

Selling price	PHP	
Total Items sold	x	450
Total Sales	PHP	

Expenses		
• Electricity	PHP	
• Water		
• Fertilizer		
• Insecticide		
• Telephone		
• Transportation		
Total expenses	PHP	

Total revenue	PHP	
Total expenses	PHP	
Profit (business Income)	PHP	

Construct Simple Electrical Gadget/Protocols (Processes) in Making Electrical Gadgets/Repairs Simple Gadgets/ Furniture

Lesson

I
_____

Anyone who is interested to construct simple electrical devices may find it challenging and worth the effort and experience. Reading about electrical gadgets on magazines, books, and the internet may help you to construct these cool gadgets. Learning the skills is beneficial as it prepares you to explore, discover makes things and be globally competitive.

In working with electrical gadgets, each item has different specification. This specification serves as your guide before working on electrical gadgets. It is important to understand and be familiar with safety practices while working with electricity. Any wrong move can harm you, and worst, may cause death.

This lesson will discuss on how to constructs simple electrical gadgets with ease and dexterity the following objectives;

- construct simple electrical gadgets.

- explains the protocols (processes) in making electrical gadgets.
- repair simple gadgets/furniture/ furnishings at home and school.

Electrical gadgets are composed of materials that are classified as conductor or nonconductor of electricity. **Conductors** are materials used in the assemble of electrical gadgets where electrons flow. Some examples of conductors are electrical wire and any metal. **Non-conductor** is a materials which electricity cannot pass through. Another term for non-conductor is *insulator,* means a material that is poor conductor (heat or electricity). Dry rubber and dry wood are the examples of non-conductor.

Electronic devices are equipment used in repair and assemble of parts in a circuit. All of them are powered by electricity. Awareness and extra care are needed in calibrating gadgets. Extension cords, male plug, conventional outlet, lampshades and doorbells are some examples of gadgets which commonly used at home and school.

In making or repairing electronic devices such as plug, extension cord, lampshade requires attention and organization of parts. It also requires familiarity to the appearance and function of tools and gadgets.

Plug It is the structure at the end of appliance that receives electricity. **A two-prong plug** is typically use or ungrounded appliances like lampshade which has less than 15 amperes capacity. **A three-prong plug** includes one round prong, one hot prong and one neutral prong. *The round prong is for grounding and ensuring the hot and neutral prongs are inserted into correct receptacles slots.*	
Electrical Outlet Receptacle providing a place in a wiring system where current can be taken to run electrical devices.	
Extension cord It is also called power extender. It is flexible power cable that can reach long–distance connections.	
Doorbell It is an electrical device that is place beside the door or gate of a house or building.	
Lampshade It is a light bulb with different watts, structure, shape, and design. It comes in different models and appearance but most of the time it has an umbrella-like structure. This is usually place on the top of the bedside table. By using shade, the illumination is contained in a particular area.	

Are you aware of the basic tools used in repairing/making gadgets?

The most commonly used tools and materials in making electrical gadgets are the following:

Side Cutter Plier Or diagonal pliers, or wire cutter, are pliers intended for the cutting of wire (they are generally not used to grab or turn anything).	
Long Nose *Needle-nose pliers,* is a versatile tool that has long, tapering jaws with pointed tip. Among their many uses are gripping, bending, and cutting small gauge wire. They can reach into tight places that are inaccessible to other types of pliers.	
Philip Screw Driver To loosen or tighten screws with a head that has a "plus" shaped to its grooves.	
Flat Screw Driver A flat-head screwdriver is a screwdriver with a wedge-shaped flat tip, used to tighten or loosen screws that have a straight, linear notch in their heads.	

Pliers Are a hand tool used to hold objects firmly, possibly developed from tongs used to handle hot metal in Bronze Age Europe. They are also u s e f u l for bending and compressing a wide range of materials. Generally, pliers consist of a pair of metal first-class levers joined at a fulcrum positioned closer to one end of the levers, creating short jaws on one side of the fulcrum, and longer handles on the other side. This arrangement creates a mechanical advantage, allowing the force of the hand's grip to be amplified and focused on an object with precision. The jaws can also be used to manipulate objects too small or unwieldy to be	
Wire stripper A wire stripper is a portable handheld tool used by workers, especially electricians, for removing the protective coating of an electric wire in order to replace or repair the wire. It is also capable of stripping the end portions of an electric wire in order to connect them to other wires or to terminals.	
Soldering Iron/Gun A **soldering iron** is a hand tool used in soldering. It supplies heat to melt solder so that it can flow into the joint between two work pieces.	

