PEAC
PRIVATE EDUCATION ASSISTANCE COMMITTEE
Trustee of the Fund for Assistance to Private Education

DepED
DEPARTMENT OF EDUCATION

2019

LEARNING MODULE

TLE – Home Economics | G7| Exploratory

Food Processing

(Tools and Equipment, Mensuration and Calculation)

PEAC
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NOTICE TO THE SCHOOLS

This learning module (LM) was developed by the Private Education Assistance Committee under the GASTPE Program of the Department of Education. The learning modules were written by the PEAC Junior High School (JHS) Trainers and were used as exemplars either as a sample for presentation or for workshop purposes in the JHS In-Service Training (INSET) program for teachers in private schools.

The LM is designed for online learning and can also be used for blended learning and remote learning modalities. The year indicated on the cover of this LM refers to the year when the LM was used as an exemplar in the JHS INSET and the year it was written or revised. For instance, 2017 means the LM was written in SY 2016-2017 and was used in the 2017 Summer JHS INSET. The quarter indicated on the cover refers to the quarter of the current curriculum guide at the time the LM was written. The most recently revised LMs were in 2018 and 2019.

The LM is also designed such that it encourages independent and self-regulated learning among the students and develops their 21st century skills. It is written in such a way that the teacher is communicating directly to the learner. Participants in the JHS INSET are trained how to unpack the standards and competencies from the K-12 curriculum guides to identify desired results and design standards-based assessment and instruction. Hence, the teachers are trained how to write their own standards-based learning plan.

The parts or stages of this LM include Explore, Firm Up, Deepen and Transfer. It is possible that some links or online resources in some parts of this LM may no longer be available, thus, teachers are urged to provide alternative learning resources or reading materials they deem fit for their students which are aligned with the standards and competencies. Teachers are encouraged to write their own standards-based learning plan or learning module with respect to attainment of their school's vision and mission.

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TECHNOLOGY AND LIVELIHOOD EDUCATION (TLE) –
HOME ECONOMICS (HE)
GRADE 7 (EXPLORATORY)

Module 1: Food Processing (Tools and Equipment, Mensuration and Calculation)

CONTENT STANDARD:

The learner demonstrates understanding of basic concepts, and underlying theories in Food (Fish) Processing.

PERFORMANCE STANDARD:

The learner independently demonstrates common competencies in Food (Fish) Processing as prescribed in the TESDA Training Regulation.

INTRODUCTION AND FOCUS QUESTION:

Look at the following pictures.

What patterns do you see in the pictures? How will you describe the food items in the left column? How about the food items in the right column? Have you at a certain time asked yourself how the food products in the right column are made? Do you ever wonder why and how foods are processed? Can you see yourself venturing into this type of activity in the future as an entrepreneurial venture?

In this module, you will find out the common competencies relevant to food processing. This will prepare you for more elaborate food processing activities in the next grade level.

As you accomplish the module, remember to search for the answer to the question below:

What makes for an effective food production plan?

LESSONS AND COVERAGE:

In this module, you will examine the essential question when you take the following lessons:

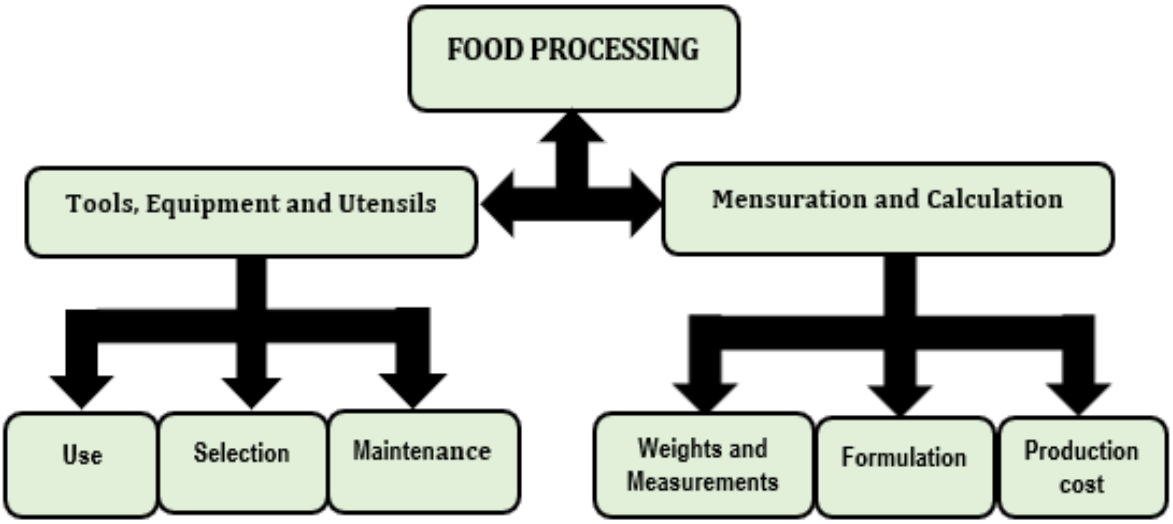
Lesson 1 – Tools, Equipment and Utensils in Food Processing
Lesson 2 – Basic Mensuration and Calculation in Food Processing

In these lessons, you will achieve the following:

Lesson 1	• Name the different tools, equipment and utensils in food processing • Describe the uses/functions of tools, equipment and utensils by citing their uses and functions. • Demonstrate the proper use of tools, equipment and utensils in food processing • Explain the importance of proper use of tools, equipment and utensils to the success of any food processing activity

Lesson 2	• Calculate the costs of production for a food processing activity. • Solve for the price of a processed food product. • Discuss the relevance of standardized procedures to the quality of output

MODULE MAP:
Here is a sample map of the above lessons you will cover for this unit:



EXPECTED SKILLS:
To do well in this module, you need to remember and do the following:

1. Follow set standards.
2. Pay attention to details.
3. Take note of pertinent information.
4. Generate ideas with supporting details.
5. See the relationship and interconnectedness of concepts.
6. Organize and present ideas.

PRE-ASSESSMENT

Let's find out how much you already know about the lessons in this module. Encircle the letter of your answer. After taking this short test, you will see your score. Take note of the items that you were not able to correctly answer and look for the right answer as you go through this module.

1. Why are tools, utensils and equipment important and useful in food processing activities? (LO 1-LO2)
    A. to make the work easy, fast, precise and safe
    B. to increase manpower requirement to do the job
    C. to ensure increase in sales of processed product
    D. to improve physical appearance and palatability of processed products

2. Mr. Guzman bought a new can sealer in order to cope with the daily demands of canned fruit cocktail. He was not able to try the manual operation of the equipment before it was bought from the manufacturer. If you are Mr. Guzman, which is the best way to solve the problem? (Lesson 1-LO2 5)
    A. Sell the equipment to other store and buy a new one
    B. Return the equipment to the manufacturer
    C. Try first to operate the equipment following guidelines specified in the manual to check if you can really manage it
    D. Request immediately a technician from the manufacturer to come and conduct demonstration

3. In buying a brand-new freezer, a manual is provided within the package. The manual contains manufacturer's specifications. Why is there a need of a food processor to properly interpret specifications before operating any food processing equipment? (Lesson 1-LO.2.5)
    A. to avoid accidents due to faulty operation of equipment
    B. the ensure that it is clean and safe for storage of food items
    C. to acquire more information about the equipment and follow its correct handling or use
    D. to see other models and types of cooling equipment that can give the owner an idea on what to buy next time
4. How do you check equipment that are electrically operated? (Lesson1-LO3.1)
    A. Make sure to switch off or unplug properly the socket
    B. Inspect at regular time the electrical outlets
    C. Cover or wrap the wire with electrical tape to ensure insulation
    D. Position the equipment in such manner that it is safe

5. In the laboratory room, your teacher instructed you to use a blender in your activity of preparing mango jam. It is your first time to use such equipment. Which of these will you do? (Lesson1-LO.2.1)
   A. practice using the blender
   B. read the manual containing the manufacturer's specification
   C. seek assistance from your teacher on how to use the blender
   D. change your recipe and choose another that does not require blending

6. Which of the following practices should you do to prevent the metal surface of your gas range, oven and gas stove to corrode? (Lesson2-LO3.3)
   A. wash with soap and water
   B. brush gently to remove the sticky spills
   C. wipe off spilled food then wash and wipe thoroughly
   D. scrape off the spilled food from surfaces, then apply lubricants

7. Your group is performing the sugar preservation method in the laboratory room. The group is following the standardized recipe for mango jam. Which proportion of mixture should you prepare for mango jam. (Lesson 2-LO 2.1)
   A. 1:1, which means 1 cup of sugar is added to 1 cup of mango puree
   B. 1:2, which means 1 cup of water is added to 2 cups of mango juice
   C. 2:1, which means that 2 cups of sugar are added to 1 cup of mango juice
   D. 1:2, which means that 1 cup of mango puree is added to 2 cups of sugar

