

7/8



Technology and Livelihood Education

Quarter 1 – Module 3:

Food Processing

(Exploratory Course)

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TLE FOOD PROCESSING – Grade 7/8 (Exploratory Course)

Alternative Delivery Mode

Quarter 1 – Module 3: Tabulate the Recorded Data Relevant to Production of Processed Food

First Edition, 2020

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**Technology and
Livelihood Education
Quarter 1 – Module 3:
Food Processing
(Exploratory Course)**

Introductory Message

For the facilitator:

Welcome to the Food Processing for Grade 7/8 Exploratory Course!

This module was collaboratively designed, developed and reviewed by educators both from public and private institutions to assist you, the teacher or facilitator in helping the learners meet the standards set by the K to 12 Curriculum while overcoming their personal, social, and economic constraints in schooling.

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

In addition to the material in the main text, you will also see this box in the body of the module:

Notes to the Teacher

This contains helpful tips or strategies that will help you in guiding the learners.

As a facilitator you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Furthermore, you are expected to encourage and assist the learners as they do the tasks included in the module.

For the learner:

Welcome to the Food Processing for Grade 7/8 Exploratory Course!

The hand is one of the most symbolized part of the human body. It is often used to depict skill, action and purpose. Through our hands we may learn, create and accomplish. Hence, the hand in this learning resource signifies that you as a learner is capable and empowered to successfully achieve the relevant competencies and skills at your own pace and time. Your academic success lies in your own hands!

This module was designed to provide you with fun and meaningful opportunities for guided and independent learning at your own pace and time. You will be enabled to process the contents of the learning resource while being an active learner.

This module has the following parts and corresponding icons:



What I Need to Know

This will give you an idea of the skills or competencies you are expected to learn in the module.



What I Know

This part includes an activity that aims to check what you already know about the lesson to take. If you get all the answers correct (100%), you may decide to skip this module.



What's In

This is a brief drill or review to help you link the current lesson with the previous one.



What's New

In this portion, the new lesson will be introduced to you in various ways such as a story, a song, a poem, a problem opener, an activity or a situation.



What is It

This section provides a brief discussion of the lesson. This aims to help you discover and understand new concepts and skills.



What's More

This comprises activities for independent practice to solidify your understanding and skills of the topic. You may check the answers to the exercises using the Answer Key at the end of the module.



What I Have Learned

This includes questions or blank sentence/paragraph to be filled in to process what you learned from the lesson.



What I Can Do

This section provides an activity which will help you transfer your new knowledge or skill into real life situations or concerns.



Assessment

This is a task which aims to evaluate your level of mastery in achieving the learning competency.



Additional Activities

In this portion, another activity will be given to you to enrich your knowledge or skill of the lesson learned. This also tends retention of learned concepts.



Answer Key

This contains answers to all activities in the module.

At the end of this module you will also find:

References

This is a list of all sources used in developing this module.

The following are some reminders in using this module:

1. Use the module with care. Do not put unnecessary mark/s on any part of the module. Use a separate sheet of paper in answering the exercises.
2. Don't forget to answer *What I Know* before moving on to the other activities included in the module.
3. Read the instruction carefully before doing each task.
4. Observe honesty and integrity in doing the tasks and checking your answers.
5. Finish the task at hand before proceeding to the next.
6. Return this module to your teacher/facilitator once you are through with it.

If you encounter any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator. Always bear in mind that you are not alone.

We hope that through this material, you will experience meaningful learning and gain deep understanding of the relevant competencies. You can do it!

Lesson

1

Tabulate the Recorded Data Relevant to Production of Processed Food



What I Need to Know

Hello there! Have you tried cooking at home? What specific dish did you prepare? In preparing the raw materials did you properly measure the amount of ingredients used? Expert cooks would simply estimate the amount of salt and seasoning to be added, but a beginner like you needs to accurately measure each ingredient to achieve the desired palatability and taste. What do you really do when you take measurements? A weighing scale or any measuring device is essential in preparing foods.

In this lesson, you are required to go through a series of learning activities in order to complete each learning outcome. Most of the time you will do the task related to each learning outcome and apply what you have learned. You can approach your teacher if you have questions and clarifications.

