



Republic of the Philippines
DEPARTMENT OF EDUCATION



K to 12 Basic Education Curriculum Technology and Livelihood Education Learning Module



BREAD AND PASTRY PRODUCTION

EXPLORATORY COURSE

Grades 7 and Grade 8

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What Is This Module About?

Welcome to the world of **Bread and Pastry Production!**

This Module is an exploratory course which leads you to **Bread and Pastry Production** National Certificate Level II (NC II)¹. It covers **4** common competencies that a Grade 7 / Grade 8 Technology and Livelihood Education (TLE) student like you ought to possess, namely:

1. use of tools and bakery equipment;
2. mensuration and calculation;
3. maintain tools and equipment; and
4. practice occupational health and safety procedures.

These **4** common competencies are covered separately in 4 Lessons. As shown below, each Lesson is directed to the attainment of one, two, three or four learning outcomes:

Lesson 1 – Using of Tools and Bakery Equipment

LO1. Prepare tools and equipment for specific baking purposes.

Lesson 2 – Performing Mensuration and Calculation

LO 1. Familiarize oneself with the table of weights and measures in baking.

LO 2. Apply basic mathematical operations in calculating weights and measures.

LO 3. Measure dry and liquid ingredients accurately.

Lesson 3 – Maintaining Tools and Equipment

LO 1. Check condition of tools and equipment.

LO 2. Perform basic preventive.

LO 3. Store tools and equipment.

Lesson 4 – Practice Occupational Health and Safety Procedure

LO 1. Identify hazards and risks.

LO 2. Evaluate hazards and risks.

LO 3. Control hazards and risks.

LO 4. Maintain occupational health and safety awareness.

Your success in this exploratory course on **Bread and Pastry Production** is shown in your ability to perform the performance standards found in each Lesson.

¹*NATIONAL CERTIFICATE (NC) is a certification issued to individuals who achieved all the required units of competency for a national qualification as defined under the Training Regulations. NCs are aligned to specific levels within the PTQF. (TESDA Board Resolution No. 2004-13, Training Regulations Framework)*

NATIONAL CERTIFICATE LEVEL refers to the four (4) qualification levels defined in the Philippine TVET Qualifications Framework (PTQF) where the worker with:

a. NC I performs a routine and predictable tasks; has little judgment; and, works under supervision;

b. NC II performs prescribed range of functions involving known routines and procedures; has limited choice and complexity of functions, and has little accountability;



How Do You Use This Module?

This Module has 4 Lessons. Each Lesson has the following parts.

- Learning Outcomes
- Performance Standards
- Materials/Resources
- Definition of Terms
- What Do You Already Know?
- What Do You Need to Know?
- How Much Have You Learned?
- How Do You Apply What You Learned?
- How Well Did You Perform?
- How Do You Extend Your Learning?
- References

To get the most from this Module, do the following.

1. Read the Learning Outcome/s and Performance Standards. These tell you what you should know and be able to do at the end of this Module.
2. Find out what you already know by taking the Pretest then check your answer against the Answer Key. If you get 99 to 100% of the items correctly, you may proceed to the next Lesson. This means that you need not go through the Lesson because you already know what it is about. If you failed to get 99 to 100% correctly, go through the Lesson again and review especially those items which you failed to get.
3. Accomplish the required Learning Activities. They begin with one or more Information Sheets. An Information Sheet contains important notes or basic information that you need to know.

After reading the Information Sheet, test yourself on how much you learned by means of the Self-check. Refer to the Answer Key for correction. Do not hesitate to go back to the Information Sheet when you do not get all test items correctly. This will ensure your mastery of basic information.

4. Demonstrate what you learned by doing what the Activity/Operation/Job Sheet directs you to do.
5. You must be able to apply what you have learned in another activity or in real life situation.
6. Accomplish the Scoring Rubrics for you to know how well you performed.

Each Lesson also provides you with references and definition of key terms for your guide. They can be of great help. Use them fully.



If you have questions, ask your teacher for assistance.

LESSON 1

Use tools and bakery equipment



LEARNING OUTCOMES:

At the end of this Lesson, you are expected to do the following:

LO 1. prepare tools and equipment for specific baking purposes.



Definition of Terms

Baking – the process of cooking food by indirect heat or dry heat in a confined space as in heated oven using gas, electricity, charcoal, wood, or oil at a temperature from 250 °F- 450 °F

Batter – a flour mixture that can be stirred or poured

Convection oven – stove in which a fan circulates heated air through the oven for fast, even cooking.

Discard – to get rid of as of being no further use

Dough – a flour mixture that can be rolled or kneaded

Dutch oven – a brick oven

Igniter – the carborundum rod used to initiate the discharge in an ignitron tube

Microwave oven – an oven that utilizes electromagnetic energy below the magnetic spectrum

Mixing – to bring together into uniform mass

Pre-heat – to heat (an oven, for example) before hand

Sift – separating coarse particles in the ingredient by passing through a sieve or sifter

LEARNING OUTCOME 1

Prepare tools and equipment for specific baking purpose

PERFORMANCE STANDARDS

- Baking tools and equipment are identified based on their uses.



What Do You Already Know?

Let us determine how much you already know about preparing tools and equipment. Take this test.

Pretest LO 1

Direction: Match column A with Column B. Write the letters only.

A.

1. used for baking loaf bread
2. has sloping sides used for mixing ingredients and comes in graduated sizes
3. a stack oven
4. used for cutting biscuit or doughnuts
5. used to hold ingredients together
6. it is also called mixing spoon
7. used for cutting fat with flour in the preparation of pies and pastries
8. used for beating eggs or whipping cream
9. use for cutting dough when making pastries
10. used for icing cakes

B.

- a. wooden spoon
- b. pastry blender
- c. mixing bowls
- d. pastry wheel
- e. spatula
- f. egg beater
- g. doughnut cutter
- h. deck oven
- i. loaf pan
- j. utility tray



What Do You Need To Know?

Read Information Sheet 1.1 very well then find out how much you can remember and how much you learned by doing Self-check 1.1.

Information Sheet 1.1

BAKING TOOLS AND EQUIPMENT AND THEIR USES

1. **Baking wares** – are made of glass or metal containers for batter and dough with various sizes and shapes.

Cake pans - comes in different sizes and shapes and may be round square rectangular or heart shaped.

1. *Tube center pan* – deeper than a round pan and with a hollow center, it is removable which is used to bake chiffon type cakes
2. *Muffin pan* - has 12 formed cups for baking muffins and cup cakes
3. *Pop over pan* – is used for cooking pop over
4. *Jelly roll pan* – is shallow rectangular pan used for baking rolls
5. *Bundt pan* – is a round pan with scalloped sides used for baking elegant and special cakes
6. *Custard cup* – is made of porcelain or glass used for baking individual custard



7. *Griddle pans* – are used to bake griddles



8. *Loaf Pan* – is used to bake loaf bread



2. **Biscuit and doughnut cutter** – is used to cut and shape biscuit or doughnut.



3. **Cutting tools** – include a knife and chopping board that are used to cut glazed fruit, nuts, or other ingredients in baking.



4. **Electric mixer** – is used for different baking procedure for beating, stirring and blending.



5. **Flour sifter** – is used for sifting flour.



6. **Grater** – is used to grate cheese, chocolate, and other fresh fruits.



7. **Kitchen shears** - are used to slice rolls and delicate cakes.



8. **Measuring cups** –consist of two types namely:

- A graduated cup with fractions (1, 3/4, 2/3, 1/2, 1/3, 1/4, 1/8) marked on each side.
- A measuring glass made of transparent glass or plastic is more accurate for measuring.



9. **Measuring spoons** – consist of a set of measuring spoons used to measure small quantities of ingredients.



10. **Mixing bowl** – comes in graduated sizes and has sloping sides used for mixing ingredients.



11. Mortar and Pestle – is used to pound or ground ingredients.



12. Paring knife – is used to pare or cut fruits and vegetables into different sizes.



13. Pastry bag – a funnel shaped container of icing or whipped cream



14. Pastry blender – has a handle and with wire which I used to cut fat or shortening in the preparation of pies, biscuits or doughnuts.



15. Pastry brush – is used in greasing pans or surface of pastries and breads.



16. Pastry tip- is a pointed metal or plastic tube connected to the opening of the pastry and is used to form desired designs.



17. Pastry wheel – has a blade knife used to cut dough when making pastries.



18. Rotary egg beater – is used in beating eggs or whipping cream.



19. Rolling pin – is used to flatten or roll the dough.



20. Rubber scrapper – is used to remove bits of food in side of the bowl.



21. Spatula – comes in different sizes; small spatula are used to remove muffins and molded cookies from pans which is 5 to 6 inches; large spatula for icing or frosting cakes; flexible blade is used for various purposes.



22. Strainer – is used to strain or sift dry ingredients.



23. Timer – is used to in timing baked products, the rising of yeast and to check the doneness of cakes.



24. Weighing scale –is used to measure ingredients in large quantities.



25. Utility tray – is used to hold ingredients together.



26. Wire whisk – is used to beat or whip egg whites or cream.



27. Wooden spoon – is also called mixing spoon which comes in various sizes suitable for different types of mixing.



OTHER BAKING

1. Cake decorator (Cylindrical) – is used in decorating or designing cake and other pastry products.



2. Cookie press – is used to mold and shape cookies.

OVENS

Ovens are the workhorses of the bakery and pastry shop and are essential for producing the bakery products. Ovens are enclosed spaces in which food is heated, usually by hot air. Several kinds of ovens are used in baking.

- A. DECK OVENS** are so called because the items to be baked either on sheet pans or in the case of some bread freestanding are placed directly on the bottom, or deck of oven. This is also called **STACK OVEN** because several may be stacked on top of one another. Breads are baked directly on the floor of the oven and not in pans. Deck oven for baking bread are equipped with steam ejector.

1. **RACK OVEN** is a large oven into which entire racks full of sheet pans can be wheeled for baking.



DECK OVEN



RACK OVEN

2. **MECHANICAL OVEN** The food is in motion while it bakes in this type of oven. The most common types are a revolving oven, in which his mechanism is like that of a Ferris wheel. The mechanical action eliminates the problem of hot spots or uneven baking because the mechanism rotates throughout the oven. Because of its size it is especially used in high volume operations. It can also be equipped with steam ejector.



3. **CONVECTION OVEN** contains fans that circulate the air and distribute the heat rapidly throughout the interior. Strong forced air can distort the shape of the products made with batter and soft dough.



OTHER BAKING EQUIPMENT

Dutch oven is a thick-walled (usually cast iron) cooking pot with a tight-fitting lid. Dutch ovens have been used as cooking vessels for hundreds of years. They are called “casserole dishes” in English speaking countries other than the USA, and cocottes in French, They are similar to both the Japanese tetsunabe and the Sač, a traditional Balkan cast-iron oven, and are related to the South African Potjie and the Australian Bedourie oven.