8. If sanitizing and disinfecting the tools, equipment and utensils can destroy all germs and microorganisms which were not removed after washing with soap and water, what about proper cleaning and disinfecting? (Lesson 1-LO3.2)
   A. It minimizes product rejection, return and complaints due to contamination
   B. It shortens product shelf life due to the increase of contamination
   C. It increases the risk on food poisoning
   D. It hinders or delays preventive maintenance

9. If you buy ¾ pound of sugar to be used in pickling, how much is this in grams? (Lesson 2-LO1.1)
   A. 250.90 grams
   B. 340.90 grams
   C. 750.90 grams

D. 900.90 grams

10. Mrs. Gomez has a “pasalubong” store. She is making and selling baked goods, including fruit preserves, in her store. Her specialty fruit preserve is Mango Lemon Marmalade, which she is producing in large quantities. Using her special recipe, how much is its total cost of ingredients? Lesson 2-4.1

Name of Recipe: Mango Orange Marmalade (standardized recipe)		Yield: 3 bottles (8 oz)
QUANTITY	INGREDIENTS	UNIT COST
500 grams	ripe mangoes	Php 80.00/1000grams
1 pc	orange, whole, fresh	Php 25.00
½ tbsp.	orange peel, crushed	
250 grams	granulated white sugar	Php 80.00/1000grams
PROCEDURE: 1. Wash mangoes. Peel, scoop out seeds and chop finely the mango pulp. 2. Wash orange, remove peel, white portions and seeds. 3. Measure ingredients. 4. Combine chopped mango, lemon pulp and peel. 5. Boil mixture rapidly, stirring constantly until thick. 6. Pour while hot into warm sterile jars. Seal, cool, label and store.		

A. Php 85.00
B. Php 65.00
C. Php 55.00
D. Php 35.00

EXPLORE

Let's begin this module with an inspirational story of a married couple who successfully ventured into a food processing business. As you do this, think about this question:

"***What makes for an effective food production plan?"***

ACTIVITY 1. Now Showing

Get ready to be inspired as you watch the success story of Manny and Virginia Valencia, which you can access from the link below.

Video clip on: The success of Joshua's Meat Products

https://www.youtube.com/watch?v=s9iCKV6STzs

As you watch, take note of the important details and interesting facts about their story. Specifically, think about the factors that led to the success of their meat processing business. Remember to think about its connection to effective planning.

Process Questions:

1. How did you find their story?
2. Were you inspired? In what ways?
3. What is the most striking event in the story?
4. Why did they succeed in their venture?

ACTIVITY 2. Anticipation-Reaction Guide

Read the statements in the table and write AGREE or DISAGREE in the column before the statements. Defend your answer.

BEFORE	STATEMENTS	AFTER
	Selection, use, and maintenance of tools, equipment, and utensils in food processing can be effectively performed separately.	
	Mathematical skills are required in food processing activities.	
	Precision and accuracy are essential skills in food processing.	

	Measurements and calculations have no effect on the profitability of a food processing business.	
	The primary purpose of a food processing production plan is to know how much money you will need to start the business.	

Process Questions:

1. How did you find the activity?

2. Are you certain with your answers?

3. Where did you base your answers?

End of EXPLORE:

Let's try to find out if there would be a significant change in your answers as we go along with our lessons.

What you will learn in the next section are the facts and information necessary for you to effectively perform your task at the end of this module.

FIRM-UP

Your goal in this section is to learn and understand key concepts about food processing. Remember, as you go through the lessons; arm yourself with pieces of knowledge that will help you answer the question, "***What makes for an effective food production plan?***

Before you start your journey, take a look first at this vegetable processing production plan that would somehow give you an idea on how to accomplish your task ahead.

PICKLED AMPALAYA PRODUCTION PLAN

Kyrk's Homemade Pickled Ampalaya is packed with the necessary ingredients beneficial to human body. Having ampalaya as main ingredient of this product, we can assure you of its curative value.

PRE-PRODUCTION

TOOLS & EQUIPMENT

Large mixing bowl Knife Ladle Measuring Cup Measuring Spoon Glass jar

Standard Operating Procedure:
Clean and sanitize the tools and equipment before using.

ACTUAL PRODUCTION

Production Cost

Quantity	Ingredients	Unit Price	Unit Cost
10 pieces	Large size ampalaya	P 40.00/kl	P 100.00
10 tbsp	Salt	-	P 5.00
5 medium size	Carrots	P 45.00/kl	P 80.00
10 medium size	Red bell pepper	P 90.00/kl	P 45.00
10 medium size	Garlic	P 80.00/kl	P 40.00
10 cups vinegar	Vinegar	P 40.00/gallon	P 80.00
10 tbsp	Salt	-	-
5 cups sugar	Sugar	P 50.00/kl	P 75.00
5 matchbox	ginger	P 30.00/kl	P 15.00
Total Cost of Ingredients			P 440.00
Others:			
Water			P 20.00
Air Tight Glass Jar			P 200.00
Total Production Cost			**P 660.00**

Profit margin at 35%
Selling Price: **P 44.55 or P 45.00/bottle**
Yield: 20 bottles (using 8 ounces of bottles/glass jar)

Production Flow

Procedure:

1. Put the ampalaya right after slicing it in a large bowl of salt water.
2. In a separate bowl (large bowl) blend well ingredients 7,8 and 9 until sugar is totally dissolved.
3. Mixed ingredients 3,4,5 and 6. squeeze then throw away the juice.
4. Squeeze the ampalaya then throw away the juice.
5. Pour in all the vegetable to the liquid mixture then mixed well. Placed it in an air tight glass jar.
6.
7. Ready for selling and can be stored for about a month long in room temperature.

Actual Production Summary Report

PRODUCT QUANTITY	20 bottles
COST OF PRODUCTION	P 660.00
SELLING PRICE	P 45.00
Gross Profit	P 900.00
Net Profit	P 240.00

POST PRODUCTION

Procedure:

1. Wash all the tools and utensils used.
2. Sanitize it properly.
3. Let it dry before storing.
4. Store tools and equipment according to its classification.

Being healthy is a choice, if you love yourself, try our product now!

1. What can you say about the plan?

2. What did you notice?

3. What do you think are the skills necessary for you to come up with the plan?

You cannot come up with this food production plan if you are not equipped with the necessary skills and understanding pertaining to the concept. So ablaze yourself as you are now about to start the journey.

ACTIVITY 3. Jeopardy Game

Form small groups and answer the questions about the tools, equipment, and utensils in food processing through the jeopardy game. You will take turns in answering the questions. But before you answer, you will pick a question category with corresponding points. The categories focus on the different food processing methods: drying, curing, canning, pickling, and smoking. The points for each question will vary depending on the degree of difficulty.

PROCESS QUESTIONS:

1.How did you find the game? Was it easy or difficult?

2.If you will group or classify these tools, equipment, and utensils, used in the different food processing methods, what will be your basis for classifying them?

3. If you will be given a food processing recipe now, can you select and prepare the tools, equipment, and utensils without knowing their uses/functions? Why or why not?

Share your answers to your partner. Discuss why it is important to be knowledgeable about the uses and functions of the tools, equipment and utensils in food processing. If you believe that they are important, how do you now prepare and take care of them? Try the next activity but don't forget to write your ideas first for the focus question.

ACTIVITY 4. Gallery Walk

Your group will be given a recipe that focuses on a specific food processing method. Interpret the recipe by selecting the appropriate tools, equipment, and utensils and arranging them for display in your work station. You will visit all the other work stations just like walking around an art gallery. As you do the gallery walk, accomplish the worksheet below.

Group	Food Processing Method	Common Tools, Equipment, Utensils	Special Tools, Equipment, Utensils
1	Sugar Preservation		
2	Pickling		
3	Smoking		
4	Canning		
5	Drying		
6	Curing		

What are the tools, equipment, and utensils common to all food processing methods? Were you able to identify tools and equipment that are exclusive to a specific food processing method? What are these?

Stop here and write your ideas on the focus question of this module.