In working with electrical gadgets we should remember things to be safe while working.

Safety and Health Practices

Working with electrical gadgets can be an interesting activity in developing your working habit and skills. It can be an enjoyable undertaking if the following practices are followed:

- Working with gadget connected to electricity, such as electricity, flowing in appliances at home, requires wearing of safety gloves also known as electrical gloves.
- Gadgets connected with a capacitor stored energy even not connected to an electrical source. Storing these types of gadgets away from the reach of children is highly advised. Do not touch or play with electrical devices that have stored energy for these may cause electrical shock.
- Before doing your work or repair activities, be sure that you turn off and unplug the device, gadget, or appliance.
- Make sure that your workplace is organized and clean. A clean workplace is conducive to learning and developing skills.
- Avoid standing on floors that are wet as it may cause you harm or accident.
- Wipe and dry all spillage before starting to work.
- See to it that all metal accessories on our body are removed before starting to work.
- Never touch someone else's work. You may know the condition of our classmate's work if it is energized or not.

Protocol on Repairing Electrical Gadgets

In repairing an electrical gadget, you need to analyze first what are the possible trouble or problem that need repair or replacement before you start the necessary task. In order to make your work enjoyable and effective, follow the simple protocols listed below:

- Before working with electricity, always ask for assistance from your teacher if you are in school or an elderly if you are at home for proper guidance.
- Different gadgets have different specifications. Always use the tools needed for the job according to their function and purpose.
- Always use tools that are insulated to prevent shock while working with electricity.

Repairing Simple Gadgets
Worn out wires
- Remove the plug of the appliance out of the electrical outlet or socket.
- Cut out the worn out part and scrape the outer covering of both ends by about half an inch.
- Connect the two lines by twisting them together.

- Cover the twisted wires with electrical tape.

Worn out plug
- Take off the plug out of the cord or cut the wire. Separate the cord and scrape the insulation or covering by about an inch.

- Open the new plug.

- Twist the wire in a clockwise direction and secure it with a screw. Replace the insulating disk.

Repairing Lamp Shade
Now that you know the basics in replacing defective wires and plugs, you can learn how to repair a lamp shade. You might have an old lamp shade that you do not want to throw away. You can give it a new life.

There are two options that we can choose from. One is to replace the defective parts or purchase the universal lamp kit from a local home improvement store.

Repairing furniture and furnishings
Here is another basic furniture repair that can be undertaken at home and in school:

How to loosen sticking drawers or cabinets
- Loosen with light cleaning and lubrication.
- Use ordinary soap on the sides, slides, and bottom side rails for wood.
- For the kitchen and bathroom, where there is moisture, a soap solution can be used but for a short period of time only.
- Rubbing a candle on the railing can also loosen the drawer or cabinet.
- For metals, applying WD-40 usually works. Put some newspapers first on the floor before spraying the solution.

Removing stains from wood furniture

The most common type of stain is a white ring on resulting from a wet glass bottom placed on top of the table. Rubbing it with a soft rag moistened lightly with mineral spirits often does the trick. Do this in a well-ventilated area. If the rubbed area turns dull, apply a new coat of furniture wax.

Repairing wooden legs of chairs

- Check the chair for loose nails or screws.
- Replace the damaged nail or screw using a hammer or screw driver.
- Check if the legs are of equal length.

Changing the fabric of a seat cushion

- Check the seat cushion if the fabric was stapled.
- Remove the staples using a hammer or screw driver to loosen them.
- Then use the old seat fabric as your pattern for the new fabric.
- Cut the fabric
- Then staple the new fabric to the seat cushion.
- Fold the fabric along the corners to have a smooth finish.

Repairing Worn out Door Knob
Removing

- Push the pin of the knob (inner part) to remove the handle.
- Remove the cap.
- Remove the screws
- Replace it by new one

Installing

- Screw the new barrel.
- Install the new knob.
- Screw the lock.
- Install the new handle. (make sure that the pin is in the proper place/ alignment).