How Much Have You Learned?

Self-Check 1.1

Direction: Read the given recipe carefully and list down all the tools that you need to prepare in order to finish the activity.

BUTTER CAKE

Ingredients:

- | | |
|-----------------------|------------------|
| 3 1/4 cups cake flour | 1 3/4 cups sugar |
| 1 cup butter | 1 cup milk |
| 8 eggs | 1 tsp. vanilla |
| 4 tsp. baking powder | |

Procedure:

1. Sift the dry ingredients together except the sugar.
2. In a large bowl, cream the shortening until light and fluffy.
3. Blend eggs one at a time and beat well after each addition.
4. Add vanilla to the milk.
5. Add dry ingredients and liquid ingredients alternately to the creamed mixture, beginning and ending with dry ingredients.
6. Bake at 375 for 20 to 30 minutes.
7. Cool the cake, invert and the paper lining.

List down the tools and equipment needed.

- | | |
|----------|-----------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

Refer to the Answer Key. What is your score?



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity.

Operation Sheet 1.1

How to light or operate an oven

LO1 : PREPARE TOOLS AND EQUIPMENT FOR SPECIFIC BAKING PURPOSE

Materials, Tools and Equipment : Match or Igniter, oven

Procedure :

1. Hold a lighted match or igniter safely near the burner tube of the oven.
2. At the same time push and turn the oven knob in a counterclockwise direction towards the desired oven temperature setting.



REMINDER: Should the initial lighting fail, turn to its “OFF” position immediately and allow the accumulated to be dispersed before re- ignition.

Always close the oven door gently and with care. Letting the door to slam may affect the rise of the cake being baked.



How Well Did You Perform?

Find out by accomplishing the Scoring Rubric honestly and sincerely. Remember it is your learning at stake!

Learner's Name	Date
Competency: Use of Tools and Bakery Equipment How to light an oven	Test Attempt 1st 2nd 3rd

<p>Directions:</p> <p>Ask teacher to assess your performance in the following critical task and performance criteria below</p> <p>You will be rated based on the overall evaluation on the right side.</p>	OVERALL EVALUATION	
	Level Achieved	PERFORMANCE LEVELS
		4 - Can perform this skill without supervision and with initiative and adaptability to problem situations.
		3 - Can perform this skill satisfactorily without assistance or supervision.
		2 - Can perform this skill satisfactorily but requires some assistance and/or supervision.
		1 - Can perform parts of this skill satisfactorily, but requires considerable assistance and/or supervision.
Teacher will initial level achieved.		

PERFORMANCE STANDARDS	Yes	No	N/A
For acceptable achievement, all items should receive a "Yes" or "N/A" response.			
1. Baking tools and equipment are identified based on their uses.			

Read the Information Sheet 1.2 very well then find out how much you can remember and how much you learned by doing Self-check 1.2.

Information Sheet 1.2

CLASSIFICATION OF BAKING TOOLS AND EQUIPMENT

A. OVENS

- Convection ovens
- Rotary ovens
- Deck or Cabinet
- Microwave Oven

B. OTHER BAKING EQUIPMENT

- Bread toaster
- Double broiler
- Dutch oven

C. PREPARATORY TOOLS

- Flour sifter
- Grater
- Pastry brush
- Spatula
- Rolling pin
- Pastry cloth
- Pastry tips
- Utility tray

D. MEASURING TOOLS

- Measuring cups
- Measuring spoons
- Weighing scale
- Measuring cups for liquid ingredients
- Timer

E. MIXING TOOLS

- Mixing Bowls
- Wooden spoon
- Rubber scrapper
- Electric and handy mixer
- Rotary egg beater

F. CUTTING TOOLS

- Pastry blender
- Pastry wheel
- Biscuit and doughnut cutter
- Kitchen shears
- Chopping boards
- Paring knife

G. BAKING PANS

- Tube center pan
- Muffin pan
- Cake pans (round, square, rectangle, or heart shaped)
- Jelly roll pan
- Bundt pan
- Custard cup
- Griddle pans
- Pop over pans
- Macaroon molders
- Baking sheets



How Much Have You Learned?

Self-Check 1.2

Directions: Classify the following tools based on their usage. Write the letter of your answer in the space before the number.

- A. Baking equipment
- B. Preparation
- C. Mixing

- D. Cutting
- E. Measuring
- F. Baking Pans

- _____ 1. Custard cups
- _____ 2. Flour sifter
- _____ 3. Bread toaster
- _____ 4. Wooden spoon
- _____ 5. Muffin pan
- _____ 6. Grater
- _____ 7. Set of measuring spoon
- _____ 8. Electric or handy mixer

- _____ 9. Spatula
- _____ 10. Pastry blender
- _____ 11. Rolling pin
- _____ 12. Weighing scale
- _____ 13. Macaroon molder
- _____ 14. Bundt pan
- _____ 15. Pastry brush



How Do You Extend Your Learning?

Assignment Sheet 1.2

Bring pictures of different tools and equipment in baking and classify them. Paste on a short bond paper.



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

REFERENCES

LO1

- SEDP Series. Home Technology Food Management and Service pp. 45-50
- Rojo, Cruz, and Duran Home Economics III pp. 76-79
- General Heat Corporation La Germania Cooking Range Manual p. 8 -9
- Dr. Nerisa B. Viola Instructional Materials in Baking pp. 23-24

LESSON 2

Perform mensuration and calculation



LEARNING OUTCOMES:

At the end of this Lesson, you are expected to do the following:

- LO 1. familiarize yourself with the table of weights and measures in baking;
- LO 2. apply basic mathematical operations in calculating weights and measures; and
- LO 3. measure dry and liquid ingredients accurately.



Definition of Terms

Bushel – any of various unit of measure of capacity

Confectioner sugar –very fine or powdered sugar

Granulated sugar – sugar in granular form

Lump – a firm irregular mass

Mass – undefined quantities upon which all physical measurements are based

Ounce – a unit of weight equal to 1 /16 of a pound (28.35 grams)

Peck – a little – used dry measure, one quarter of a bushel for measuring grain

Pound – a unit of measure of mass equal to 1 /16 ounce

Shortening – butter or fat etc. is used to make pastry or cake crispier or flakier

Sift – to separate or strain the finer from the coarser particle of a material using a sieve or a sifter

LEARNING OUTCOME 1

Familiarize oneself with the table of weights and measures in baking

PERFORMANCE STANDARDS

- Standard table of weights and measures are identified and applied.



What Do You Already Know?

Let us determine how much you already know about familiarizing oneself with the table of weights and measures in baking. Take this test.

Pretest LO 1

Directions: Give the equivalent of the following measurement

1. 1 cup = _____ T
2. 6 tbsp. = _____ cup
3. 1 tbsp. = _____ teaspoon
4. 2 cups = _____ pint
5. 4 cups = _____ quart
6. $\frac{1}{2}$ cup = _____ T
7. 1 kilo = _____ lbs.
8. 1 pound = _____ ounces
9. 8 cups = _____ quarts
10. $\frac{1}{4}$ cup = _____ T



What Do You Need To Know?

Read Information Sheet 1.1 very well then find out how much you can remember and how much you learned by doing Self-check 1.1.

Information Sheet 1.1

STANDARD TABLE OF WEIGHT AND MEASURES

1 tablespoon (T or tbsp)	=	3 teaspoon (t or tsp.)
2 tablespoon	=	1/8 cup
4 tablespoon	=	1/4 cup
5 1/3 tablespoon	=	1/3 cup
3/4 cup plus 2 tablespoons	=	7/8 cup
16 tablespoon	=	1 cup(c.)
2 cups	=	1 pint
4 cups	=	1 quart
16 ounces	=	1 pound

COMMON UNITS OF WEIGHT

1 pound (lb.)	=	463.59 grams
1 ounce	=	28.35 grams
1 kilogram (kg.)	=	2.21 pounds
1 gram	=	.035 ounces
1 medium orange	=	1/4 to 1/2 cup (slice)
1 medium apple	=	1 cup slice
14 oz. can condensed milk	=	1 1/4 cups
14 oz, can evaporated milk	=	1 2/3 cups
1 lb. brown sugar	=	2 1/4 cups (packed)
1 lb. confectioner sugar	=	3 1/2 cups
1 lb. confectioner sugar	=	2 1/2 cups
1 lb. nuts	=	4 1/2 cups
1 lb. dried nuts	=	2 cups
5 whole eggs	=	1 cup
12 egg yolks	=	1 cup
8 egg whites	=	1 cup

COMMON UNITS OF VOLUME

1 bushel (bu)	=	4 pecks
1 peck (pk)	=	8 quarts
1 gallon (gal.)	=	4 quart
1 quart	=	2 pints
	=	964.4 milliliters
1 teaspoon (tsp. or t.)	=	4.9 milliliters
1 tablespoon (T. or tbsp.)	=	1/2 fluid ounce
	=	14.8 milliliters

15 ounces raisins	=	3 cups
1 pound dates	=	2 ½ - 3 cups
½ pint whipping cream	=	2 cups whipped creams



How Much Have You Learned?

Self-Check 1.1

Directions: Write your answers on a separate sheet of paper.

1. 2 cups = _____ Tbsp
2. 6 cups = _____ quarts
3. 2 kilo = _____ lbs.
4. ¾ c = _____ tablespoon
5. 3 cups = _____ pints
6. 2 pounds = _____ ounces
7. 4 tablespoon = _____ cup
8. 2 gallon = _____ quarts
9. 1/8 cup = _____ tablespoon
10. 2 gram = _____ ounces.

Refer to the Answer Key. What is your score?

LEARNING OUTCOME 2

Apply basic mathematical operations in calculating weights and measures

PERFORMANCE STANDARDS

- Accurate conversion / substitution of weights and measure are performed.



What Do You Already Know?

Let us determine how much you can apply basic mathematical operations in calculating weight and measures. Take this test.

Pretest LO 2

A. Directions: Give the substitute equivalent of the following ingredients. Use a separate sheet to your answer.

- | | |
|------------------------------------|--------------------------------------|
| 1. 2 T all purpose flour | = _____ T cornstarch |
| 2. 1 cup cake flour sifted | = _____ cup all purpose flour sifted |
| 3. 1 square unsweetened chocolate | = _____ T cocoa and _____ T fat |
| 4. 1 whole egg | = _____ egg yolks |
| 5. 1 cup coffee cream (20 percent) | = _____ cup milk and _____ T butter |

B. Identification. Write the word that is described or referred to.

- _____ 1. It is added to sweet milk in order to produce a sour milk.
_____ 2. It is what you add to lard to produce a substitute for butter.
_____ 3. This will serve as your substitute for honey.
_____ 4. The most common cornstarch substitute for thickening.
_____ 5. This is what you need to add to cocoa to produce chocolate substitute.