After completing this lesson, you are expected to:

- ✓ Tabulate the recorded data relevant to production of processed food (**MELC CODE: TLE_AFFP7-8MC-0d-1**)
 - Record weights and measurements of raw materials and ingredients;
 - Summarize/sum up recorded weights and measurements of processed products
 - Perform how a seam is measured



What I Know

Before reading and understanding this lesson, let us find out what you already know and what you still need to know about recording weights and measure.

A. Direction: Give the substitute equivalent of the following ingredients. Write your answer in the space provided.

- | | | |
|------------------------------|---|------------------|
| 1. 1000 gram of ripe mangoes | = | _____ kilogram |
| 2. 1 cup vinegar | = | _____ tablespoon |
| 3. 250 ml water | = | _____ cup |
| 4. 8 cups brine | = | _____ quart |
| 5. 16 ounces syrup | = | _____ milliliter |
| 6. 1-kilogram fish | = | _____ pound |
| 7. 1 tablespoon salt | = | _____ teaspoon |
| 8. 4 cups sugar | = | _____ pint |
| 9. $\frac{1}{4}$ cup oil | = | _____ milliliter |
| 10. 16 ounces powdered milk | = | _____ gram |

B. Direction: Fill in the blank with the correct word/phrase that will make the statement complete and correct. Choose your answer from the wordpool.

mass	measuring	top of measuring cup
spatula	flat and level	

1. _____ is the amount of material an object has with gram as the basic unit.
2. Weighing is more accurate than _____.
3. In measuring dry ingredients, it should be level with the _____.
4. Level-off with _____ when filling dry ingredients in a measuring cup.
5. In measuring liquid, place glass or plastic cup on a _____ surface.



What's In

Are you done? What do you think is your score in the short assessment? Don't worry, you will learn more as you read relevant information and do the required activities which will enhance your understanding of the lesson.

Activity 1: You Complete Me!

In obtaining the weight and measure, the unit is important depending on the materials or devices you are using. Let's find out if you are familiar with these units by writing the complete word of the abbreviated unit.

1. gal _____
2. ml _____
3. tbsp _____
4. oz _____
5. pt _____
6. c _____
7. tsp _____
8. gm _____
9. qt _____
10. kg _____
11. lb _____
12. fl. oz _____



What's New

Situation: Melisa prepares pickled chayote at home. The finished product will be submitted as her requirement in the food processing subject. She had bought the needed ingredients based on the menu. While preparing, she found it difficult because some of the measuring devices are not available at home. Let us help Melisa solve her problem.

Activity 2: Let's Convert!

Direction: In column A is the list of ingredients with their equivalent weight in column B. Write in column C the equivalent unit.

Column A (Ingredient)	Column B (Weight)	Column C (Equivalent unit=?)
1. sugar	250 g	cup =
2. vinegar	250 ml	cup =
3. salt	2 tbsp	teaspoon =
4. chayote	$\frac{1}{4}$ kg	gram =
5. bell pepper	1 pinch	teaspoon =
6. garlic	$\frac{1}{2}$ tbsp	teaspoon =
7. ginger	1 tbsp	teaspoon =
8. onion	$\frac{1}{2}$ tbsp	teaspoon =



What Is It

Definition of Terms

Capacity – refers to how much a container will hold.

Conversion- a change from one state or position to another or from one form to another.

Data – a collection of information about a study under investigation. It may be a number (quantitative) or a word (qualitative)

Mass – amount of material an object has. The base unit of mass is gram (g). For longer mass, the unit used is the kilogram (kg)

Measurement - way of comparing certain attribute of an object with some given standard.

Tabulate – to count record or list systematically.

Volume – the amount of space something occupies.

Measurements and Conversions

It is important to weigh or measure all ingredients accurately, especially for beginners. There are cooks and chefs who seem to be able to produce good results by guesswork and intuition because of their long experience in cooking. However, that should not be the case. What generally matters is using precise measurement. When weighing things, it is essential to buy a good brand of weighing scale that would longer. The commonly used units in weighing and measuring are listed below:

c	Cup
gal	gallon
gm	Gram
kg	Kilogram
lb	Pound
ml	milliliter
oz	ounce
pt	pint
qt	quart
tbsp	tablespoon
tsp	teaspoon
fl. oz.	fluid ounce