Focus Question: (Write your ideas here)

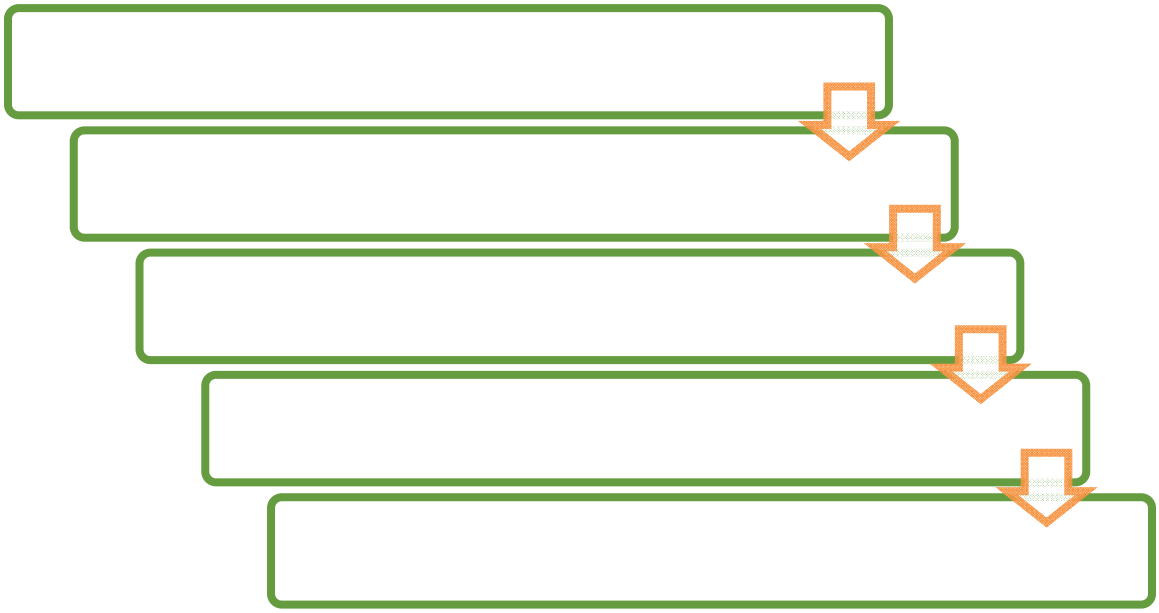
What makes for an effective food production plan?

ACTIVITY 5. What Happens Before and After?

Knowing the uses and functions of the tools, equipment, and utensils in food processing is useless if they are defective because they were not properly used and maintained. For this activity, you will see what happens before and after any food production activity by watching the video that you can access from this link https://www.youtube.com/watch?v=RAFMIXPq9BE&t=74s.

As you watch, fill out the flow chart below to illustrate the standard pre and post operation practices required in food processing.

FLOW CHART OF PRE/POST-OPERATION PROCEDURES



PROCESS QUESTIONS:

1. What are the main procedures you saw in the video?

2. Aside from the common tools and utensils, what other surfaces or places were cleaned?

3. What are ways to properly maintain tools, utensils, and equipment?

You are done with the first major section of the module and as you are about to begin with the next section, take time to write down your ideas on the focus question.

Focus Question: (Write your ideas here)

What makes for an effective food production plan?

Time to Check:

Review what you have learned from this section and prepare for a summative test on selection, use, maintenance of tools, equipment, and utensils in food processing including the standard pre and post-operation activities.

ACTIVITY 6. Let's Convert

You are about to embark to the next phase of this module. Be prepared to use your mathematical skills in the next activities. Watch the video, which you can access from this link https://www.youtube.com/watch?v=wfWj-u0eb0A and remember to take note of the basic but very important measurement equivalence. Afterwards, answer the conversion exercise below. Exchange with your seatmate to check whether you got the conversions right.

1. 1 quart of milk	= _____ cups	6. 1 Tbsp. olive oil	= _____ tsp.
2. 12 Tbsp. of sugar	= _____ cup	7. 1 cup water	= _____ Tbsp.
3. 1 lb. ground pork	= _____ grams	8. 1 pinch salt	= _____ tsp.
4. 14 grams carrots	= _____ once	9. 2.5 kg of fish	= _____ grams
5. 1 pint syrup	= _____ Tbsp.	(*for hotness/coldness)* 10. 102.1 F	= _____ C

PROCESS QUESTIONS:

1. What do you think is the importance of knowing the basic equivalent measurements?

2. Can you name the appropriate measuring tools and equipment that you need to weigh and measure the above ingredients? What are these?

Keep those conversion skills as you further practice mathematical computations pertinent to any food processing activity.

ACTIVITY 7. Let's Formulate!

Concentration of solution is an important concept in food processing. It is defined as the amount of solute present in a given quantity of solvent. It is time to practice ingredients' formulation by filling in the missing standard ingredients and supplying the correct ratio that correspond to the following food processing methods.

Methods		Ingredients	Ratio
CURING/SALTING		Salt, _____, Fish	Using brine method, if you have 16 parts of fish, how many parts of salt would you add? _____: 16 fish
SMOKING		_____, Water, Salt	750g salt:____ml of water
SUGAR CONCENTRATE		Sugar, Fruit, _____	(Pectin is not good) ____parts of sugar: 25 parts of fruits

PROCESS QUESTIONS:

1. What are concentration ratios for?

2. Are there specific standards to follow?

Keep in mind that standards are arrived at because they were tested. In the next section, you will learn about the parts of a standardized recipe that is the backbone of mathematical computations related to determining the production costs and price of your product. Don't forget to write down your ideas on the focus question before you move to the next activity.

Focus Question: (Write your ideas here)

What makes for an effective food production plan?

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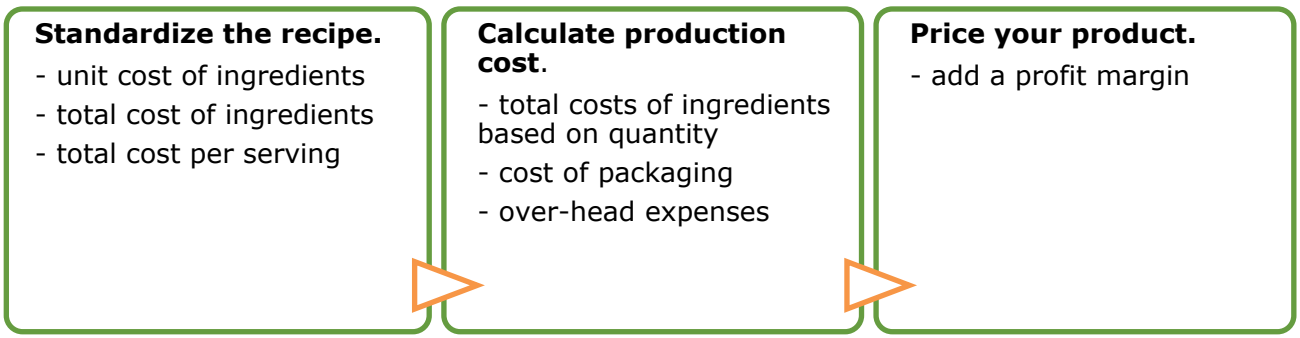
ACTIVITY 8. It's Time to Solve

Get ready to recall the basic measurement equivalence. This should come in handy as it is time to solve for the price of a processed food product. What do you need to solve? Here is a clearer picture.



Complete the pricing template below given the following information:

Cost of Ingredients:

3 kilos Chayote (20 pesos per kilo)
6 pcs. Carrots (30 pesos per 500grams; a kilo has around 12pcs.
4 pcs. Red bell pepper (50 pesos per kilo; a kilo has around 20pcs)
4 pcs. Ginger (40 pesos per kilo; a kilo has around 16 pcs.)
2 pcs. Garlic (50 pesos per kilo; a kilo has around 20 pcs.)
3 pcs. Onion (70 pesos per kilo; a kilo has around 12 pcs.)
1 ½ cups Sugar (80 pesos per kilograms)
1 ½ cups Vinegar (40 pesos per liter)
1 pack Raisins (25 pesos per pack)
1 cup Salt (10 pesos per kilo)

Number of finished products:	8
Packaging materials:	Php48.00
Overhead Expenses:	Php19.00
(LPG, water, electricity, etc.)	
Mark-up Percentage:	30%

Show your solutions inside the boxes.

1.Unit Cost of Ingredients:
2.Total Cost of Ingredients:
3.Cost of Production:
4.Selling Price:

PROCESS QUESTIONS:

1. Which part of the computation process is the easiest?

2. Which part of the computation process is the most difficult?

3. What are the major steps you followed before arriving at a selling price?

4. Are there specific standards to follow? What are these?

Before you move to the next activity, don't forget to write down your ideas on the focus question below:

Focus Question: (Write your ideas here)

What makes for an effective food production plan?

End of FIRM UP:
In this section, the activities were designed to help you acquire basic food processing facts and information necessary for an effective performance of your final task.

Now that you know the important ideas about this topic, let's go deeper by moving on to the next section.

Time to Check:
Review what you have learned from this section and prepare for a summative test on mathematical computations related to food processing.

DEEPEN

You are now ready to engage in more elaborate learning experiences to gradually guide you into doing something useful in your life as a student and future entrepreneurs. Your goal in this part of the module is to equip yourself with the skills you need for a possible food processing venture. Just like mountaineering, you need to gear up and prepare yourself to walk and camp out for multiple days to go to higher peaks.

ACTIVITY 9. Gear Up!