Refer to the Answer Key. What is your score?



What Do You Need To Know?

Read the Information Sheet 2.1 very well then find out how much you can remember and how much you learned by doing Self-check 2.1.

Information Sheet 2.1

CONVERSION / SUBSTITUTION OF WEIGHTS AND MEASURES

1 tablespoon all purpose flour.....	1/2 tablespoon cornstarch, potato starch, rice starch or arrowroot starch
1 tablespoon cornstarch.....	2 tablespoon all purpose flour
1 cup sifted cake flour.....	7/8 cup all purpose flour sifted, 1cup all purpose flour minus 2 tablespoon.
1 cup sugar granulated	1 1/3 cup brown sugar, lightly packed, 1 1/2 cup corn syrup minus 1/2 cup liquid, 1 cup honey minus 1/2 to 1/3 cup liquid
1 cup honey	1 1/4 cup sugar plus 1/2cup liquid
1 ounce chocolate	3 tablespoon cocoa plus 1 tablespoon fat
1 tablespoon baking powder	1/4 teaspoon baking soda plus 1/2 cup fully soured milk or lemon juice mixed with sweet milk to make 1/2 cup, 1/4 teaspoon baking soda plus 1/4 to 1/2 cup molasses, 1/4 cream of tartar
1 teaspoon active dry yeast	1 package (7gram) dry yeast compressed yeast cake
1 whole egg	2 egg yolks or 3 tablespoon thawed from frozen eggs, 2 1/2 tablespoon sifted dry whole eggs powder plus 2 1/2 tablespoon lukewarm water
1 egg yolk	1 1/3 tablespoon frozen egg yolk
1 egg white	2 tablespoon frozen egg white, 2 teaspoon dry egg yolk powder plus 2 teaspoon water
1 square unsweetened chocolate.....	3 tablespoon cocoa plus 1 tablespoon fat
1 cup butter	1 cup margarine, 7/8 to 1 cup hydrogenated fat plus 1/2 teaspoon of fat, 7/8 cup of lard plus 1/2 teaspoon salt
1 cup coffee cream (20 percent).....	3 tablespoons butter plus about 7/8 cup milk
1 cup heavy cream (40 percent).....	1/4 cup butter plus 3/4 cup of milk
1 cup whole milk	1 cup reconstituted non- fat dry milk plus 2 1/2 teaspoons of butter or margarine
1 cup milk.....	3 tablespoon of sifted non- fat dry milk plus 1 cup water, 6 tablespoons of sifted crystals plus 1 cup water
1 cup butter milk or sour milk	1 tablespoon of vinegar or lemon juice plus enough sweet milk to make 1 cup (let stand for 5 minutes), 1 3/4 teaspoon of cream of of tartar plus 1 cup of sweet milk

Oven temperatures

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times \frac{5}{9}$$

$$^{\circ}\text{F} = ^{\circ}\text{C} \times \frac{9}{5} + 32$$

TEMPERATURE CONVERSION TABLE

°CENTIGRADE (°C) TO °FARENHEIT (°F)

50 - 122	110 - 230	170 - 338	230 - 446
60 - 140	120 - 248	180 - 356	240 - 464
70 - 158	130 - 266	190 - 374	250 - 482
80 - 176	140 - 284	200 - 392	260 - 500
90 - 194	150 - 302	210 - 410	270 - 518
100 - 212	160 - 320	220 - 428	280 - 536



How Much Have You Learned?

Self-Check 2.1

- I. **Directions:** Use the formula in converting degrees Centigrade to degrees Fahrenheit and Fahrenheit to Centigrade. Show your computation. Five points each.

$$C = F - 32 \times 5 / 9$$

$$F = C \times 9 / 5 + 32$$

1. 100 degrees Centigrade to degrees Fahrenheit.
2. 320 degrees Fahrenheit to degrees Centigrade.

- II. **Analogy :** Fill in the blanks with the correct answer. Use a separate sheet for your answers.

- | | | |
|-------------------------|---|----------------------------------|
| 1. 1C butter | : | 1C margarine |
| 1 ¼ butter | : | _____ margarine |
| 2. 1C milk | : | 6T sifted crystals + 1C water |
| ½ C milk | : | _____sifted crystal + _____water |
| 3. 1T cornstarch | : | 2T all purpose flour |
| ¼T cornstarch | : | _____ all purpose flour |
| 4. 1oz chocolate | : | 3T cocoa + 1T fat |
| ¼ oz chocolate | : | _____ cocoa + _____ fat |
| 5. 1T all purpose flour | : | ½ T rice starch |
| 3T all purpose flour | : | _____ rice starch |

Refer to the Answer Key. What is your score?

LEARNING OUTCOME 3

Measure dry and liquid ingredients accurately

PERFORMANCE STANDARDS

- Reading of measurement is practiced accurately.



What Do You Already Know?

Let us determine how much you already know about measuring dry and liquid ingredients accurately. Take this test.

Pretest LO 3

Directions: Write the word or group being defined or described.

- ____ 1. This is packed when measuring; it follows the shape of the cup when inverted.
- ____ 2. This is used to measure liquid ingredients.
- ____ 3. Use to level ingredients when measuring.
- ____ 4. This is to be removed in brown sugar and to be rolled with rolling pin.
- ____ 5. What not to do in a cup full of flour to avoid excess measurement.
- ____ 6. This is how to fill the cup when measuring.
- ____ 7. This is not to be done with the cup when measuring liquid ingredients.
- ____ 8. This is used to level dry ingredients in the absence of the spatula.
- ____ 9. It is the way of removing lumps in the baking powder or baking soda.
- ____ 10. This step is not necessary in sugar unless it is lumpy.



What Do You Need To Know?

Learn how to measure and calculate accurately. Do Operation Sheet 3.1.

Operation Sheet 3.1

MEASURING DRY AND LIQUID INGREDIENTS ACCURATELY

Materials:

1. *Dry ingredients*
Flour, granulated sugar, brown sugar, baking powder and soda
2. *Liquid ingredients*
Water, milk
3. *Measuring tools*
Graduated measuring cup, measuring spoons, weighing scale, individual measuring cup
4. *Others*
Spatula, tray, sifter

A. Flour

1. Sift the flour.



2. Scoop to fill the measuring cup to overflow. Do not shake.



3. Level off with spatula.



B. Sugar

White sugar

1. Sifting is not necessary before measuring unless it is lumpy.
2. Fill the measuring cup until overflowing. Do not shake the cup.
3. Level off with the spatula

Brown Sugar

1. Check if the sugar is lumpy before measuring. Roll out the lumps. Remove the dirt.
2. Scoop into the measuring cup and pack compactly until it follows the shape when inverted.



C. Powdered Food (baking powder and baking soda)

1. Remove the lumps in the powder by stirring.



2. Dip the measuring spoon into the powder



3. Level with spatula or back edge of the knife or right in the can opening.



D. Shortening

Solid fats

1. Fill the measuring cup/spoon with the shortening while pressing until it is full.



Measuring Shortening, Butter, and Mayonnaise



2. Level the fat with a straight of a knife or spatula



Liquid fats

1. Pour oil in the glass measuring cup.



2. Check if it is filled up to the measuring mark.
Do not lift the cup when measuring.



E. Milk

Liquid Form

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



Powdered milk

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.



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity.

Activity Sheet 3.1

Direction: Show to the class the proper measuring of the following ingredients.

1. Oil
2. White sugar
3. Baking powder and baking soda
4. Evaporated milk
5. Flour



How Well Did You Perform?

Find out by accomplishing the Scoring Rubric honestly and sincerely. Remember it is your learning at stake!

Learner's Name		Date		
Competency: Perform mensuration and calculation		Test Attempt		
		1st	2nd	3 rd
Directions: Ask teacher to assess your performance in the following critical task and performance criteria below You will be rated based on the overall evaluation on the right side.	OVERALL EVALUATION			
	Level Achieved	PERFORMANCE LEVELS		
		4 - Can perform this skill without supervision and with initiative and adaptability to problem situations.		
		3 - Can perform this skill satisfactorily without assistance or supervision.		
		2 - Can perform this skill satisfactorily but requires some assistance and/or supervision.		
		1 - Can perform parts of this skill satisfactorily, but requires considerable assistance and/or supervision.		
Teacher will initial level achieved.				



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

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LESSON 3

Maintain tools and equipment



LEARNING OUTCOMES:

At the end of this Lesson, you are expected to do the following:

- LO 1. check condition of tools and equipment;
- LO 2. perform basic preventive measure; and
- LO 3. store tools and equipment.



Definition of Terms

Contamination - the presence of minor and unwanted constituents (contaminants) in material, physical body, natural environment, workplace, etc

Defective – having faults, incomplete

Fragile – easily broken

Inventory – an itemized list

Microorganism – living things that are too small and can be seen only thru a microscope

Storage – a space for keeping something.

Workplace - refers to the office, premises or worksite where a worker is temporary or habitually assigned. Where there is a no fixed or definite workplace, the term shall include the place where the worker actually performs regular work, or where he regularly reports to render service or to take an assignment

LEARNING OUTCOME 1

Check condition of tools and equipment

PERFORMANCE STANDARDS

- Tools and equipment are identified according to classification / specification and job requirements.
- Non – functional tools and equipment are segregated and labeled for classification.
- Safety of tools and equipment are observed in accordance with manufacturer's instructions.



What Do You Already Know?

Let us determine how much you already know about checking condition of tools and equipment. Take this test.

Pretest LO 1

A. List down at least five safety measures in the use of baking tools and equipment.

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

B. Supply the missing word or group of words to make the sentence complete.

1. _____ knives cut better and are easier to work than dull kind.
2. The serrated spoon is useful for cutting _____.
3. _____ broken tools and equipment immediately.
4. Store tools and equipment in a clean _____ place.
5. Tools with breaks should be _____.



What Do You Need To Know?

Read the Information Sheet 1.1 very well then find out how much you can remember and how much you learned by doing Self-check 1.1.

Information Sheet 1.1

SPECIFICATION OF TOOLS

Kitchen tools make cooking easier. There are different kinds of kitchen tools, utensils, small appliances and cookware in the market. Each has a different use and function.

A. Knives

Sharp, quality knives are important in the kitchen. They cut better and are easier to work with than dull knives. Select knives that are light, comfortable and balanced in your hand. It is necessary to have the following knives in your kitchen:

1. *Paring Knife* is helpful for peeling fruits and vegetables.
2. *Serrated Knife* is ideal for cutting bread.
3. *Chef's Knife* is useful for most cutting and chopping jobs.

B. Cutting Boards

Always keep your counter tops clean and scratch-free. It is important to have separate cutting boards for meat and vegetables to prevent germs and cross contamination. Cutting boards are made of many different materials from wood to plastic.