Weight Measurements and Conversions

Weight Conversion Factors		
Multiply	By	To get
Grams (gm)	0.035	Ounces
Grams	0.0022	Pounds
Grams	0.001	Kilograms
Kilograms (kg)	2.21	Pounds
Kilograms	1000	Grams
Pounds (lb)	453.6	Grams
Pounds	0.4536	Kilograms
Pounds	16	Ounces
Ounces (oz)	0.0625	Pounds
Ounces	28.3	grams

Approximate Metric Equivalent by Weight (US-Metric)	
U.S.	Metric
¼ ounce (oz)	7 grams (g)
½ ounce	14 grams
1 ounce	28 grams
1 ¼ ounces	35 grams
1 ½ ounces	40 grams
2 ½ ounces	70 grams
4 ounces	112 grams
5 ounces	140 grams
8 ounces	228 grams
10 ounces	280 grams
15 ounces	425 grams
16 ounces (1 pound)	454 grams

Liquid Measurements and Conversions

	tsp.	tbsp.	fl.oz	gill	cup	pint	quart	gallon
1 teaspoon =	1	1/3	1/6	1/24				
1 tablespoon =	3	1	1/2	1/8	1/16			
1 fluid ounce =	6	2	1	1/4	1/8	1/16		
1 gill =	24	8	4	1	1/2	1/4	1/8	
1 cup =	48	16	8	2	1	1/2	1/4	1/16
1 pint =	96	32	16	4	2	1	1/2	1/8
1 quart =	192	64	32	8	4	2	1	1/4
1 gallon =	768	256	128	32	16	8	4	1

US Customary System	Spoons	fluid oz.	Approx. milliliters
1/16 cup (c) =	1 tablespoon (tbsp) = 3 teaspoons (tsp)	1/2 fl.oz	15 ml
1/8 cup =	2 tablespoons	1 fl.oz.	30 ml
1/6 cup =	2 tablespoons + 2 teaspoons	1.3 fl.oz	40 ml
1/4 cup =	4 tablespoons	2 fl.oz.	60 ml
1/3 cup =	5 tablespoons + 1 teaspoon	2.7 fl.oz	80 ml
3/8 cup =	6 tablespoons	3 fl.oz.	90 ml
1/2 cup =	8 tablespoons	4 fl.oz.	120 ml
2/3 cup =	10 tablespoons + 2 teaspoons	5.3 fl.oz.	155 ml
3/4 cup =	12 tablespoons	6 fl.oz.	180 ml
1 cup =	16 Tablespoons	8 fl.oz.	235 ml
1 3/4 cup =		14 fl.oz.	410 ml
2 cups = 1 pint =		16 fl.oz.	470 ml
3 cups =		24 fl.oz.	700 ml
4 cups = 1 quart =		32 fl.oz.	940 ml

MISCELLANEOUS	EQUIVALENT
1 pinch	1/8 teaspoon or less
1 teaspoon	60 drops
1 dessertspoon (UK) 2	2 teaspoons

Approximate liquid measurement conversion factors		
Multiply	By	To Get
Quarts (qt)	0.95	liters
Quarts	4	cups
Liters (l)	1.06	quarts
Liters	1000	milliliters
Cups	235	milliliters
Cups	8	fluid ounce
Cups	0.25	quarts

Milliliters (ml)	0.0042	cups
Milliliters	0.067	tablespoons
Milliliters	0.034	fluid ounce
Fluid ounce (fl. oz)	29.6	milliliters
Fluid ounce	0.125	cups
Gallons (gal)	3.785	liters

Measuring Ingredients Correctly

Accurate techniques in measuring are as important as the tools for measuring. Therefore, always observe the following procedures:

Rice and flour

1. Fill the cup to overflowing
2. Level-off with a spatula or with a straightedge knife

Sifted flour - most cake recipes call for sifted flour.

1. Sift flour 2 or 3 times.
2. Spoon into the cup overflowing, level off with a spatula.



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Refined sugar

1. Sift sugar once to take out lumps.
2. Spoon into cup and level off with a spatula.
3. Do not pack or tap the sugar down.



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Brown sugar

1. Pack into cup just enough to hold its shape when turned out off cup.
2. Level off with a spatula before emptying.



FOOD(FISH) PROCESSING
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Shortening – Solid Fats

1. Fill the measuring cup/spoon with the shortening while pressing until it is full.
2. Level the fat with a straight of a knife or spatula



FOOD(FISH) PROCESSING
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Shortening – Liquid Fats

1. Pour oil in the glass measuring cup.
2. Check if it is filled up to the measuring mark.
3. Do not lift the cup when measuring.