At this point, you are ready to journey to higher peaks. Like mountaineering, it is time to gear up to prepare yourself to trek and venture into food processing.
For this activity, you will go to your food laboratory. It is expected that you have already acquired knowledge on food processing tools, equipment, and utensils, and their uses.

You will work in small groups as you prepare the appropriate tools, equipment, and utensils according to the food processing method assigned to your group.

Group 1: Sugar Preservation

STRAWBERRY JAM

Ingredients:
2 pounds fresh strawberries, hulled
sugar
fresh lemon juice

Steps:
1. Halve or quarter the strawberries to make equal-size pieces.

2. Combine the strawberries and sugar. Bring to a simmer and cook over medium heat, stirring frequently for 15 minutes or until the mixture thickens. Occasionally mash the berries as they cook. Add the remaining sugar and cook for five minutes or until the jam thickens again.

3. Remove from the heat and stir in the lemon juice

4. Pour the jam into hot, properly sterilized preserving containers, leaving ⅛ inch of headspace between the top of the jam and the top of the containers. Wipe the rims clean, attach the lids, and tightly screw on the caps. Invert the containers for 10 seconds. Cool.
Source: https://www.freshpreserving.com/strawberry-jam-%7C-making-strawberry-jam-%7C-bal.

Group 2: Pickling

PAPAYA RELISH (ATSARA)

Ingredients:

grated fresh green papaya
salt
carrot, peeled and sliced
red bell pepper
small fresh ginger
green chilli peppers, sliced thinly
raisins
white sugar
white vinegar

Steps:

1. Toss the grated papaya with salt together; allow to sit for 1 hour. Drain the liquid from the papaya and rinse thoroughly. Place the papaya in the middle of a large piece of cheesecloth and squeeze to drain as much liquid from the papaya as possible.
2. Combine the papaya, carrot, red bell pepper, ginger, green chile peppers, and raisins together & mix. Transfer the mixture to clean container.
3. Stir the vinegar, water, sugar and salt together; bring to a boil for 5 minutes. Pour the vinegar mixture to the vegetables Make sure it is completely submerged in liquid. Allow the vegetables to marinate in the liquid at least 1 day before using.

Source: https://www.downtoearth.org/recipes/appetizers-sides-new/pickled-papaya

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Group 3: Smoking

Easy Smoked Vegetables

Ingredients:
pecan chips
ear fresh corn, husks and silk strands removed, corn cut into 1-inch pieces
medium yellow squash, cut into 1/2-inch thick slices
small red onion, cut into thin wedges
small green bell pepper, cut into 1-inch strip
small red bell pepper, cut into 1-inch strips
small yellow bell pepper, cut into 1-inch strips
mushrooms, halved
vegetable oil
McCormick® Grill Mates® Montreal Chicken Seasoning

Steps:

1. Soak wood chips in enough water to cover for 1 hour. Drain. ...
2. Heat _____on high heat about 10 minutes or until smoke appears from chips. Reduce heat to medium.
3. Meanwhile, toss vegetables with oil in large
4. Grill over medium heat for 10 to 12 minutes or until vegetables are tender, turning occasionally.

Source:https://www.mccormick.com/grill-mates/recipes/salads-sides/easy-smoked-vegetabl

Group 4: Canning

Canned Cherries

Steps:

When canning cherries select bright, uniformly-colored mature fruit. They should be ideal for eating fresh or cooking.

Stem and wash cherries. Remove pits if desired. If pitted, pre-soak in a salt/vinegar water solution to retain color. If cherries are canned un-pitted, prick skins on opposite sides with a clean needle to prevent splitting. Cherries may be canned in water, apple juice, white grape juice or sugar syrup. If another liquid is used, heat it to boiling.

Hot Pack Remove cherries from salt/vinegar water solution and drain well.. Add water, juice or syrup to each quart of fruit. Bring to a boil.

Pack cherries in hot jars, leaving 1/2 inch head space. Fill jars to 1/2 inch from top with hot liquid. Remove air bubbles. Add more liquid if needed. Wipe rim and screw threads and adjust lids and screw bands. Process in a Boiling Water Bath Canner

- qts. 15 min.
- qts. 20 min.

Yields

- 22 pounds 1 lug--7 to 11 quarts
- 56 pounds-22 to 23 quarts

After processing, remove jars immediately, place on a rack to cool.

Source: www.healthycanning.com/home-canned-cherries/

Group 5: Drying

Dried Mango

Ingredient:
2 pcs whole ripe mangoes

Steps:
Wash both mangoes, and remove the skin

Cut into thin slices, and place them on the Silpat.

Put the mango & bake for 2 to 3 hours, flipping them over every 30 minutes or until they're dry.

Source:https://www.popsugar.com/fitness/How-Make-Dried-Mango-30459610

Group 6: Curing

Cured Cabbage

INGREDIENTS:
1 Medium Head of Cabbage
sea salt

STEPS:

1. Chop or shred cabbage. Sprinkle with salt.
2. Knead the cabbage with clean hands, or pound about 10 minutes, until there is enough liquid to cover.
3. Stuff the cabbage, pressing the cabbage underneath the liquid. If necessary, add a bit of water to completely cover cabbage.
4. Cover with a tight lid, airlock lid, or coffee filter secured with a rubber band.
5. Culture at room temperature (60-70°F is preferred) for at least 2 weeks until desired flavor and texture are achieved. If using a tight lid, burp daily to release excess pressure.

Source: https://www.culturesforhealth.com/learn/recipe/natural-fermentation/sauerkraut

Now that you have selected the tools, equipment, and utensils needed for specific food processing procedures, it is important to emphasize that some of this equipment must be used according to manufacturer's specifications. Procedures must be followed to ensure proper use and maintenance of these tools and equipment.

PROCESS QUESTION:
Do you think that proper selection of tools, equipment, and utensils contribute to product quality and prevention of possible hazards? Why do you say so?

The next activity will help you further see the connection of following procedures to the success of any food processing activity. But before moving to this, write your ideas on the focus question.

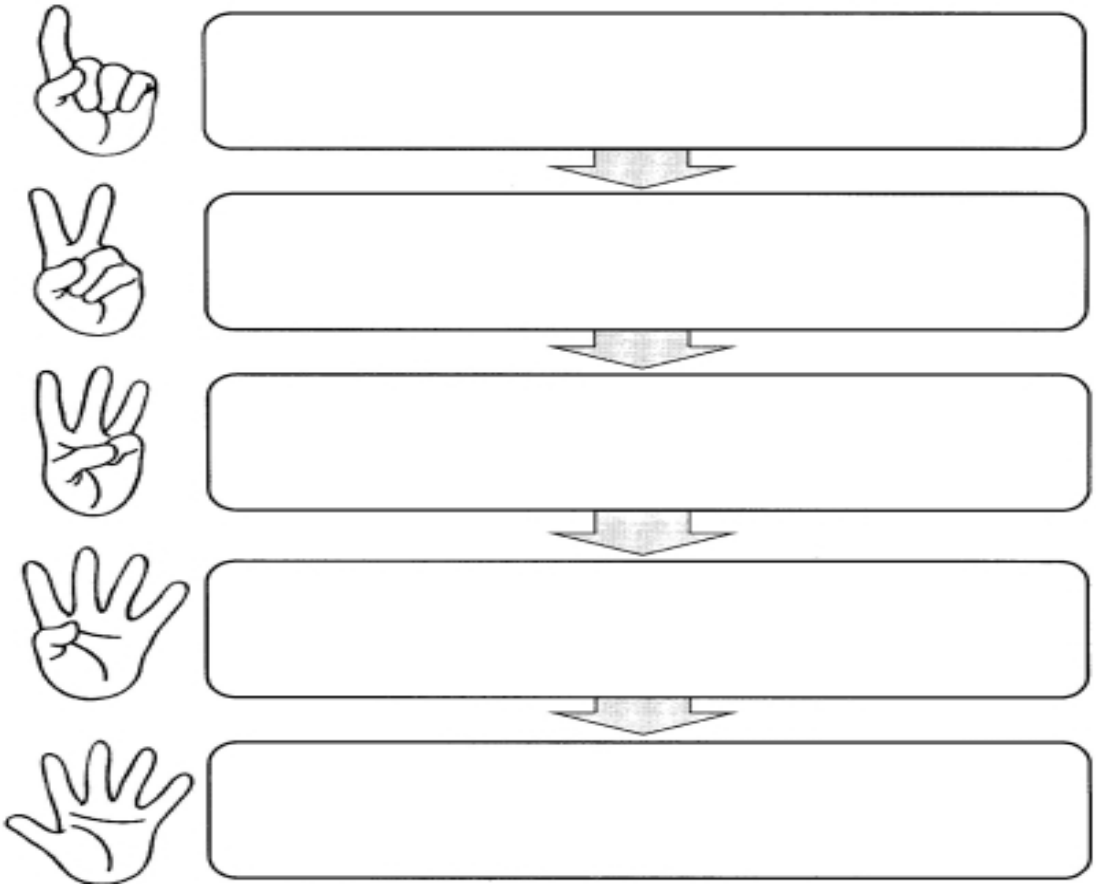
QUESTION TO FOCUS ON:

What makes for an effective food production plan?