C. Measuring Cups/Measuring Spoons

Measuring cups is a necessity in the kitchen and of various sizes which come in glass, metal or plastic. An angled measuring cup is easy to read when measuring liquids. Measuring spoons are also important for determining the correct amount of dry or wet ingredients.

D. Spoons and Whisks

Long-handled, wooden or plastic spoons are necessary for mixing and stirring. Other useful spoons are slotted spoons for draining, ladles for serving soups and gravies, and pasta spoons for keeping pasta separated. Whisks are useful tools for mixing sauces, pancake batter, and whipping egg whites. An electric hand mixer is important for mixing cakes and whipping potatoes.

E. Tongs and Spatulas

Tongs are useful for many jobs including turning food and come in a variety of sizes. Spatulas come in different materials like metal or plastic and their purpose is to slide under food like burgers, cookies or pancakes.

F. Mixing Bowls

Mixing bowls are essential in every kitchen. A variety of sizes is useful for mixing ingredients and also for serving food. These come in many colors and materials from stainless steel, to plastic or colored glass.

G. Colander

You need to have at least one colander for draining liquid from canned or cooked vegetables and pasta. Use it for washing fresh fruits and vegetables. It's a good idea to select a colander with stand, so it doesn't sit in the liquid which is draining in the sink.

H. Miscellaneous Tools

A grater for shredding, shaving and zesting is a versatile tool to have in the kitchen. Also, useful is a can opener, bottle opener. A potato masher and vegetable peeler are always part of a well-stocked kitchen. A kitchen timer is important for timing recipes accurately. A meat thermometer will assure the proper temperature for food safety.

I. Safety tools of and equipment

The safety of tools and equipment is not only the concern of the management, but of the workers who use the equipment as well. Proper maintenance and safety of tools and equipment are important for the following reasons:

1. **Good quality of service.** Modern equipment has built-in controls, thermometers and timing and regulating devices. A breakdown of these devices may affect the quality of the food being prepared and caused slowdown in production and service.
2. **Sanitation.** Mechanical function of equipment like the refrigerator and freezers encourages the development of disease causing bacteria. Negligence of their cleanliness leads to the growth of food-borne bacteria.
3. **Fire prevention.** Grease and dirt that gather in stove rims and hoods are fire hazards. Daily inspection of grease collecting equipment will minimize the danger of fire.
4. **Safety.** Most food service accident happens in the kitchen. This is due to lack of knowledge and training of food worker in the use of tools and equipment.
5. **Less cost of production.** Expenses will be minimized if tools and equipment are in good condition.

Safety measures in the use of tools and equipment.

1. Store knives, choppers and cutting blades in designated places. Label them.
2. Repair broken tools and equipment immediately.
3. Check wiring of electrical equipment regularly. Report kitchen equipment that are not functioning.
4. Handle fragile tools or those tools made of glass with care. Those with breaks should be discarded.
5. Store tools and equipment in a clean dry place. Do not keep them when wet.



How Much Have You Learned?

Self-Check 1.1

A. Identify the following.

- 1 – 5 Safety measures in the use of kitchen tools and equipment.
- 6 – 7 Reasons why it is important to do proper maintenance and safety of kitchen tools and equipment.

B. Write letter **T** if the statement is correct and letter **F** if the statement is wrong.

- _____ 1. Have separate cutting board for meat and vegetable to avoid food contamination.
- _____ 2. Colander with stand is preferable to use so the fruits on vegetables don't sit in the liquid.
- _____ 3. Safety in the workplace is only the teachers' concern.
- _____ 4. Food borne disease is the result of poor sanitation in the use of tools and equipment.
- _____ 5. Do not store tools when wet in cabinet. It may result into damage.

Refer to the Answer Key. What is your score?



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity

Operation Sheet 1.1

Directions: This is a group activity. Look inside the tool and equipment storage cabinet. List down on a sheet of paper as many as you can the non-functional tools that you find inside the cabinet. Opposite indicate the defects.

Your teacher will give a number of tools, some defective, others not. Identify as many non-functional tools as you can then identify its defect.



How Well Did You Perform?

Find out by accomplishing the Scoring Rubric honestly and sincerely. Remember it is your learning at stake!

Criteria	Score
1. The group has listed 9 to 10 non functional tools and was able to identify their defects correctly	5
2. The group has listed 7 to 8 non functional tools and was able to identify their defects correctly	4
3. The group has listed 5 to 6 non functional tools and was able to identify their defects correctly	3
4. The group has listed 3 to 4 non functional tools and was able to identify their defects correctly	2
5. The group has listed only 1 to 2 non functional tools and was able to identify their defects correctly	1

SCORE EQUIVALENTS

- 5 - Excellent
- 4 - Very Good
- 3 - Good
- 2 - Fair
- 1 – Poor

LEARNING OUTCOME 2

Perform Basic Preventive Measure

PERFORMANCE STANDARDS

- Tools and equipment are maintained according to preventive maintenance schedule or manufacturer's specifications
- Tools and equipment are checked for functionality according to manufacturer's instructions.
- Tools are cleaned according to standard procedure



What Do You Already Know?

Let us determine how much you already know about performing basic preventive measure. Take this test.

Pretest LO 2

A. Match **Column A** with **Column B**. Write the letter of the correct answer.

A

- _____ 1. Loose handle of tools and equipment
- _____ 2. The result of negligence of cleaning the tools before using
- _____ 3. Keeping wet equipment
- _____ 4. Dissolve soap scum
- _____ 5. It can be used like other abrasives

B

- a. Baking Soda
- b. Rusting
- c. Repair
- d. Contamination
- e. Lemon juice

B. Write capital letter **T** if the statement is correct and capital letter **F** if the statement is wrong.

- _____ 1. Disinfection is less effective than sterilization.
- _____ 2. Vinegar can be used for cleaning the stove, counter tops and floors.
- _____ 3. Lemon juice is not safe to mix with vinegar and baking soda for cleaning purposes.
- _____ 4. Borax is much stronger than baking soda.
- _____ 5. Baking soda can be used as oven cleaner.



What Do You Need To Know?

Read the Information Sheet 2.1 very well then find out how much you can remember and how much you learned by doing Self-check 2.1.

Information Sheet 2.1

TYPES AND USES OF CLEANING MATERIALS/DISINFECTANT

Disinfection does not necessarily kill all microorganisms, especially nonresistant bacterial spores; it is less effective than sterilization, which is an extreme physical and/or chemical process that kills all types of life.

1. Natural Cleaning Materials

a. Vinegar

Vinegar is a great natural cleaning product as well as a disinfectant and deodorizer. Mix a solution of 1 part water to 1 part vinegar in a clean spray bottle and you have a solution that will clean most areas of your kitchen. Don't worry about your kitchen smelling like vinegar. The smell disappears when it dries. You can use it in the kitchen for cleaning the stove top, appliances counter tops, and floor. Improperly diluted vinegar is acidic and can eat away tile grout. Never use vinegar on marble surfaces.



b. Lemon juice

Lemon juice can be used to dissolve soap scum and hard water deposits. Lemon is a great substance to clean and shine brass and copper. Lemon juice can be mixed with vinegar and or baking soda to make cleaning pastes. Cut a lemon in half and sprinkle baking soda on the cut section. Use the lemon to scrub dishes, surfaces, and stains. Mix 1 cup olive oil with ½ cup lemon juice and you have a furniture polish for your hardwood furniture.





c. Baking Soda

Baking soda can be used to scrub surfaces in much the same way as commercial abrasive cleansers. Baking soda is great as a deodorizer. Place a box in the refrigerator and freezer to absorb odors. Put it anywhere you need deodorizing action.



d. Bacteria-free sponge and some muscle

Sponges are great scrubbers which help to disinfect your kitchen by cleaning away the food debris that bacteria thrive on. To keep your sponges disinfected, wet them down and place them in the microwave and heat for one minute each.



e. Borax.

This common household product is another natural cleaning powder, and like baking soda (but stronger) acts as a kitchen disinfectant and stain remover. Borax is also used to kill mould and mildew spores while removing their stains making it great for mopping floors.

f. Tea tree oil

This natural, essential concentrated oil from the tea tree is a natural disinfectant which removes mould and mildew while also working to remove build-up from dirty kitchen surfaces. It's completely non poisonous and perhaps a bit more expensive than other natural cleaning products but worthy due to the aromatic fragrance that will freshen up areas as well as clean them.

Other uses of disinfectants

1. Use a plain, liquid, vegetable-based soap or rub a sponge with bar soap. You may add a few slices of lemon to the water to help cut grease and make dishes smell like lemon.
2. Use soap, water, and borax or sodium carbonate monohydrate (washing soda). Wash large surfaces with a solution of one-half cup borax dissolved in one gallon of hot water.
3. Oven Cleaner
 - If there are spills, wipe away along with any grease after each meal. Periodically clean with baking soda and water.

- Remove baked grease or spills by scrubbing with a nonmetallic metal brush using a paste made of baking soda, salt, and water.
- Another option is to mix two tablespoons of liquid dish soap, two teaspoons of borax into two cups of warm water. Apply and let sit for 20 minutes and then scrub.
- Do not use any abrasive cleaning materials on self-cleaning ovens.



How Much Have You Learned?

Self-Check 2.1

A. Identify what is referred to in each number.

- _____ 1. Cleaning product made by mixing vinegar, lemon and baking soda.
- _____ 2. It is a great scrubber and a kitchen disinfectant.
- _____ 3. Destroys microorganisms that are present in the object.
- _____ 4. It is completely non-poisonous and bit expensive as compared to other natural disinfectants.
- _____ 5. This can be used to scrub surfaces just like other abrasive cleanser and also a good deodorizer.

B. Identify 5 natural cleaning materials and their use.

Refer to the Answer Key. What is your score?

Read the Information Sheet 2.2 very well then find out how much you can remember and how much you learned by doing Self-check 2.2.

Information Sheet 2.2

PREVENTIVE MAINTENANCE TECHNIQUE AND PROCEDURE

Establishing a preventive maintenance program helps to ensure that all equipment and tools function as intended. Failure to perform maintenance activities during production may increase the risk of microbial contamination. Preventive maintenance includes periodic examination and maintenance of tools and equipment. Saving money is one good reason in performing preventive maintenance.

Preventive maintenance practices

Cutting Tools

1. Sharpen knives frequently including retractable knives and disinfect before use.
2. Replace knives if damaged or if they cannot otherwise be maintained in sanitary condition.
3. Frequently inspect cutting blades before and during operation for damage, product residue build up or cleaning needs.
4. Remove the blades and clean separately, and remaining parts are disassembled (if possible) and cleaned on regular basis.
5. Store them in their designated places.

Handy Tools

1. Protect all handy tools from dirt, rust and corrosion by air drying them.
2. Wash and dry utensils with a clean dry rag before storing them.
3. Rinse tools and utensils in very hot clean water to sterilize them.
4. Have a periodic inspection and cleaning of tool.