D

Learning Task 1: Are you familiar with the basic tools needed in repairing/making gadgets? Match the name of the tool in column A to its meaning at column B. Write the letter of the correct answer in a clean sheet of paper.

A	**B**
1. Wire stripper	**(a)** A diagonal pliers, or wire cutter, are pliers intended for the cutting of wire (they are generally not used to grab or turn anything).
	(b) A versatile tool that has long, tapering jaws with pointed tip. Among their many uses are gripping, bending, and cutting small gauge wire. They can reach into tight places that are inaccessible to other types of pliers.
2. Soldering Iron/Gun	
3. Philip Screwdriver	**(c)** Use to loosen or tighten screws with a head that has a "plus" shaped to its grooves.
4. Pliers	**(d)** A tool with wedge-shaped flat tip, used to tighten or loosen screws that have a straight, linear notch in their heads.
	(e) are a hand tool used to hold objects firmly, possibly developed from tongs used to handle hot metal in Bronze Age Europe. They are also useful for bending and compressing a wide range of materials.
5. Flat Screw Driver	
6. Side Cutter Plier	**(f)** It is capable of stripping the end portions of an electric wire in order to connect them to other wires or to terminals.
7. Long Nose	**(g)** A hand tool used in to connect two tiny metallic parts of a gadget.

Learning Task 2: Can you assemble a simple electrical gadget?

In order to develop your skill and satisfy your curiosity in repairing gadgets, let us first assemble new extension cord.

Remember when doing all of your activities specially this electrical related activities, please ask your parents to work and supervise your activities while working on it.

Assembling an extension cord

Materials

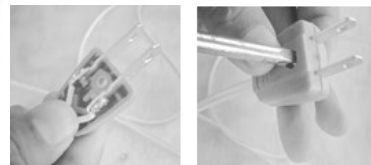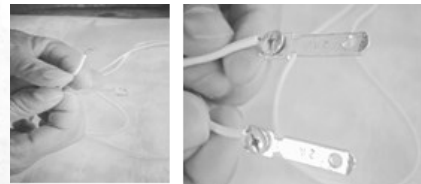> Wire
> An outlet
> A plug
> Side cutter plier
> Screw driver

Assembling an extension cord

Materials

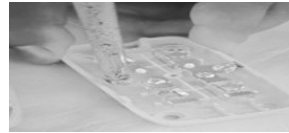> Wire
> An outlet
> A plug
> Side cutter plier
> Screw driver

Procedure	Illustration
Open remove the screw of the outlet using screw driver.	
Remove a notch at the end of wire, slightly twist the copper wire clockwise and bend the copper wire in curve shape.	

Loosen the screw connected in copper inside the outlet.	
Place it in-between the copper wire and the screw.	
Tighten the screw.	
Do the same procedure in the other side?	
Cover the outlet and tighten the screw	
Loosen the screw connected in the prong.	
Remove a notch, Bend the copper wire in curve shape and place it in-between the prong and the screw. Tighten the screw.	
Cover the plug and tighten the screw.	

A

Learning Task 3: Write **True** if the statement is correct and **False** if it is incorrect. Write your answer in a clean sheet of paper.

1. When working with electricity, it is acceptable to stand on a wet floor.

2. Start working even if there are no instructions given by your teacher or your guardian.

3. Do not use safety gloves when working with electricity.

4. Never touch with someone else's work.

5. Turn off and unplug the device before working on it.

Principales of 'Five S"

Lesson

I

Too much waste or garbage pollutes the air that you breathe and the water you drink. It is common knowledge that improper disposal of garbage causes flooding. A possible solution that you can do to this problem is implementing waste management and practicing recycling of waste.

In this module you are expected to**:**

Principles of "Five S"

1. Sorting (Seiri)
2. Straightening (Seiton)
3. Systematic Cleaning (Shine) (Seiso)
4. Standardizing (Seiketsu)
5. Service (Sustaining) (Shitsuke)

The 5S Principle

The **5S** principle is first used and practice by the Japanese in working with their task. This principle is practice in sequence to help focus, do the tasks smoothly and organize the working place.