ACTIVITY 10. Know thy Process!

In a food processing business, knowing what should be done is very essential. Based on the previous activity, you are tasked to create a graphic organizer to illustrate the general steps in food processing.

SAMPLE GRAPHIC ORGANIZER



https://www.dailyteachingtools.com/images/HandyFlowChart.jpg

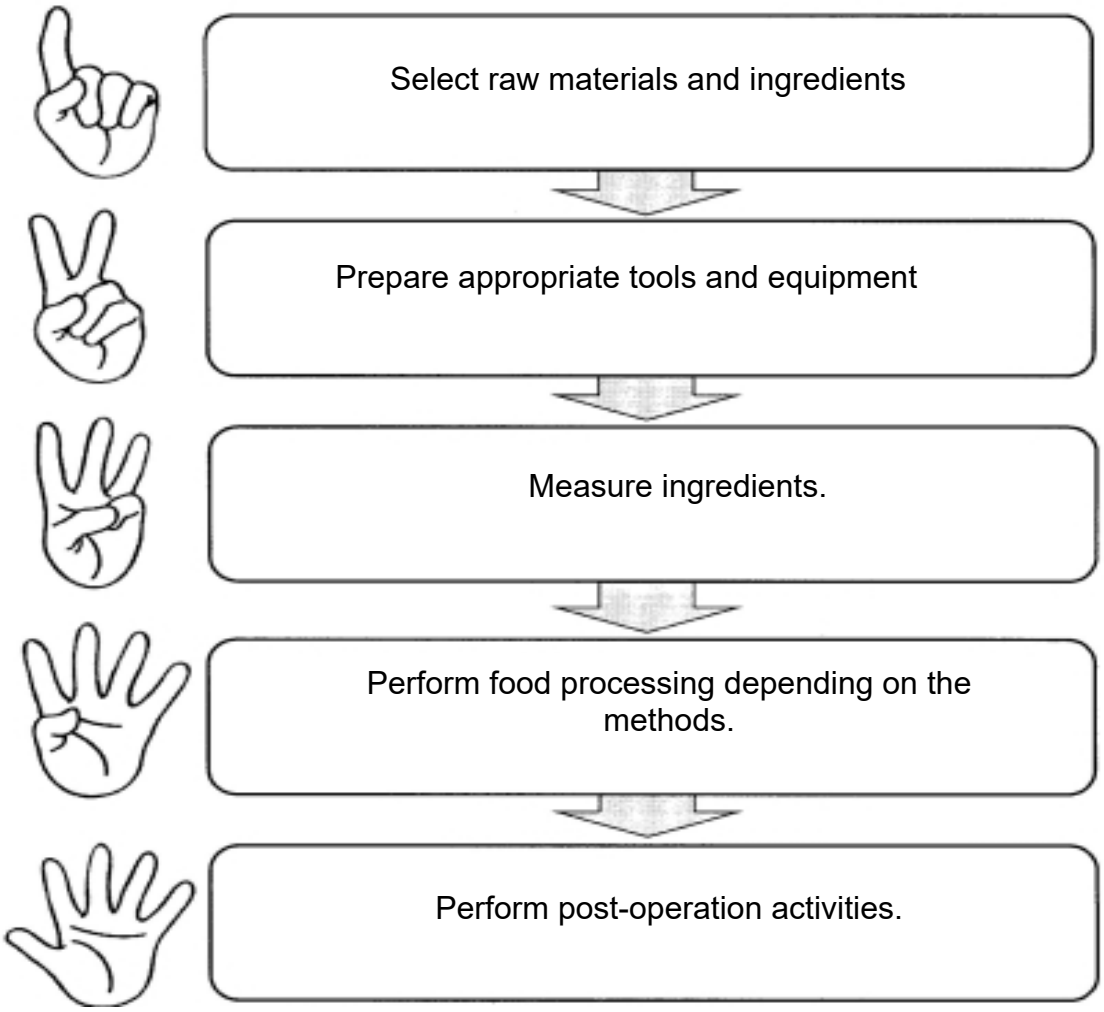
PROCESS QUESTIONS:

1. What do you think is the importance of knowing the steps in food processing?

2. Do you think following the steps is significant in coming up with the expected output? Why?

To check if your answers are correct, kindly refer to the graphic organizer below:

GRAPHIC ORGANIZER



https://www.dailyteachingtools.com/images/HandyFlowChart.jpg

If you got it right, CONGRATULATIONS! you were able to internalize the general steps. If not, answer the following questions:

Questions:

1.In order for you to improve, what should be done?

2. What activity do you want to go back to to further master the skill or competency related to the general steps?

ACTIVITY 11. Pack Up!

Like mountaineering, you can't just leave your camp site without cleaning up. In food processing, you would also need to perform post-operation activities. You cannot just leave the food processing area.

Using the same selection of tools, equipment, and utensils, from the Gear Up activity, practice the standard post-operation activities by, cleaning, sanitizing, and storing them properly. You will demonstrate these activities to your teacher (or take a video of you and the other members of the group while doing the activities). Listen and take note of his/her corrections or feedback. You may refer to the flow chart you accomplished in the "*What happens before and after?*" activity.

TIPS: (Write the feedback of your teacher here.)

Afterwards, answer the following process questions.

1. What are the best ways of cleaning and sanitizing tools after the food processing activities?

2. Why should you properly store utensils?

3. Why are post-production activities essential to food processing?

Now that you have performed post-production activities according to standards set, remember to practice them in any food processing activity you will engage in soon.

Don't forget to write your ideas on the focus question.

QUESTION TO FOCUS ON:

What makes for an effective food production plan?

In food processing, following procedures is essential to success as emphasized in the Gear up and Pack up activities. Were you able to grasp the importance of pre-production and post-production activities in food processing? Just like in mountaineering, you gear up to make sure you have everything you need and you pack up to make sure you don't leave anything behind that you will still use for the next camp.

Furthermore, the next activity will walk you through other standards and procedures necessary to start your own food processing story just like Manny and Virginia's.

ACTIVITY 12. Weigh, Measure and Formulate

In this collaborative activity, you will be practicing your skills in weighing, measuring, and formulating ingredients. You will be working on an assigned recipe for sugar preservation. Take note that you should strictly follow the unique concentration ratio prescribed by the teacher. Prepare to report the results of your food processing activity using the following template.

Original Measurements (from recipe given by the teacher)	Converted Measurements	Prescribed Formulation	RESULTS

PROCESS QUESTIONS:

1. Did all the groups get the same results?

2. What do you think are the reasons behind these results?

At this point, are you able to get a deeper understanding on the importance of standards? The next activity will help you realize why standards are set and why they should be followed.

QUESTION TO FOCUS ON:

What makes for an effective food production plan?

ACTIVITY 13. : If the Price is Right…

SCAFFOLD 2

In any business, setting a reasonable price for your product is essential. In the earlier section of this module, you learned about measurement equivalents, production costs and price computations.
However, it is not always easy to get it right in an actual situation.
This activity will expose you to the actual processes involved in pricing your product and allow you to realize how a food processing business will benefit if the price is right.

It all begins with a recipe. In your small group, you will be given this recipe for a ***Pineapple-Papaya Jam***. Read the recipe carefully. Analyze the elements of the recipe to help you determine what information you are to encode to standardize it. You need to perform the necessary activities required to standardize a recipe (refer to the recipe template). You will also need to accomplish the production report at the end.

NAME OF RECIPE: PINEAPPLE-PAPAYA JAM		YIELD: ____bottles (using 8 ounces bottles/glass jars)	
QUANTITY	INGREDIENTS	UNIT PRICE	UNIT COST

3 cups	pineapple pulp, chopped		
2 cups	papaya pulp, shredded		
2 cups	Sugar (white)		
1 cup	Water		
2 pieces	Calamansi		
		TOTAL COST OF INGREDIENTS:	

PROCEDURE:

1. Assemble the needed utensils.
2. Wash the fresh fruits. Drain
3. Use fully ripe papaya. Wash, cut in half (lengthwise) and scoop out pulp and wash or crush to a uniform consistency.
4. Pare ripe pineapple, remove eyes, wash and chop.
5. Measure ingredients.
6. Put pineapple, papaya, calamansi juice and water in a pot.
7. Simmer for 20 minutes.
8. Add sugar and stir until dissolved.
9. Boil the mixture in medium high heat until it reaches 220°F in a thermometer [setting point]. If you don't have a thermometer, like me, [*I still don't have one*] just boil/simmer it for 20 minutes.
10. Skim the scum on top and put in sterilized jars.
11. Set in the kitchen counter until it settles.