Equipment

For longer and efficient use of baking equipment the following pointers will be helpful:

Cleaning the Range

1. Switch off and remove the electric plug to allow the range to cool before cleaning.



2. Remove and wipe food particles, burnt sediments and grease away from top of the range.



3. Clean the parts thoroughly particularly those that are removable. Clean the burners with a dry brush or with a clean dry cloth.



4. Remove the grates before cleaning the entire oven. Scrape the food particles carefully. Wash and dry the removable parts very well.



Cleaning the mixer

1. Remove the detachable parts.



2. Wash the beaters and bowls after use.



3. Wipe the parts with dry cloth thoroughly.





How Much Have You Learned?

Self-Check 2.2

A. Write **T** if the statement is correct and **F** if the statement is wrong. Use a separate sheet for your answers.

- _____ 1. Failure to perform preventive maintenance will result to malfunctioning of tools and equipment.
- _____ 2. Rusting is the result of keeping the equipment wet.
- _____ 3. Cleaning and maintenance of tools should be done periodically
- _____ 4. Switch off the electrical plug of the oven before cleaning.
- _____ 5. Use cool water to sterilize tools and equipment.

B. Enumerate 5 ways of preventive maintenance for cutting tools.

Refer to the Answer Key. What is your score?



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity

Operation Sheet 2.1

Materials: Dishwashing soap, water, clean towel

Tools: mixer

Directions: Perform the proper cleaning of the mixer.



How Well Did You Perform?

**Find out by accomplishing the Scoring Rubric honestly and sincerely.
Remember it is your learning at stake!**

Find out how well you performed by referring to the rubrics below:

Criteria	5	3	1	Your Score
Accuracy	All the steps were carried out correctly	Only two steps were carried out correctly	Only one step was carried out correctly	
Cleanliness	The equipment was cleaned thoroughly	Cleaning of equipment was not enough.	The tool was not really cleaned.	
Care in handling the tools and equipment.	Care in handling has been much emphasized	Care in handling has been moderately emphasized	Care in handling has not been emphasized.	
Maximum Score - 15			Your Total Score	<hr/> 15

Score Equivalent

10 – 15 = Very good

6 - 9 = Good

1 - 5 = Fair

LEARNING OUTCOME 3

Store tools and equipment

PERFORMANCE STANDARDS

- Tools and equipment are stored safely in accordance with manufacturer's specification or company procedure.



What Do You Already Know?

Let us determine how much you already know about storing tools and equipment. Take this test.

Pretest LO 3

Identify what is being defined or described.

- ____ 1. Keep this when not in use to avoid cuts/wounds
- ____ 2. Keeping tools in this condition may result to rusting
- ____ 3. Tags placed in storage for you to easily locate the tools
- ____ 4. Most common storage for tools and equipment
- ____ 5. This is an important practice to keep tools safe and effective

Write **true** if the statement is correct and **false** if the statement is wrong.

- ____ 1. Have a designated place for each kind of tools.
- ____ 2. Label storage cabinet for ease of locating.
- ____ 3. Put frequently used item far from the point of use.
- ____ 4. Store knives with sharp edge up.
- ____ 5. Make sure that the areas used for storing equipment are clean and dry.
- ____ 6. At all times metal equipment cannot be stacked on one another.
- ____ 7. Cutting board should be stored horizontally to avoid moisture collection.
- ____ 8. Dry then wash properly before storing.
- ____ 9. Do not overcrowd storage area.
- ____ 10. Secure electrical cords to prevent entanglement.



What Do You Need To Know?

Read the Information Sheet 3.1 very well then find out how much you can remember and how much you learned by doing Self-check 3.1.

Information Sheet 3.1

PROPER STORAGE OF TOOLS AND EQUIPMENT

The proper care and storage of tools and equipment are not only the concern of the management but of the workers who use the equipment.

Importance of proper storage of tools and equipment

1. It is an important factor for safety and health as well as good business.
2. Improves appearance of general-shop and construction areas.
3. Reduces overall tool cost through maintenance.
4. This also ensures that tools are in good repair at hand.
5. Teaches workers principles of (tool) accountability.

Pointers to follow in storing tools and equipment:

1. Have a designated place for each kind of tools.
2. Label the storage cabinet or place correctly for immediate finding.
3. Store them near the point of use.
4. Wash and dry properly before storing.
5. Store knives properly when not in use with sharp edge down.
6. Put frequently used items in conveniently accessible locations.
7. Gather and secure electrical cords to prevent entanglement or snagging.
8. Cutting boards should be stored vertically to avoid moisture collection.
9. Metal equipment can be stacked on one another after drying such as storage dishes and bowls.
10. Make sure the areas where you are storing the equipment are clean, dry and not overcrowded.



How Much Have You Learned?

Self-Check 3.1

Directions: Identify the following.

- 1 – 5 Importance of proper storage of tools and equipment.
6 – 15 Pointers to follow in storing tools and equipment.

Refer to the Answer Key. What is your score?



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity.

Activity Sheet 3.1

Directions: Perform the proper storing of tools and equipment in designated places. Put labels on each storage place.

Do the following steps.

1. Classify.
2. Clean and dry.
3. Store in proper places.
4. Put labels.



How Well Did You Perform?

**Find out by accomplishing the Scoring Rubric honestly and sincerely.
Remember it is your learning at stake!**

Competency: Proper storage of tools and equipment	
<p>Directions:</p> <p>Ask teacher to assess your performance in the following critical task and performance criteria below</p> <p>You will be rated based on the overall evaluation on the right side.</p>	OVERALL EVALUATION
	Level Achieved
	PERFORMANCE LEVELS
	4 - Can perform this skill without supervision and with initiative and adaptability to problem situations.
	3 - Can perform this skill satisfactorily without assistance or supervision.
	2 - Can perform this skill satisfactorily but requires some assistance and/or supervision.
1 - Can perform parts of this skill satisfactorily, but requires considerable assistance and/or supervision.	
Teacher will initial level achieved.	



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

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LESSON 4

Practice Occupational Safety and Health Procedures



LEARNING OUTCOMES:

At the end of this Lesson, you are expected to do the following:

- LO 1. identify hazards and risks;
- LO 2. evaluate hazards and risks;
- LO 3. control hazards and risks; and
- LO 4. maintain occupational health and safety awareness.



Definition of Terms

Airborne - carried by air

Antidote – a remedy counteracting a poison

First aid – the provision of initial care for an illness or injury

Injury- damage or harm of the structure or function of the body caused by an outside force, which may be physical or chemical

PPE – (Personal Protective Equipment) refers to devices worn by workers to protect them against hazards in the work environment including but not limited to safety helmet, safety spectacles, face shields etc

Occupational hazards - refer to various environmental factors or stresses that can cause sickness, impaired health

Quality standard – set of exact specifications to become pattern of action

Safety – free from danger, risk or injury

Sanitation – the practice or measure to create an environment conducive to good health

Workplace – refers to the office, premises or worksite where a worker is temporarily assigned

Vermin – a term applied to various animal species regarded as pests or nuisances and especially to those associated with the carrying of disease

LEARNING OUTCOME 1

Identify hazards and risks

PERFORMANCE STANDARDS

- Workplace hazards and risks are identified and clearly explained.
- Hazards and risks and their corresponding indicators are identified in line with the company procedures.
- Contingency measures are recognized and established in accordance with workplace policies.



What Do You Already Know?

Let us determine how much you already know about hazard risks. Take this test.

Pretest LO 1

Directions: With hazard risks as bases, match **Column A** with **Column B**. Write the letters only. Use separate sheet for your answers.

A

- _____ 1. Electricity
- _____ 2. Knife
- _____ 3. Welding
- _____ 4. Benzene
- _____ 5. Wet floor
- _____ 6. Hazards
- _____ 7. Work
- _____ 8. Safety hazards
- _____ 9. Back injury
- _____ 10. Adverse health effect

B

- a. Cut
- b. Cancer
- c. Slips, falls
- d. Metal fume fever
- e. Shock
- f. Remind workers of correct lifting
- g. Change in body function
- h. Determinant of health
- i. Cause harm
- j. Unsafe workplace
- k. Vibration



What Do You Need To Know?

Read the Information Sheet 1.1 very well then find out how much you can remember and how much you learned by doing Self-check 1.1.

Information Sheet 1.1

HAZARD AND RISKS IDENTIFICATION AND CONTROL

There are lots of things that may affect the health of a person, such as his environment, his lifestyle, etc. There are many who are not aware that work is an important determinant of health. It can influence health in a positive or in a negative way. Are you comfortable at work? How safe is your workplace? Do you think that you are giving all you have for your work but it seems that it never is enough?

These are just some of the questions that you need to ask in order to assess whether your workplace is healthy or not. A place that is safe, healthy and work-conducive entails more productivity. In fact, with a healthy workplace you will be doing more work with less effort.

Hazards and Risks in the Workplace

Hazard is a term used to describe something that has the potential to cause harm or adverse effects to individuals, organizations property or equipment. Workplace hazards can come from a wide range of sources. General examples include any substance, material, process, practice, etc that has the ability to cause harm or adverse health effect to a person under certain conditions.

Types of workplace hazards include:

1. **Safety hazards:** Inadequate and insufficient machine guards, unsafe workplace conditions, unsafe work practices.
2. **Biological hazards:** Caused by organisms such as viruses, bacteria, fungi and parasites.



3. **Chemical hazards:** Solid, liquid, vapor or gaseous substances, dust, fume or mist



4. **Ergonomic hazards:** Anatomical, physiological, and psychological demands on the worker, such as repetitive and forceful movements, vibration, extreme temperatures, and awkward postures arising from improper work methods and improperly designed workstations, tools, and equipment.



5. **Physical hazards:** Noise, vibration, energy, weather, electricity, radiation and pressure.



6. **Psychological hazards:** Those that are basically causing stress to a worker. This kind of hazard troubles an individual very much to an extent that his general well-being is affected



What are examples of hazards?

Workplace Hazard	Example of Hazard	Example of Harm Caused
Thing	Knife	Cut
Substance	Benzene	Leukemia
Material	Asbestos	Mesothelioma
Source of Energy	Electricity	Shock, electrocution
Condition	Wet floor	Slips, falls
Process	Welding	Metal fume fever
Practice	Hard rock mining	Silicosis

What is risk?

Risk is the chance or probability that a person will be harmed or experience an adverse health effect caused by a hazard. It may also apply to situations with property or equipment loss. For example: The risk of developing cancer from smoking cigarettes could be expressed as "cigarette smokers are more likely to die of lung cancer than non smokers".

Factors that influence the degree of risk include:

- how much a person is exposed to a hazardous thing or condition; and
- how the person is exposed (e.g., breathing in a vapor, skin contact), and how severe are the effects under the conditions of exposure.