This principle is written in Japanese and has been translated into English that it starts in letter "**S**". This principle is flexible in all types of working experience.

The following are some suggestions to help you organize your working place and photos and do the task smoothly.

Sorting (SEIRI)

This is the first phase wherein you will start your work by arranging the materials that you need and putting away the things that you think you will not need. This will help you to see easily the things that you need all throughout your working time and helps you widen working place.

Set in Order (SEITON)

Right after you classify the materials, it will be effective if you place the materials according to their group and purposes. You can put the materials in their respective places or boxes and label them, like box of pencils, box for coloring materials, and box for cutting (e.g. scissors, and cutters).

31

Shine (SEISO)

      While working. You may produce wastes such as cutout papers, spilled water, and other trash. See to it that your working area is clean. A good and well kept working area is a healthy working environment.

Standardize (SEIKETSU)

      Prepare a note and checklist of your accomplishments for the day. You must incorporate the first tree steps mentioned to keep your working place efficient.

Sustain (SHITSUKE)

      This step is to remind yourself about the tasks you have done. It also guides you in identifying the things needed to improve your work.

D

Learning Task 1: Complete the following table. Fill in the missing translations of word from the 5S principles. Copy and wite your answer on a clean sheet of paper.

Japanese	English
	Set in Order
Seiri	
Seiso	
Shitsuke	
	Standardizing

Learning Task 2: Answer the following questions. Write your answer in a clean sheet of paper.

1. How can you contribute to proper waste management?
2. What are the principles of "5'S" that can be applied in waste management?
3. Where can you apply these 5'S?
4. How are these applied in waste management?
5. Do you think this Japanese methodology in waste management can be applied in the Philippines?

E

cv

Learning Task 3: Identify what is being asked in each statement. Choose your answer in 5'S.Write your answer in a clean sheet of paper.

_____ 1. A methodology developed in Japan that is used to organize a workplace for work to be efficient and effective.

_____ 2. A principle that can be done in the work area after it has been cleared of unneeded items.

_____ 3. This is a principle that means creating specific tasks, responsibilities, and procedures or rules.

_____ 4. The process of converting waste materials into reusable products.

_____ 5. This is a recyclable material that is easy to recycle.

A

Learning Task 4: At home, observe how the waste materials are segregated. Write down your findings and your personal insights. Make at least 5 sentences. Write your answer in a clean sheet of paper.

Recyclable Products/Process and Importance of Recycling/Identified Products/Waste Materials Into Functional Item

I Lesson

Waste management needs every person's serious attention and active participation. Government and non-government agencies around the world have been joining hands to institute programs to address the global problem on waste, and its worsening effect to the environment. Individuals living within the community should contribute their share in waste management efforts. What can you do as an individual?

In this module you are expected to**:**

-identify recyclable products/waste materials made of wood, metal, paper, plastic, and others.
-explains the process and the importance of recycling.
-recycles the identified products/waste material into functional items (binding of used paper into notebook or memo pad; bottled plastic into lampshades, flowers, plants; etc.)

Have you notice how much garbage is your family throws every day? Do you wonder where it goes? After flooding, have you observed or seen a lot of garbage? You may have learned by now that improper disposal of garbage contributes to flooding. These problems can be solved by the participation of the community. The youth and elderly should join hand in hand by solving environmental problems.

Reuse means thinking how you can extend the use of the product. A handkerchief for example can be washed, iron, and be used several times. If it is worn out, you can use it as a rug. If an old product cannot be further reused, consider recycling.

Recycling is the process of producing a new product out of an old one. Old or used materials are changed by altering them or totally breaking them down. Plastic is an example of material which can return to its original form when recycled by means of chemical and mechanical ways.

Benefits and Importance of recycling

Recycling benefits both of the environment and the people. Resources to produce new products come from raw materials from the environment. Processing them especially if they are mass produced in a factory would incur waste which is normally dumped in their environment. Thus, for environmental reason, recycling limits these processes and allow the environment to rest.

The following are the list of recyclable materials that may be used to create new products. Papers, bottles, cans, and plastics are called ***solid waste.***

Paper	*Bottles/Glass*
Metal	Wood
Plastic	

D

Learning Task 1: List down wastes that correspond to its column. Write your answer in a clean sheet of paper.