Suppose you have the following costs data, how much is the total production cost if you need to produce 40 bottles?

Water – Php20.00
Electricity – Php50.00
Gas/LPG – Php50.00
Packaging materials – Php200.00

SOLUTION:

Production Costs: _____

If the profit margin is set to 35%, at what price will you sell each bottle of jam?

FORMULA and SOLUTION: Selling Price: _____

Complete the production report below. Briefly report to class your recorded data for the production of 40 bottles of jam.

PRODUCTION REPORT *Pineapple-Papaya Jam*	
PRODUCT QUANTITY	
COST OF PRODUCTION	
SELLING PRICE	
PROBLEMS ENCOUNTERED:	

Did all of the groups arrive at the same selling price? Why is this so?
Discuss with your group the reasons behind the results and list down your ideas in the box below.

POSSIBLE REASONS FOR SIMILARITIES OR DIFFERENCES IN RESULTS:

PROCESS QUESTIONS:

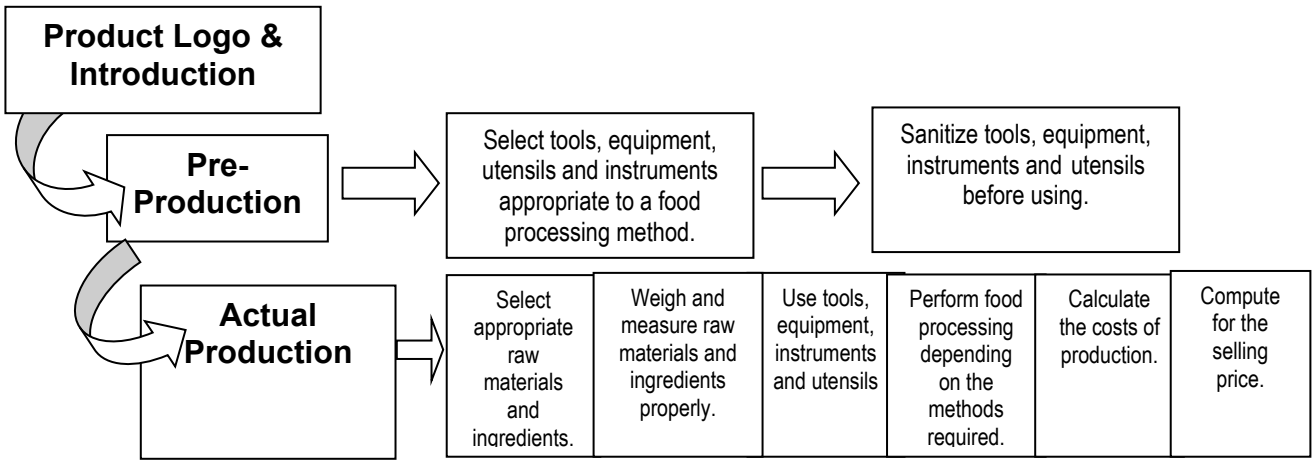
1. Were you able to realize the advantages of following certain standards when pricing a food product?

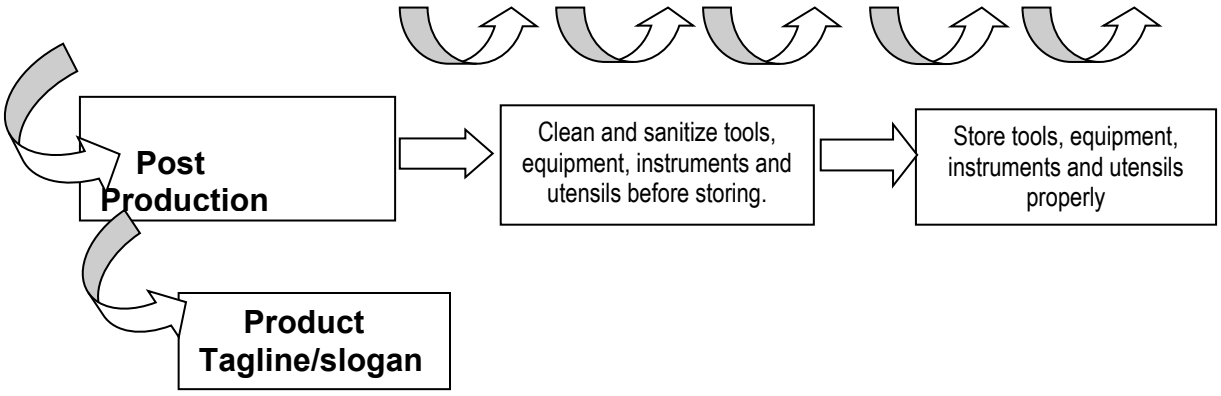
2. How are mensuration and calculation connected to profitability?

How did you find the entire process? Did you find it easy or difficult? Do you think you will be able to perform better in the next food processing activities? Before moving on to the next activity, try to answer the question to focus on.

QUESTION TO FOCUS ON:
What makes for an effective food production plan?

For you to have a clearer view of what are the necessary skills needed for you to accomplish the task ahead, take a look at the graphic organizer below.





P

Time to Check and Put Everything Together:

Let's find out if you are able to practice with confidence the necessary skills that will enable you to make an effective plan for a food processing business based on the graphic organizer above.

Directions: Encircle the number that corresponds to your level of readiness using the following scoring guide:

3 – YES (with much confidence)
2 – ALMOST (needs comments/feedback from others)
1 – NOT AT ALL (need detailed instructions)

No.	SKILLS	Rating		
1	I can select tools, equipment, utensils and instruments appropriate to a food processing method.	3	2	1
2	I sanitize tools, equipment, instruments and utensils before using them.	3	2	1
3	I can use tools, equipment, instruments and utensils in food processing properly.	3	2	1
4	I can select appropriate raw materials and ingredients.	3	2	1
5	I can weigh and measure raw materials and ingredients properly.	3	2	1
6	I can perform food processing depending on the methods required.	3	2	1
7	I can calculate the costs of production.	3	2	1
8	I can compute for the selling price a product.	3	2	1
9	I clean and sanitize tools, equipment, instruments and utensils before storing.	3	2	1
10	I can store tools, equipment, instruments and utensils properly.	3	2	1

What is your level of readiness to perform the final task in this module? Do you think you will be able to transfer your learning to the real-world situations? What skills do you feel you still need to work on?

The next activity will shed more light for you to better see the connection of concepts and activities you learned from the previous sections of this module.

ACTIVITY 14. Guided Generalization

Read and analyze the situations in the table below. Write your answers to the questions after each situation. Make sure to provide supporting texts and reasons for your answers. Then, generalize your ideas by decoding the common ideas you inferred from the situations.

ESSENTIAL QUESTION:	**SITUATION 1: Title: The Ube Jam**	**SITUATION 2: Title: Queen's Gourmet Tuyo**	**SITUATION 3: Title: 3KINGS Longanisa**
What makes for an effective food production plan?	Rhodora's Ube Jam is on its 3rd-month of operation. Upon evaluation of her business, she found out that she is still not gaining profit despite consistent marketing efforts. After conducting a survey from her previous customers, low sales volume is primarily caused by flavor and quality inconsistency of the products. What makes this business a failure? What word or phrase supports your answer?	Teddy, the owner of Queen's Gourmet Tuyo was shocked to know that in the reports, instead of income, she found out that the company is losing. Upon investigation, she found out that the bookkeeper is inefficient in keeping all the records particularly the official receipts needed in computing the production cost. What makes this business a failure? What word or phrase supports your answer?	Merline, the owner of 3KINGS longanisa noticed that her production expenses are increasing every month but the quantity of the longanisa produced is still the same. She found out that the Senior workers are not anymore following the standard weights and measures of the ingredients causing the variable costs to increase. What makes this business a failure? What word or phrase supports your answer?

	How do those evidences tell that the business is a failure? How can we succeed in our business?	How do those evidences tell that the business is a failure? How can we succeed in our business?	How do those evidences tell that the business is a failure? How can we succeed in our business?
	Claim/Answer:	Claim/Answer:	Claim/Answer:
	Evidence/Supporting Text:	Evidence/Supporting Text:	Evidence/Supporting Text:
	Reason:	Reason:	Reason:
	Common Ideas in Reason:		
	ENDURING UNDERSTANDING: An effective food production plan can be made by/through…		

PROCESS QUESTIONS:

1. What new realizations do you have about the topic?

2. What new connections have you made for yourself?

3. What helped you make these connections?

ACTIVITY 15. Assessment for Understanding

Before you can proceed to application of concepts and skills learned, it is necessary to check how well you understand them. Below are the situations that would check your understanding. Answer this activity by following the guide questions. Your answer will be graded based on the rubric below.