Risk assessment. Risk assessment is the process where you:

- identify hazards;
- analyze or evaluate the risk associated with that hazard; and
- determine appropriate ways to eliminate or control the hazard.

Hazards	Risks	Safety measures/ actions
Manual handling of hand tools - knives, secateurs, loppers, crowbars, weed bags, mattocks.	Back injury Repetitive strain	Teach and remind workers of correct lifting and carrying techniques. Rotate tasks.
Lifting heavy objects incorrectly	Back injury Repetitive strain	Teach and remind workers of correct lifting technique. Rotate tasks.
Repetitive movements, bending and awkward working positions	Back/ limb injury Repetitive strain	Teach and remind workers of correct lifting technique. Rotate tasks.

Trip hazards	Injury	Warn volunteers and remove trip hazards before commencing work. Do not leave tools on path ways. Watch where one walks, and goes slowly. Mark tools with fluorescent color.
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What is an adverse health effect?

- A general definition of adverse health effect is "any change in body function or the structures of cells that can lead to disease or health problems".

The following are adverse health effects.

- Bodily injury
- Disease
- Change in the way the body functions, grows, or develops
- Effects on a developing fetus (teratogenic effects, fetotoxic effects)
- Effects on children, grandchildren, etc. (inheritable genetic effects)
- Decrease in life span solvents
- Effects on the ability to accommodate additional stress



How Much Have You Learned?

Self-Check 1.1

Directions: Match Column A with Column B. Write the letters only.

A

_____ 1. is the chance or the probability that a person will be harmed

_____ 2. caused by organism such as viruses, bacteria fungi and parasites

_____ 3. Is a source of potential damage, harm or adverse health effects

_____ 4. safety hazard

_____ 5. Vapor or gaseous substance

_____ 6 . Slips, falls

_____ 7. Noise vibration energy

_____ 8. Decrease in life span

_____ 9. Those that are basically causing stress

_____ 10. Awkward posture arising from improper work methods

B

a. Adverse health effect

b. Hazards

c. Chemical hazards

d. Risks

e. Physical hazards

f. Wet floor

g. Ergonomic hazards

h. Psychological hazards

i. Unsafe workplace

j. Biological hazards

k. Trip hazards

Refer to the Answer Key. What is your score?

Read the Information Sheet 1.2 very well then find out how much you can remember and how much you learned by doing Self-check 1.2.

Information Sheet 1.2

OSH INDICATORS

Occupational safety and health (OSH) is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. The goal of all occupational safety and health programs is to foster a safe work environment. As a secondary effect, it may also protect co-workers, family members, employers, customers, suppliers, nearby communities, and other members of the public who are impacted by the workplace environment.

Management Commitment

There is commitment to achieving high standards of OSH performance through effective safety management.

1. The employer identifies his general responsibilities regarding occupational safety and health laws.
2. Everyone in the organization understands the general requirements of occupational safety and health laws.
3. The employer is actively involved in OHS management.
4. A competent person in the organization coordinates safety management activities.
5. There is occupational safety and health policy that is up- to- date.
6. Everyone in the organization knows about the occupational safety and health policy.
7. Adequate resources are provided for all aspects of OHS management.
8. All employees have sufficient time to carry out specific tasks related to occupational safety and health.
9. All employees are accountable for safety and health in their area of responsibility.

OSH signs or symbols in the workplace





Safety signs are the alert signs that help in indicating various hazards ahead. These labels help in reducing accidents at workplace and on road side. It is a process of providing information or instructions by means of placing required signboards.

Different types of hazards required different types of safety labels. There are several safety labels available in the market. All that is need is to figure out the right label as per requirement.

Safety Signs consist of words, messages and a pictorial symbol with variety of shapes, size and colors. Each label color is standardized and reflects a specific meaning.

Sign colors defined :

- **Red color** reflects immediate hazardous situations that will cause death or other serious injuries like Danger signs and Fire symbols.
- **Orange Color** represents a potentially unsafe situation that could cause serious injury and indicated by warning signs.
- **Yellow color** used to alert against unsafe practices, which if not avoided, may results in minor or moderate injuries like Caution Signs.
- **Green color** indicates the emergency egress location, first aids and other safety equipment.
- **Blue color** is used to convey safety information.



How Much Have You Learned?

Self-Check 1.2

A. Identify the word or group of words being described or defined.

- _____ 1. This consists of words or messages and a pictorial symbol which reflects a specific meaning.
- _____ 2. Used to alert against unsafe practices, which if not avoided, may result in minor or moderate injuries like caution signs
- _____ 3. Is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment
- _____ 4. Indicates the emergency exit location, first aids and other safety equipment. The goal of all OSH program.
- _____ 5. Reflects immediate hazardous situations that will cause death or other serious injuries like Danger signs and Fire symbols.

B. Matching type. Match Column B with Column A

- | A | B |
|-----------------------|---|
| 1. Safety equipment | A.  |
| 2. Danger signs | B.  |
| 3. Safety information | C.  |
| 4. Caution signs | D.  |
| 5. Serious injuries | E.  |



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity.

Activity Sheet 1.1

Directions: After viewing the presentation on hazards and risks give your reactions. What lessons have you learned in the presentation? Write your reaction on one whole sheet of paper.



How Well Did You Perform?

Find out by accomplishing the Scoring Rubric honestly and sincerely. Remember it is your learning at stake!

Criteria	5	3	1
Level of understanding	The presentation was very much understood	The presentation was slightly understood.	The presentation was not understood.
Degree of importance	Importance of the presentation was stated at the fullest degree.	Importance of the presentation was stated at moderate degree.	Importance of the presentation was not clearly stated.
Maximum score – 10			

Score Equivalent

- 7 – 10 Very Good
- 4 – 6 Good
- 1 – 3 Fair



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity

Activity Sheet 1.2

Poster Making

Material: color, oslo paper or cartolina

Tools: pencil, drawing pens, straight edge

Directions: Given the material make your own posters of safety signs. Your work will be judge based on the criteria given below.



How Well Did You Perform?

Find out by accomplishing the Scoring Rubric honestly and sincerely. Remember it is your learning at stake!

Criteria	5	3	1	Your Score
Relevance to safety	There is much relevance with safety	There is moderate relevance with safety	There is less relevance with safety.	
Messages	It is very clear and informative	It is moderately clear and informative	Messages is not clear and informative	
Color	Color is very much related with the signs.	Color is slightly related with the sign	Color is not related with the sign	
Maximum score -15			Your Total Score	_____
				15

Score Equivalent:

11 – 15 Very good

6 – 10 Good

1 – 5 Fair

Read the Information Sheet 1.3 very well then find out how much you can remember and how much you learned by doing Self-check 1.3.

Information Sheet 1.3

PERSONAL HYGIENE AND PROPER HANDWASHING

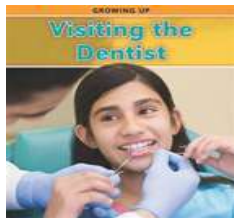
Personal hygiene are health practices and habits which enable one to stay physically healthy. This means keeping oneself clean to avoid transfer of harmful bacteria especially in food preparation.

Ways to achieve personal hygiene.

1. *Regularly wash and cut your hair to keep a neat appearance.* If you have facial hair, you can save money by maintaining it yourself with a set of quality clippers.



2. *Visit the dentist at least once a year (twice a year is optimal).* Though you are brushing every day, your dentist will correct any dental problems you have.



3. *Bathe every day before work, or every night before you go to sleep.* This will help you cleanse/remove body odor.



4. *Wear deodorant or antiperspirant daily* if you tend to sweat heavily. Some people can actually get away with not wearing deodorant, but most people, especially those who have heavy duty jobs or work in warm climates, benefit greatly from it.



5. *Scrub your hands with soap and water before you handle any food especially when you have just come from the toilet, after touching your hair or other parts of your body, and after your hands cover your mouth or nose when you cough or sneeze. Be sure to clean under fingernails where dirt and bacteria tend to accumulate.*



6. *Trim your nails; especially if you work in the food service .This will help keep your hands much cleaner and prevent the spread of the germs to the food.*



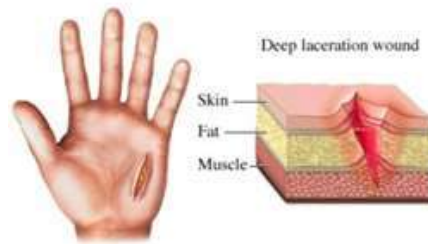
7. *Keep hand sanitizer and facial tissues near your work desk. If you do not work on your desk, put travel sizes of these items in your pocket. Sanitizer and tissues will come in handy when you're ill and can also prevent the spread of germs resulting from touching items such as money and computer keyboards.*



8. *Use a separate towel or cloth for drying dishes, wiping countertops, and wiping hands.*



9. *Avoid working with food when you have an open cut, sore, boil, or infected wound in your hands.* Pus and other liquids secreted by the wound contain millions of harmful bacteria that can cause food poisoning.



10. *Keep hands out of food as much as possible. Otherwise, wear disposable gloves.*



11. *Avoid smoking while preparing or handling food as ashes may drop into the food.*



12. *Wear suitable clothes at work. Do not wear clothes with long sleeves when working with food. Wear also comfortable and clean shoes. Be sure aprons are always clean.*



Proper Hand washing

Washing is the single most effective way to prevent the spread of infections. "Germs" (a general term for microbes like viruses and bacteria) can be spread casually by touching another person. You can also catch germs when you touch contaminated objects or surfaces and then you touch your face (mouth, eyes, and nose).

"Good" hand washing techniques include using an adequate amount of soap, rubbing the hands together to create friction, and rinsing under running water.

The following are different situations where people can pick up "germs".

- Hands are visibly soiled.
- After using the washroom (includes changing diapers).
- After blowing your nose or after sneezing in your hands.
- Before and after eating, handling food, drinking or smoking.
- After touching raw meat, poultry, or fish.
- After handling garbage.
- Visiting or caring for sick people.
- Handling pets, animals or animal waste.

Ensuring that employees wash their hands properly after using the washroom is very important in reducing disease transmission of stomach "flus" (which really is not a "flu" or influenza) and other gastrointestinal infections. Using soap and lathering up is very important (rinsing hands in water only is not as effective). Use comfortably warm, running water. Hands should be washed for a minimum of 15 -20 seconds - longer if the hands are visibly oiled.

What is the right way to wash your hands?

- Wet your hands with clean running water (warm or cold) and apply soap.
- Rub your hands together to make lather and scrub them well; be sure to scrub the backs of your hands, between your fingers, and under your nails.
- Continue rubbing your hands for at least 20 seconds.
- Rinse your hands well under running water.
- Dry your hands using a clean towel or air dry





How Much Have You Learned?