Recyclable	Not Recyclable

E

cv

Learning Task 2: The following are examples of recycled projects wherein waste materials can be made into functional items. Use rubric to assess the task. Write your answer in a clean sheet of paper.

Scrap Paper Notepad

Materials:
Scrap papers
Binder clips
Glue
Paintbrush
Decorative scrap paper
Masking or decorative tape

Procedure:
- Fold into half at least 40 sheets of scrap paper. Cut paper on folded side.
- Stock the pages by lining up the cut folded sides together. Do this on an even surface to be precise.
- With all pages evenly lined up, attach the binder clips on the top and bottom edges on the cut side of the paper. Lay it flat on the edge of the table and place a heavy object at the center near the cut edge to keep pages compressed.
- Apply glue evenly over the cut edge then let it dry. Repeat this 4-5 times until you have a coat of clear glue that holds the edges together.
- Remove the clip binders once the glue has dried completely.
- Attach your decorative paper by gluing it across the top of the notepad.
- Attach the tape carefully on top of the glued area. Decorate with stickers, labels, or anything else.

Desk Organizer

Materials
6 empty plastic bottles (1 liter soft drinks bottle)
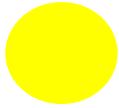Cutter and scissors
Decorative tape
Glue stick and glue gun

Procedure:
- Clean the bottles and let it dry.
- Measure around 2 ½ - 3 inches from the base of the bottle going up then mark it all around.
- Cut the marked area using a sharp cutter. Set aside the upper part of the bottle for future recycling projects.
- Smoothen the cut edges using scissors.
- Cover all the edges with decorative tape.
- Glue together the five receptacles as seen below.
- Decorate with stickers, labels, or anything else.

A

Learning Task 3: Identify the recyclable product/waste materials made of plastic, metal, wood, paper and bottles/ glass. Write your answer in a clean sheet of paper.

Toy gun
Lamp shade
Plastic bottle
Arm chairs
Ruler
Ball pen
Coin purse
Flower vase
Toy car
Container

Answer Key

Week 1-2

Learning Task 1
1. c
2. c
3. b
4. d
5. d

Learning Task 2
1. Pyrography
2. Engraving
3. Gilding
4. Wood turning
5. Wood Stain

Learning Task 3: Rubric Based

Learning Task 4: Word Hunt

Week 3

Learning Task 1
1. decorating
2. accessories
3. sketching
4. outlining
5. shading
6. smoothening
7. finishing
8. planning
9. evaluating
10. criteria

Learning Task 2

Learning Task 3: answer may vary

Week 4-5

Learning Task 1
1. True
2. False
3. True
4. False
5. True
6. True
7. False
8. True
9. True
10. True

Learning Task 2: Answer may vary

Learning Task 3: Answer may vary

Week 6

Learning Task 1
1. Side Cutter Plier
2. Long Nose
3. Philip Screw Driver
4. Flat Screw Driver
5. Pliers
6. Wire Stripper
7. Soldering Iron/Gun

Learning Task 2: Rubric based

Learning Task 3:
1. False
2. False
3. False
4. True
5. True

Week 7

Learning Task 1:
1. SEITON
2. SORTING
3. SHINE
4. SUSTAIN
5. SEIKETSU

Learning Task 2: Answer may vary

Learning Task 3:
1. set in order
2. Shine
3. Standardizing
4. Sustain
5. Sorting

Learning Task 4: Answer may vary

Week 8

Learning Task 1 Answer may vary

Learning Task 2: Rubric based

Learning Task 3: Rubric Based

RUBRIC BASED FOR:
WEEK 6 : Learning

RUBRIC BASED FOR:
WEEK 8-9, Learning
Task 2,3

Personal Assessment on Learner's Level of Performance

Using the symbols below, choose one which best describes your experience in working on each given task. Draw it in the column for Level of Performance (LP). Be guided by the descriptions below.
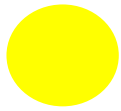
☆ - I was able to do/perform the task without any difficulty. The task helped me in understanding the target content/lesson.