Level	Descriptors
4	The explanation is correct and supported by complete, relevant and additional information not discussed. The justification shows logical reasoning supported by other compelling evidences.
3	The explanation is correct and supported by complete and relevant information. The justification shows logical reasoning supported by appropriate evidences.
2	The explanation has major errors or omissions. Justification is logical but evidences are not relevant.
1	The explanation has no reference to the EU. Justification is either incomplete, missing or lacks support and evidence.

ESSENTIAL QUESTION:	**SITUATION 1** Title: Pass or Fail?	**SITUATION 2** Title: Spicy Tuna Sardines	**SITUATION 3** Title: Buy Guava Jelly!
	Harry's Best, is a meat processing business that is gaining popularity in South Metro Manila.	Mr. Mendoza, owner of the Mendoza's Tuna Best, is selling tuna processed	Madeline harvested a large number of ripe guava fruits from their backyard in the

What makes for an effective food production plan?	To continue their operation, they had to pass an annual inspection regarding safety and hygiene of the facility, cooking equipment, sanitary equipment and procedures, food processes and control and personnel hygiene and safety. Harry was surprised to receive a notice to stop their operation because they failed to show that they practice pre and post-operation standard procedures in food processing. Tools, equipment, and utensils in production are washed only when they want to. Sanitizing is not regularly done. Storage area is unclean and disorganized. What makes this business a failure? What word or phrase supports your answer? How do those evidences tell that the business is a failure? How can we succeed in our business?	products. His best seller product is Spicy Tuna Sardines. Two days ago, he accepted an order of 300 bottles. However, his canning equipment broke down in the middle of production. He remembered that they have not done any preventive maintenance measures because he didn't see its importance at the time he started his business. In the end, Mr. Mendoza was not able to fulfill the orders and he had to deal with an irate customer. What makes this business a failure? What word or phrase supports your answer? How do those evidences tell that the business is a failure? How can we succeed in our business?	province. With much excitement, she decided to process the guavas and just use her own recipe that she has not tested yet. She then sold her guava jelly in the bazaar in her village. She was able to sell only some during the first days but soon nobody is buying her jelly. She heard from some of her neighbors that her guava jelly is too sweet. What makes this business a failure? What word or phrase supports your answer? How do those evidences tell that the business is a failure? How can we succeed in our business?
	Claim/Answer:	**Claim/Answer:**	**Claim/Answer:**

	Evidence/Supporting Text:	**Evidence/Support-ting Text:**	**Evidence/Support-ting Text:**
	Reason:	**Reason:**	**Reason:**
	Common ideas in reason:		
	ENDURING UNDERSTANDING: Effective food production plan is determined by…		

Process Questions:

1. How do you find the activity?

2. Did it help you deepen your understanding of the standards?

3. What realizations do you have now in relation to the essential question?

End of DEEPEN:
In this section, you were prepared to make meaning of the facts and skills you acquired in the earlier sections of this module. You had opportunities to enhance your critical thinking, communication, collaboration and creativity skills.

Like mountaineers, you have been geared up and you already started trekking. Let's see if you will arrive at the highest peak that you are aiming to reach.

TRANSFER

Your goal in this section is to apply your learning to real life situations. You will be given a practical task which will demonstrate your understanding.

TRANSFER GOAL:
In the long run, you will be able to formulate useful plans for a possible food processing venture.

Here is the G.R.A.S.P.S. for your final task in this module.

According to the recent report (2017) issued by the Association for Packaging and Processing Technologies (PMMI), there is a global consumer trend towards healthier

foods. This has caused food processors to continually reformulate their products to meet the demand for healthier products that remove unsafe ingredients.

You are a group of young entrepreneurs who would like to venture into a food processing business that will offer healthier options. You will have to formulate a production plan that will guide you in putting up the said business. You will present your plan to prospective investors. Your plans will be evaluated based on content, originality, feasibility.

Your production plan for a food processing venture will be graded based on the following:

CRITERIA	OUTSTANDING 4	SATISFACTORY 3	DEVELOPING 2	BEGINNING 1
Content	The production plan contains extensive information on the required sections of the plan. Ideas are cohesive and carefully thought-out.	The production plan contains sufficient information on the required sections of the plan. Ideas are connected.	The production plan contains incomplete information and/or sections. Connection of ideas is not present.	The production plan mostly contains information that is irrelevant and disconnected.
Originality	The production plan is innovative that shows inventive thought. It shows own and unique ideas and techniques.	The production plan shows creative thought.	The production plan merges creative thinking and borrowed ideas from the others.	The production plan imitates ideas from the others.
Feasibility	The production plan provides in-depth information to justify its chance for success. Research-based values are used to forecast costs and profit.	The production plan provides sufficient information to justify its chance for success. Estimated values used to forecast costs and profit are realistic.	The production plan provides insufficient information to justify its chance for success. Some values used to forecast costs and profit are not realistic.	The production plan provides vague and irrelevant information that cannot justify its chance for success.

Let us begin by getting you acquainted with the food production plan template.

ACTIVITY 16. The Production Plan Template

SCAFFOLD 3

Look at the "Food Processing Production Plan Template" below.
It is divided into 5 major parts: Introduction of the Product, Pre-production, Actual Production, Post-Production, and Product Slogan. You are tasked to create a Fish Processing Production Plan using the template.

Queen's Gourmet Tuyo

This Spanish style bottled tuyo pairs perfectly with freshly baked bread and your favorite morning brew. Flavorful and tender, and packed in smooth olive oil, you will experience only the finest taste of Spain.

Introduction of the product

Pre-Production	Actual Production	Post-Production
TOOLS, EQUIPMENT, UTENSILS	**PRODUCTION COSTS**	**CLEANING SOP'S**
Pre-operation SOP's	**Production Flow:**	**Sanitizing:**
		Storing:

Product Slogan

Eat tuyo the gourmet style!

For the Introduction,
For the Pre-production Plan, listed are the tools, equipment, and utensils appropriate to the food processing method.
For the Actual Production,
For the Post-production,
For the Conclusion,

PROCESS QUESTION:

1. How does the activity prepare you for the task ahead?

ACTIVITY 17. You Try It!

To accomplish your task, you will create an entire production plan for a **chosen food processing business**. In doing your plan, please bear in mind the rubric that was discussed in the earlier part of this module. The rubric serves as your basis.In coming up with your task, consider also the 21st century skills necessary for 21st century learners.

For you to think **critically and become a problem solver**, reflect on how you will respond to the given situation? "What can you do in coming up with a food production plan? What specific actions would you undertake to prepare for this?

To develop your **communication skills,** present your business production plan to prospective investors. How will you make a presentation about your business/food production plan?

For you to develop your **collaboration and creativity skills**, you need to work as a group. Hence, in groups of 3, design a business/food production plan. The production plan should show the following phases-Pre-production, Actual Production and Post Production.

In order for you to become successful in this field, you need to understand other cultures and collaborate with the use of internet. Come up with a Facebook page to encourage young entrepreneurs from different parts of the world to share their entrepreneurial/food processing business success stories. Ask them to comment/give suggestions on your business/ food production plan. **Through such activities, you will manifest your CROSS-CULTURAL UNDERSTANDING & COMPUTER/ICT skills.**

Now, imagine yourself ten (10) years from now, what do you think will be your profession? How can the things you learned in food processing help you in your chosen profession? Share your ideas on how you can continue applying your skills in food processing.

Here is a clearer representation of the 21st Century Learning Skills that you should posses in coming up with your task.

21st Century Skills	Instruction
CRITICAL THINKING & PROBLEM SOLVING	**The teacher asks:** According to the recent report (2017) issued by the Association for Packaging and Processing Technologies (PMMI), there is a global consumer trend towards healthier foods. This has caused food processors to continually reformulate their products to meet the demand for healthier products that remove unsafe ingredients. You are a group of young entrepreneurs who would like to venture into a food processing business that will offer healthier options. What can you do in coming up with a food production plan? What specific actions would you undertake to prepare for this?
COMMUNICATION	**The teacher says:** • Present your business production plan to prospective investors. How will you make a presentation about your business/food production plan?
CREATIVITY/COLLABORATION	**The teacher instructs that:** • In groups of 3, design a business/food production plan. The production plan should show the following phases-Pre-production, Actual Production and Post Production.
CAREER LIFELONG LEARNING	**The teacher poses this reflection question:** • Imagine yourself ten (10) years from now, what do you think will be your profession? How can the things you learned in food processing help you in your chosen profession? Share your ideas on how you can continue applying your skills in food processing.

CROSS-CULTURAL UNDERSTANDING, COLLABORATION & COMPUTER/ICT	**The teacher asks**: • Come up with a Facebook page to encourage young entrepreneurs from different parts of the world to share their entrepreneurial/food processing business success stories. Ask them to comment/give suggestions on your business/ food production plan.

PROCESS QUESTIONS:

1. Are you satisfied with your output? Why or Why not? If not, what aspects could you have improved?

2. Which aspect in the making of the transfer task did you like most?

3. What difficulties did you encounter in making the transfer task?

4.How did the task help you see the real-world use of the topic?