FOOD(FISH) PROCESSING
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Milk – Liquid Form

1. Pour milk into the glass measuring cup up to the measuring mark. Do not lift the cup.



FOOD(FISH) PROCESSING
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Milk – Powdered Form

1. Remove lumps in milk by stirring.
2. Scoop lightly to fill the measuring cup or spoon without shaking until it overflows.
3. Use the spatula or the straight edge of the knife to level the measurement.



FOOD(FISH) PROCESSING
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Tips: Measure dry ingredients over a plate or bowl so you can catch the excess and put it back in the container.

Summarizing and Tabulating All Raw Data Gathered

Any set of information or data collected for study should be organized and analyzed systematically for easier and faster interpretation. To do this, collected data may be presented in any of the following forms:

1. The textual forms are used when data to be presented are few.
2. The tabular and graphical forms are used when more detailed information is to be presented.

Using tables and graphs has the following advantages:

1. Data are presented in a more practical and convenient way. Instead of writing text on the information gathered, items can be enumerated in tabular form or shown in graphical form.
2. Data can be compared more easily. Recording tables and graphs can be done more easily because the needed information can be seen at a glance.
3. Data can be analyzed comparatively. Tables and graphs enable a thorough analysis of data because all needed information is clearly known

Recording Skills

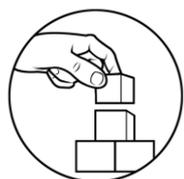
In recording we need the following skills:

- **Accuracy.** The measurement of any physical quantity is always subject to some degree of uncertainty. There are several reasons for this: the limitation inherent in the construction of the measuring instrument or device, the conditions under which the measurement is made, and the different ways in which the person uses or reads the instrument.

One way to express the uncertainty of a measurement is in terms of accuracy. Accuracy refers to the closeness of a measurement to the accepted value for a specific physical quantity. It is expressed as either an absolute or a relative error. Absolute error is the actual difference between the measured value and the accepted value.

- **Precision.** In common usage accuracy and precision are often used synonymously. But in science it is important to make a distinction between them. You should learn to use the two terms correctly and consistently. Precision is the agreement among several measurements that have been made in the same way.

The precision of your laboratory measurements will be governed by the instruments at your disposal. In a measuring instrument the degree of precision obtainable is called the tolerance of the device. Any figure listed for the tolerance of an instrument indicates the limitations of the instrument. It is assumed that the instrument is used properly and that human errors are held to a minimum.



What's More

Activity 3: Measure It!

Direction: Suppose you are going to cook and you need to measure the ingredients. Complete the missing measurement on the table given.

STANDARD MEASUREMENT		U.S.	METRIC
1.	2 tbsp	___ fluid ounces	30 ml
2.	$\frac{1}{4}$ cup	___ fluid ounces	170 ml
3.	$\frac{3}{4}$ cup	6 fluid ounces	_____ ml
4.	2 cups	___ pint	500 ml
5.	4 cups	1 quart	_____ liter



What I Have Learned

Activity 4: Reveal Me!

Direction: Fill the blanks with the appropriate letter that correctly fits in the word being identified.

1. C _ P A C _ T _
It refers to how much a container will hold.
2. _ O L _ M E
It is the amount of space something occupies.
3. K I _ _ G R _ M
The unit used in measuring bigger mass
4. M _ A S _ R E _ _ N T
A way of comparing certain attribute of an object with some given standard.
5. _ _ T A
A collection of information about a study under investigation.



What I Can Do

Let's apply your knowledge in a real-life situation.

Activity 5: Kitchen Tour!

Visit your kitchen and observe available measuring or weighing devices. Then, look inside your refrigerator and check what is stored inside. Take the weight of each foodstuff such as fruits, vegetables, fish, and meat and record data in your activity notebook.

Foodstuff	Weight
1.	
2.	
3.	
4.	
5.	

1. Did you find difficulty in obtaining the weight?
2. How did you measure it to have an accurate data?



Assessment

A. Direction. **MULTIPLE CHOICE.** Choose the letter of the correct answer from the options given. Write the answer in your activity notebook.