✓ - I was able to do/perform the task. It was quite challenging but it still helped me in understanding the target content/lesson.

? - I was not able to do/perform the task. It was extremely difficult. I need additional enrichment activities to be able to do/perform this task.

Distribution of Learning Tasks Per Week

Week 1	LP	Week 2	LP	Week 3	LP	Week 4	LP
Learning Task 1		Learning Task 1		Learning Task 1		Learning Task 1	
Learning Task 2		Learning Task 2		Learning Task 2		Learning Task 2	
Learning Task 3		Learning Task 3		Learning Task 3		Learning Task 3	
Learning Task 4		Learning Task 4		Learning Task 4		Learning Task 4	
Learning Task 5		Learning Task 5		Learning Task 5		Learning Task 5	
Learning Task 6		Learning Task 6		Learning Task 6		Learning Task 6	
Learning Task 7		Learning Task 7		Learning Task 7		Learning Task 7	
Learning Task 8		Learning Task 8		Learning Task 8		Learning Task 8	

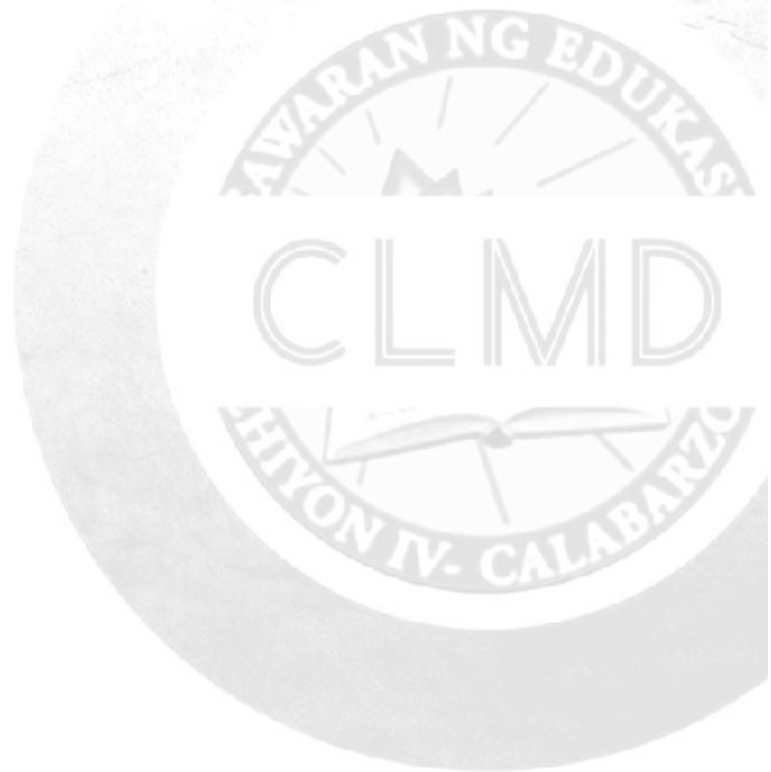| Week 5	LP	Week 6	LP	Week 7	LP	Week 8	LP
Learning Task 1		Learning Task 1		Learning Task 1		Learning Task 1	
Learning Task 2		Learning Task 2		Learning Task 2		Learning Task 2	
Learning Task 3		Learning Task 3		Learning Task 3		Learning Task 3	
Learning Task 4		Learning Task 4		Learning Task 4		Learning Task 4	
Learning Task 5		Learning Task 5		Learning Task 5		Learning Task 5	
Learning Task 6		Learning Task 6		Learning Task 6		Learning Task 6	
Learning Task 7		Learning Task 7		Learning Task 7		Learning Task 7	
Learning Task 8		Learning Task 8		Learning Task 8		Learning Task 8	

Note: If the lesson is designed for two or more weeks as shown in the ear tag, just copy your personal evaluation indicated in the first Level of Performance found in the second column up to the succeeding columns, ie. if the lesson is designed for weeks 4-6, just copy your personal evaluation indicated in the LP column for week 4, week 5 and week 6. Thank you.

References

Department of Education. (2020). *K to 12 Most Essential Learning Competencies with Corresponding CG Codes.* Pasig City: Department of Education Curriculum and Instruction Strand.

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