5. Ten years from now, do you see yourself as a successful entrepreneur? If so, how are you going to achieve it?

6. In achieving your goals, what do you think are the values that are evident in your transfer task that you think you can bring it with you wherever the future will bring you?

ACTIVITY 18. Evaluate your Work

To end your task, you need to evaluate yourself by completing the table below:

The best aspect/s of this task is/are _____ _____because_____ _____ _.
If there is one aspect of this task that may require further revision, I think it is _____ _____because_____ _____ I can further improve it by /through _____ _____.
The grade that I would give to this task based on the rubric is _____.

ACTIVITY 19. Anticipation-Reaction Guide

Before you proceed to the last section of this module, you need to revisit first the map of conceptual change and find out if there are changes of your responses. This time, you need to answer the "**AFTER"** column.

BEFORE	STATEMENTS	AFTER
	Selection, use, and maintenance of tools, equipment, and utensils in food processing can be effectively performed separately.	
	Mathematical skills are required in food processing activities.	
	Precision and accuracy are essential skills in food processing.	
	Measurements and calculations have no effect on the profitability of a food processing business.	

	The primary purpose of a food processing production plan is to know how much money you will need to start the business.	

Process Questions:

1. What did you notice in your responses?

2. Is there a difference from your previous responses?

Now, you have completed this lesson. Before you go to the next lesson, you have to answer the following post-assessment.

POST ASSESSMENT

1. What will help you determine the kinds of tools, equipment and utensil you will assemble, sanitize, inspect or check? (Lesson 1- LO1.1, 2.1, 2.4)
   a. the kind of product to be produced
   b. the method of food processing to be done
   c. the raw materials to be processed
   d. the availability of tools, equipment and utensils

2. The teacher assigned group 5 to make calamansi concentrates. The recipe requires testing in terms of the level of sugar concentration in the syrup for food. What measuring tool should the group use? (Lesson 1.LO1.1)
   a. jelmeter
   b. anemometer
   c. psychrometer
   d. refractometer

3. As a maintenance staff of the Lola Abon's Durian Center, how do you check and inspect all the equipment in your processing area.?(Lesson 1-LO1.3)
   a. prepare a written report following the standard format
   b. make a checklist of the tools and equipment inspected
   c. Unplug the main electrical switch of the processing area
   d. make a habit of inspecting or repairing the equipment every the end of the month

4. Food processing requires appropriate tools to ensure work efficiency and quality of a product. Which of the following factors is not required in the selection of best tools? (Lesson 1- LO 2.5)
   a. Brand and style
   b. Field experience in their safe use
   c. Following manufacturer's guidance and instructions
   d. Training in the proper use of tools

5. Measuring devices and instruments are calibrated periodically to ensure accuracy or precision in the use of ingredients in food processing. How does calibration done in thermometer, specifically for candy thermometer and oven thermometer? (Lesson 1-2.3)

   a. dip the thermometer in hot food to see if the mercury rises to desired temperature
   b. Hold the silver at the base of the thermometer and check if the mercury is moving up and down
   c. wipe the thermometer with damp cloth or cotton, applied with alcohol
   d. bring the thermometer to any clinic and request assistance from medical practitioner.

6. If the yield of the standardized recipe is 10 bottles, how many bottles can be produced if the recipe is quantified to five (5)? Lesson 2- LO4.1)
   a. using 10 as the multiplying factor
   b. 10 bottles X 5
   c. ninety (90) pieces
   d. divide 10 by 5

7. Food processor is guided with the processing of fruit preserves through the use of standardized recipe. Which of the following is correct in the usefulness of standardized recipe in food processing? (Lesson 2- LO2.2; LO4.1.1)

   a. Conversion of units is based from quantity and the yield
   b. to ensure that processing can be done smoothly and productively
   c. it guides the food processor on what equipment and preparation techniques
   d. It provides data on what to measure, how to prepare and how much is the cost

8. If you are asked to express concentration of a mixture, which of these will you use? (Lesson 2-LO 2.1)
   A. weight of solute per unit of solvent
   C. proportion formulation
   B. ratio

D. per unit weight of solvent

9. The DAVAO FOOD EXPERTS AND MULTI-PURPOSE COOPERATIVE is manufacturing and selling food processed products, specializing on mango preserves. One recipe that is gaining popularity to the residents in Davao City is their Mango-Pineapple Marmalade. Though the standardized recipe was offered by the DOST to the cooperative during the training, the food processors used it and just complemented it with lemon zest to improve its taste and aroma. Recently, the increased order of this product had prompted the cooperative to increase also their production of the said recipe. As a production officer, you are expected to prepare new computations based on 60 bottles as the expected daily yield. In the given standardized recipe with a overhead cost of Php 145.00, what is the new selling price if the profit mark-up set to 70%?

Name of Recipe: Mango-Pineapple Marmalade (standardized recipe) Yield: 6 bottles (8 oz/bottle)

QUANTITY	INGREDIENTS	UNIT PRICE
750 grams	ripe mangoes , pureed	Php 80.00/kilogram
750 grams	Ripe Pineapple, pureed	Php 40.00/kilogram
1 pc	orange, whole , fresh	Php 25.00/pc
½ tbsp.	orange peel, crushed	
1 kilogram	granulated white sugar	Php 60.00/kilogram

PROCEDURE:

1. Wash mangoes. Peel, scoop out seeds and chop finely the mango pulp.
2. Wash orange, remove peel, white portions and seeds.
3. Measure ingredients.
4. Combine chopped mango, lemon pulp and peel.
5. Boil mixture rapidly, stirring constantly until thick.
6. Pour while hot into warm sterile jars. Seal, cool, label and store.

a. Php 5,440.00
b. Php 4,810.00
c. Php 3,440.00
d. Php 2,142.00

10. The teacher brought the class in the laboratory room. Taking the role of food processors, she instructed you to follow standards in cleaning and sanitizing of tools and equipment. When you are about to start the activity together with your group member, you couldn't present the steps since you accidentally misplaced it. As the group's solution, they listed the steps which should be arranged in proper order. From the given list and sequence of steps, which do you think is correct? (Lesson 2-LO4.1)

I. Allow to air dry.
II. Rinse with clean water.

III. Remove from the solution.
IV. Sanitize by dipping into approved sanitizer solution
V. Wash all the equipment / instruments with soap

a. V-II-III-II-I
b. I-II-III-IV-V
c. V-II-IV-III-V
d. III-V-II-IV-I

GLOSSARY

Assemble- to gather or collect things together in one place.

Calibrate- means to set or determine the accuracy of the measuring device.

Check- to examine something in order to establish its state or condition.

Dimension- is the measurement of the size of an object in terms of length, width, or height.

Equipment- things which are used to provide specific service or function.

Sanitize- to clean something thoroughly by disinfecting or sterilizing to make it free from germs or microorganisms; disinfect.

Sanitation- refers to the process of treating tools, equipment, and utensils with physical and chemical sanitizing agents to kill residual microorganisms present after cleaning.

Disinfect- means to rid of germs; to clean something so as to destroy disease – carrying microorganisms and prevent infection

Specification- is a detailed itemized description of dimension plans, materials and other requirements.

Standard- is a basis of comparison or established criterion
- an authorized unit of weight or measure.

Operate- to make equipment function or work correctly.
Disinfect- to rid of germs; to clean something so as to destroy disease-carrying microorganisms and prevent infection.

Tools- are implements used by hand when doing an activity or work. These are devices for doing work or objects designed to do a particular kind of work, for example cutting or chopping, by directing manually applied force or by means of a motor.

Check- to test the accuracy
- to examine something in order to establish its state or condition.

Capacity- refers to the measurement of the amount which a device can hold or contain.

Corrosion- rusting or gradual wearing of machine parts due to a chemical reaction between substances like iron and oxygen or other corrosive materials like salt, acids, etc.

Crack- a break or fissure on some parts of an equipment as in the body of a pressure cooker.

Electrocution- death or execution from electric shock.

Inspect- to carefully examine a machine or equipment in order to determine maintenance to undertake.

Leak- a crack or hole through which a liquid or gas may accidentally pass.

Lubricant- substance like oil or grease that coats or treats a machine to lessen friction and the wear and tear of machine parts due to constant rubbing of surfaces.

Preventive Maintenance- a system of maintenance that aims to minimize or eliminate breakdown in equipment and machinery by a program of regular inspection and repairs.

Repairs-to restore a machine or equipment that breaks down into good order or condition.

Switch- electrical device having two (2) states, ON (closed) OFF (open).
Switch-off-to turn off an electrical device.

Troubleshooting- systematic approach to locate the cause of a fault in an electronic circuit or system.

Utensil- is an implement especially for use in the kitchen

REFERENCES AND WEBSITE LINKS USED IN THIS LESSON

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