1. You are instructed to buy 1 kilogram of fish. What is its equivalent in grams?
 - A. 1000 g
 - B. 1500 g
 - C. 2000 g
 - D. 2500 g

2. What do you call a form with only a few data presented?
 - A. textual form
 - B. tabular form
 - C. graphical form
 - D. information sheet

3. Which of the following is the proper way of measuring dry ingredients?
 - A. It should be hip-full.
 - B. It should be eye-level.
 - C. It should be compacted.
 - D. It should be level to the top of the measuring cup.

4. Which of the following procedures is NOT included in measuring liquid ingredients?
 - A. Place the cup on a flat surface.
 - B. Crouch down to eye level.
 - C. Hold the cup while measuring.
 - D. Check the accuracy of the amount in cup.

5. Which of these refers to the closeness of a measurement to the accepted value for specific physical quantity?
 - A. accuracy
 - B. precision
 - C. recording
 - D. measuring

B. Direction: **Perform weighing and recording.** You are instructed to prepare Marinated Boneless Milkfish. Record the raw materials in tabular form given the acquired weights and measurements. Make a table in presenting your data.

Marinated Boneless Milkfish Raw Materials

fresh milkfish - 1 kilogram
 soy sauce - ½ cup
 black pepper - 1 tablespoon
 calamansi juice - ½ cup

vinegar - 1 cup
 salt - 5 tablespoons
 garlic (minced) - 1 tablespoon
 sugar - 5 tablespoons

Rubric	Rate		
	5	4	3
Criteria:			
1. Collect and interpret the data systematically.			
2. Present the data in a more practical and convenient way.			
3. Record the data accurately.			
Total			

Legend: The accumulated points will be interpreted using the following:

14-15 - Excellent

8-13 - Good

3-7 - Fair



Additional Activities

Congratulations! You are doing great! Rest and relax a while then move on to the next lesson. Good luck!

You have come this far in our lesson and I know you learned a lot on how to tabulate recorded weight and measurement of the raw materials for food processing. Now, for your additional activity at home, list down at least 3 ideas to the following questions below:

A. What is the importance of practicing accuracy in every measurement?

1. _____
2. _____
3. _____

B. What I found interesting and useful for the lesson?

1. _____
2. _____
3. _____

C. What do I want to learn more about the weighing and measurement of processed foods?

1. _____
2. _____
3. _____



Answer Key

What I Know	What's In Activity 1	What's New Activity 2
--------------------	-----------------------------	------------------------------

<p>A.</p> <ol style="list-style-type: none"> 1. 1 kilogram 2. 16 tablespoons 3. 1 cup 4. 2 quarts 5. 474 milliliters 6. 2.2 pounds 7. 16 teaspoons 8. 2 pints 9. 60 milliliters 10. 454 grams <p>B.</p> <ol style="list-style-type: none"> 1. Mass 2. Measuring 3. top of measuring cup 4. spatula 5. flat and level 	<ol style="list-style-type: none"> 1. gallon 2. milliliter 3. tablespoon 4. ounce 5. pint 6. cup 7. teaspoon 8. gram 9. quart 10. kilogram 11. pound 12. fluid ounce 	<ol style="list-style-type: none"> 1. 1 cup 2. 1 cup 3. 6 tsp 4. 250 g 5. 1/8 tsp 6. 1 ½ tsp 7. 3 tsp 8. 1 ½ tsp
<p style="text-align: center;">What's More Activity 3</p> <ol style="list-style-type: none"> 1. 1 fl. oz 2. 5 ½ fl. oz 3. 185 ml 4. 500 ml 5. 1 L 	<p style="text-align: center;">What I Have Learned Activity 4:</p> <ol style="list-style-type: none"> 1. CAPACITY <u>A</u> <u>T</u> 2. VOLUME <u>V</u> <u>U</u> 3. KILOGRAM <u>L</u> <u>O</u> 4. MEASUREMENT <u>E</u> <u>U</u> <u>M</u> <u>E</u> 5. DATA <u>D</u> <u>A</u> 	<p style="text-align: center;">Assessment</p> <p>A. Multiple Choice</p> <ol style="list-style-type: none"> 1. A 2. A 3. D 4. C 5. A <p>B. Performance Evaluation</p> <ul style="list-style-type: none"> ● Record weights and measurement

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