Self-Check 1.3

Directions: Write **T** if the statement is correct and **F** if the statement is wrong.

- ___ 1. Use gloves as substitute for hand washing.
- ___ 2. Rinsing of hands only is enough to cleanse our hands.
- ___ 3. Avoid smoking while preparing food to avoid ashes from dropping into the food.
- ___ 4. Personal hygiene means keeping oneself clean helps avoid transfer of harmful bacteria.
- ___ 5. Wash hands for a minimum of 30 seconds.
- ___ 6. Use hand towels for wiping dishes.
- ___ 7. Avoid working with food when you have an open cut or wound
- ___ 8. Sanitizer helps prevent spread of germs resulting from touching items like money.
- ___ 9. Wash hands only before eating.
- ___ 10. Always wear clean work clothes and aprons.

Refer to the Answer Key. What is your score?

LEARNING OUTCOME 2

Evaluate hazards and risks

PERFORMANCE STANDARDS

- Effects of hazards are determined.
- OHS issues and concerns are identified in accordance with the workplace requirements and relevant workplace legislation.



What Do You Already Know?

Let us determine how much you already know about evaluating hazards and risks. Take this test.

Pretest LO 2

Directions: Write **true** if the statement is correct and **false** if it is wrong.

- ____ 1. Employees should never act on recommended safety measures.
- ____ 2. The provision of OSH Standards by the State is an exercise of the police power.
- ____ 3. Not all establishments, workplaces and other undertakings are covered by the OSH.
- ____ 4. Employer should not act on recommended safety measures.
- ____ 5. Stress often leads to negative physical and psychosocial effects.
- ____ 6. The OSH eliminates or reduces health hazards in the workplace.
- ____ 7. Physical working condition as noise and temperature will not result to stress.
- ____ 8. Workers or employees should assist government agencies in the conduct of safety and health inspection.
- ____ 9. Personal protective equipment is not a part of health and safety at work.
- ____ 10. Adverse health effects are more frequent and severe when exposure occurs during childhood.



What Do You Need To Know?

Read the Information Sheet 2.1 very well then find out how much you can remember and how much you learned by doing Self-check 2.1.

Information Sheet 2.1

PHILIPPINE OSH STANDARD

OSH Standards are mandatory rules and standards set and enforced to eliminate or reduce occupational safety and health hazards in the workplace. It aims to provide at least the minimum acceptable degree of protection that must be afforded to every worker in relation to the working condition and danger that may arise by reason of his occupation

The provision of **OSH Standards** by the State is an exercise of the police power, with the intention of promoting the welfare and well-being of workers. All establishments, workplaces and other undertakings are covered, including agricultural enterprises whether operating for profit or not, except:

- residential places exclusively devoted to dwelling purposes;
- those directly engaged in land, sea and air transportation, except their dry dockers, garages, hangers and maintenance, and repair shops and offices; and
- the activities of a lessee regarding the safety of the mining claim or lease, including mines safety, mineral conservation and pollution in establishments or work places falling under mining industry.

The Secretary of Labor and Employment, through the Regional Director or other authorized representative enforced the OSH Standards

These are the **duties of the employers and employees** in relation to enforcement and compliance with the OSH Standards in the workplace.

- Adopt administrative policies on safety in accordance with the provisions of the Standards.
- Report to the Regional Director or his/her duly authorized representative the policies adopted and the safety organization established.
- Submit report to the Regional Director or his/her duly authorized representative once in every three months on the safety performance, safety committee meetings and its recommendations and measures taken to implement the recommendation.
- Act on recommended safety measures.
- Provide access to appropriate authorities.

Duties of the employees to the supervisor.

1. Serve as member of the Health and Safety
2. Follow safety policies.
3. Report unsafe condition and practices to Safety Committee
4. Cooperate with Health and Safety Committee.
5. Assist government agencies in the conduct of safety and health inspection.

The responsibilities of the employer mainly stem from legislation such as the Health and Safety at Work etc. Act (1974) is very important in managing Health and Safety at work. These include the Management of Health and Safety at Work Regulations, Control of Substances Hazardous to Health Regulations, Manual Handling Operations Regulations, Personal Protective Equipment at Work Regulations, and various others.



How Much Have You Learned?

Self-Check 1.1

A. Write **true** if the statement is correct and **false** if the statement is wrong.

- _____ 1. The health and safety at work is a very important responsibility of the employer.
- _____ 2. Sickness or injury may arise by reason of occupation.
- _____ 3. The employee is not held responsible for safety rules.
- _____ 4. All establishment, workplaces and undertakings are covered by the OSH.
- _____ 5. The intention of OSH is promoting the welfare of well-being of workers.

B. Identify the *duties of the employers and employees* in relation to enforcement and compliance with the OSH Standards in the workplace.

Refer to the Answer Key. What is your score?



How Do You Extend Your Learning?

Assignment Sheet 2.1

Directions: Visit a workplace in your community particularly a food establishment. Try to observe and make an interview with the personnel staff on how they enforced the OSH in the workplace in the following categories: Record your findings by filling up the checklist.

Arrangement of equipment
Sharp tools or objects
Floors
Electrical Connections
Storage of chemicals
Fire Safety
First aid Facilities
Lighting and ventilation
Waste disposal

Workplace Safety Practices

Directions: Read each of the following statement carefully. Based on your observation and interview check the response that best describes the safety practice enforced in the workplace.

CRITERIA	Very Satisfactory	Satisfactory	Not Satisfactory
1. The equipment are arranged in a manner that it provides enough pathways or aisles for smooth movements.			
2. Sharp objects are kept on designated places.			
3. Floor is well maintained and always free from spills and obstacle.			
4. Electrical connection are properly fixed and given immediate attention if worn out.			
5. Chemicals are stored in a well locked and safe place.			
6. Fire exit is situated in a convenient place and with enough fire prevention facilities.			
7. The workplace is well lighted and ventilated with enough windows.			
8. Observe proper disposal of waste by way of the segregation technique.			



What Do You Need To Know?

Read the Information Sheet 2.2 very well then find out how much you can remember and how much you learned by doing Self-check 2.2.

EFFECTS OF HAZARDS IN THE WORKPLACE

The effect that occupation may have on a worker's health is dependent on the exposure (expressed quantitatively) to relevant agents, and on host factors. Taking a history is often very important in identifying relevant exposures and linking them to ill-health. The concept of "cumulative exposure" i.e. a quantitative measure of the intensity of exposure and the duration of exposure is important, since generally it is the main determinant of risk. Health may be harmed by occupational exposures in many different ways, and practically any organ system can be affected.

Some examples follow - (starting with the lungs and skin, the organs of first contact for most chemical occupational exposures).

Asthma e.g. from glutaraldehyde in health care workers, (the image shows a hospital radiographer loading film processing chemicals, through a closed system, since emanations of sulphur dioxide or of glutaraldehyde can cause asthmatic symptoms). Other causes of asthma may include flour, or other agents in bakeries, or di-isocyanates in twin-pack spray painting.

- Allergic alveolitis (e.g. Farmer's lung from fungal spores)
- Pneumoniosis (e.g. silicosis caused by inhaling quartz)
- Cancer (e.g. from asbestos inhalation)

Musculoskeletal

- Tenosynovitis and similar conditions
- Back pain from manual handling

Nervous and Mental

- Peripheral neuropathy (e.g. caused by lead or n-hexane)
- Nerve deafness induced by noise
- Mental ill-health (e.g. caused by stress, or by chemical exposures such as mercury)

Blood/Marrow

- Anemia (e.g. caused by lead, which may impair the synthesis of normal hemoglobin). A plastic anemia may be caused by high exposures to benzene
- Leukemia (a cancer of certain white blood cells) caused by benzene.

Genitourinary and Endocrine

- Kidney damage caused by some solvent exposures, or by cadmium
- Bladder cancer e.g. caused by beta naphthylamine, or compounds of similar structure (generally aromatic amines, with an aromatic group in the 'para' position to the amine)
- Infertility caused by some chemical exposures e.g. male infertility caused by DBCP (dibromochloropropane). A range of chemicals have been implicated in the potential

for endocrine disruption and/or effects on reproduction such as phthalates, glycol ethers, and organophosphates

Liver

- Hepatitis (e.g. toxic from some chemicals or viral e.g. in health care workers)
- Cancer (e.g. Vinyl chloride monomer causing angiosarcoma)

Workplace Stress

Stress can be associated with severe physical and/or psychological effects, such as sleep disorders; fatigue; chronic aches and pains; depression; changes in sexual activity; conflict with family, friends, and co-workers; weight gain or weight loss; greater susceptibility to injury; immune system depression; and greater vulnerability to illness and disease.

This is a serious health and safety hazard that can have devastating effects. Stress occurs:

- when there is a poor match between workplace demands and a worker's degree of control;
- as a result of demands that are placed upon mind and body;
- when employees are exposed to staff shortages, harassment, bullying, noise and other hazards;

Stress is largely caused by poor work organization factors such as:

- lack of control and conflicting work demands;
- lack of decision-making participation;
- lack of training and direction; unclear work responsibilities;
- privatization, outsourcing, downsizing, mergers, staff cutbacks, and restructuring; and
- overwork and poor work shift schedules.

Cutbacks, privatization, and downsizing have contributed to a heightened sense of job insecurity. All of these factors cause or compound workplace stress.

The **Generalized Stress Response** is the phrase used to describe a variety of physical reactions to stress:

- increased metabolism;
- blood pressure;
- cholesterol and fatty acids in the bloodstream;
- decreased protein synthesis;
- faster blood clotting;
- increased production of stomach acids, blood sugar for energy;
- localized inflammation;
- tensed up muscles; and
- sweating to cool muscles.

Stress affects the physical and psychological health of a person. But it also spills out of the workplace, negatively affecting members' family lives. The cumulative effects of stress can be devastating.

Major outcomes of stress are:

- Psychological disease and social behavioral changes (e.g., depression, anxiety, Heart disease)
- Various physiological outcomes (e.g., headaches and migraines, impaired digestion, ulcers and diabetes).
- Personal and family life conflict.

- Work – related musculoskeletal disorder.
- Burnout
- Synergetic (combined) effects of stress and other diseases (i.e., stress can make worse other diseases and disorder.
- Critical incident stress.



How Much Have You Learned?

Self-Check 2.2

Directions: Write **T** if the statement is correct and **F** if the statement is wrong.

- ____ 1. Stress may result to heart a disease.
- ____ 2. Anemia is the result of exposure to lead which impaired the synthesis of hemoglobin.
- ____ 3. Workplace stress is a minor health and safety hazard and has less effect on health.
- ____ 4. Older workers run a higher risk of work injuries arising from lack of experience.
- ____ 5. Mental ill-health is caused by stress, or by chemical exposures such as mercury.
- ____ 6. Stress can make other disorders worst.
- ____ 7. The effect that occupation may have on a worker's health is dependent on the exposure (expressed quantitatively) to relevant agents, and on host factors.
- ____ 8. Psychological disease may lead to suicidal thoughts.
- ____ 9. Every day at the workplace, workers face health and safety hazards such as accidents, dust, chemicals, noise, and violence.
- ____ 10. Physical working conditions such as noise and vibration, temperature extremes, overcrowding, exposure to toxic substances, and poor air quality may or may not cause stress.

Refer to the Answer Key. What is your score?



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity

Activity Sheet 2.2

FILM VIEWING ON HAZARDS AND RISKS

Directions: View a film on hazards and risks. After viewing the film on hazards and risks, prepare yourself for answering the Checklist.



How Well Did You Perform?

Find out by accomplishing the Scoring Rubric honestly and sincerely. Remember it is your learning at stake!

CHECKLIST

Name: _____ Class Period: _____

Workplace Safety Attitude Survey

For each of the following statements, check the response that best fits what you think or believe right now. Be as honest as possible. This survey will not be graded.

	Disagree	Strongly Disagree	Agree	Strongly Agree
1. My health is very important to me.				
2. A workplace injury or illness will never happen to me.				
3. If I do not watch out for my own health, I can't assume anyone else will.				
4. Workplace injuries or illnesses just happen. I can't do anything about them.				
5. It is worth the inconvenience to take the necessary precautions to be safe at work.				
6. I do not worry about workplace injuries or illnesses.				
7. People may think I am strange if I am concerned about safety at work.				
8. I am more careful than other people, so I do not think I will get injured at work.				

9. If I had to choose between completing my job quickly and being safe, I would choose be safe.				
10. If I get injured at work, it will most likely be minor.				
11. A person could get fired by questioning safety on the job				
12. If someone gets injured at work, it is their own fault.				
13. I do not care what other people think. I would rather be safe than sorry.				
14. You really cannot predict how or when people are going to get hurt.				
15. If it would make my job faster, I would remove protective equipment on machinery.				
16. Some jobs, like office work are totally safe.				
17. I would give up a high-paying job if I thought it was unsafe.				
18. I do not pay much attention to written safety warnings. Most of them are unnecessary.				
19. If I worked at a job for a long time and never got hurt, I would still be concerned about injuries or illnesses.				
20. Even if protective clothing was uncomfortable or seemed unnecessary for the job, I would still wear it.				

LEARNING OUTCOME 3

Control hazards and risks

PERFORMANCE STANDARDS

- Procedures for dealing with workplace accidents, fire and emergencies are followed in accordance with the organization's OSH policies.
- Personal protective equipment is correctly used in accordance with organization's OSH procedures and practices



What Do You Already Know?

Let us determine how much you already know what controlling hazards and risks. Take this test.

Pretest LO 3

Directions: Fill in the blanks with word or group of words to complete the sentence.

1. Chemicals should be rightly _____ to avoid detrimental mistakes.
2. Injuries, illnesses and accidents on job should be _____ in time for immediate action.
3. The _____ is used as warning of fire.
4. The way out in the event of fire is _____.
5. The collection transport and process of managing the disposal of waste is _____.
6. Keep yourself _____ to avoid being electrocuted.
7. The process of removing or neutralizing harmful materials that have gathered on worker or equipment during a response to chemical incident is called _____.
8. In food preparation, the PPE is the _____ which gives protection against hazard during food preparation.
9. That which protects one against burns when taking hot items on top of the stove is the _____.
10. The treatment of materials through a process of making them suitable or beneficial is called _____.



What Do You Need To Know?

Read the Information Sheet 3.1 very well then find out how much you can remember and how much you learned by doing Self-check 3.1.

Information Sheet 3.1

SAFETY REGULATIONS IN THE WORKPLACE

Safety regulations in the workplace need to be in place in order to assure the workers that they are cared for.

The four industries wherein maximum workplace mishaps take place are:

1. service industry;
2. construction and building industry;
3. retail stores; and
4. manufacturing industry.

It is absolutely essential for a worker to be aware of the safety regulations in the workplace. Every organization should have a system for safety. This system should revolve around the following safety regulations and guidelines:

On Job Hazards

The safety regulations in the workplace should keep job hazards on top priority.

- The floors have to be checked for tripping hazards.
- All the walkways should be well-lit and in case there are blind spots, all the employees and workers should be aware of them. This could help avoid untoward collisions and accidents.
- Cords and wires should be secured away from the walkways and the corridors. All electric wiring should be covered with appropriate material.
- Fire safety regulations and electrical safety regulations should also be made.



Health Hazards

Worker-spread illnesses pose a great risk the health of the entire workforce. It is required by the management to advise all the workers to stay home if they are sick as a part of workplace safety regulations. This policy should not be altered and the leave taken by the employees during such a time should be a paid leave. This will make sure that they don't come to work for the fear of losing their salary for the day. Good hand washing and disinfecting toiletries should be available at the



workplace for the workers.

Chemical Hazards

Chemicals should be rightly labeled to avoid any detrimental mistakes. Mixing of the wrong chemicals can cause a terrible chemical reaction which could be hazardous to all the employees. There should be measures to taken to ensure that only chemicals that are safe be kept together and stored together. The supervisor should have full working knowledge of the chemicals to ensure that no mistakes happen due to ignorance or negligence. The worker should be guided on the proper chemical storage procedures.



Reporting System

To ensure the best safety regulations in the workplace, there needs to be a reporting system in place. Injuries, illnesses and accidents on job should be reported in time. All illnesses should be reported as well. This is to ensure that the organization has the medical records of the employee in case of an emergency. The Occupational Safety and Health Department Administration (OSHDA) has come up with several safe ways to maintain this system. Reference to OSHDA should be made while developing the reporting system and putting it in place.



Whistleblower

Being a tattletale is not by choice of most employees. However, in case the behavior of certain employees is not safe or hazardous, it should be reported to the appropriate authorities. This can help increase the safety standards of the organization on the whole and work as a great safety regulation in a workplace. In fact, this whistle blower system also ensures complete attention of the employees. This can assure that they report any accident or hazardous incident to the management in time. It fosters a no-negligence environment that thrives on participative behavior.



Most organizations make sure that these health and safety regulations in the workplace are put into use. However, in the absence of professionalism at work, it becomes a little difficult to get the right results.



How Much Have You Learned?

Self-Check 3.1

A. Write the letter of the correct answer.

- ____ 1. It fosters a no-negligence environment that thrives on participative behavior.
A. Whistle blowing
B. Reporting
C. Giving instruction
D. Observance of silence
- ____ 2. The worker should be guided in the proper storage of these items to avoid accident or even death. Which items are referred to?
A. Detergents
B. Chemicals
C. Condiments
D. Cutlery
- ____ 3. These persons should be kept out to avoid food contamination.
A. Old persons
B. Those who are ill
C. Disable
D. Children
- ____ 4. Always wipe up spills on the floor to avoid _____.
A. burns
B. slip
C. electrocution
D. cuts or wounds
- ____ 5. Fixing electrical wiring avoid the danger of _____.
A. falls
B. collision
C. electric shock
D. burns
- ____ 6. The following are "On Job Hazards" EXCEPT...
A. slippery floor
B. secured cords and wires
C. dark walkways
D. no fire safety rules

B. For items 7-10, identify four industries where maximum workplace mishaps take place. These are:

Refer to the Answer Key. What is your score?

Read the Information Sheet 3.2 very well then find out how much you can remember and how much you learned by doing Self-check 3.2.

Information Sheet 3.2

CLEAN AIR ACT

The Clean Air Act is the name of any of several pieces of legislation aimed at reducing smog and other types of air pollution and less damage of the ozone layer.

Philippines: Clean Air Act

The Clean Air Act outlines the government's measures to reduce air pollution and incorporate environmental protection into its development plans. It relies heavily on the polluter pays principle and other market-based instruments to promote self-regulation among the population. It sets emission standards for all motor vehicles and issues registration only upon demonstration of compliance. It also issues pollutant limitations for industry. Polluting vehicles and industrial processes must pay a charge. Any individual, enterprise, corporation or groups that installed pollution control devices or retrofitted its existing facilities to comply with the emissions standards in the Act can apply for tax incentives of accelerated depreciation, deductibility of R&D expenditures or tax credits on the VAT of the equipment and are exempt from real property tax on the machinery or equipment used to comply. It also establishes a R&D program for air pollution reduction mechanisms and technologies. It bans incineration and smoking in public places. At the local and municipal levels, governments are allowed to set emission quotas by pollution source, and the development of recycling programs is encouraged.

The Food Processing Concept (FPC) Clean Air Act

It has been developed for use in large variety of baking and cooking processes. The system provides the perfect combination of vapor extraction and cleaning. The FPC Clean Air Act is able to reduce vapor pollution from the emission by 80%. The pollution from the vapor emissions is transformed into biodegradable residue, which benefits the environment, your employees and neighbors and your profits. The unit has variable ventilators that pulls out the vapor released in the cooking process, so that the working area can be kept free from any irritating and greasy air.

The FPC Clean Air Act can be used in a combination with a variety of food processing equipment including:

- oil fryers
- hot spiral oven
- hot air tunnels
- grill markers
- infrared ovens
- open flame system
- belt grill systems
- steam tunnels
- smoke houses



How Much Have You Learned?

Self-Check 3.2

A. Write the letter of the correct answer.

- ____ 1. Which fosters a no-negligence environment that thrives on participative behavior
A. Whistle blowing
B. Reporting
C. Giving instruction
D. Observance of silence
- ____ 2. The worker should be guided to proper storage of these items to avoid accident or even death. What items are referred to?
A. Detergents
B. Chemicals
C. Condiments
D. Cutlery
- ____ 3. Who should be kept out to avoid food contamination.
A. Old persons
B. Those who are ill
C. Disable
D. Children
- ____ 4. Always wipe up spills on the floor to avoid _____.
A. burns
B. slip
C. electrocution
D. cuts or wounds
- ____ 5. Fixing electrical wiring prevents the danger of _____.
A. falls
B. collision
C. electric shock
D. burns

B. Check the equipment where the FPC Clean Air Act applies.

- ____ 1. cars
- ____ 2. tunnels
- ____ 3. oil fryers
- ____ 4. grill markers
- ____ 5. hot air tunnels
- ____ 6. smoke houses
- ____ 7. hot spiral oven
- ____ 8. infrared ovens
- ____ 9. belt grill systems
- ____ 10. open flame system

Read the Information Sheet 3.3 very well then find out how much you can remember and how much you learned by doing Self-check 3.3.

Information Sheet 3.3

ELECTRICAL AND FIRE SAFETY CODE

Fire safety refers to precautions that are taken to prevent or reduce the likelihood of a fire that may result in death, injury, or property damage, alert those in a structure to the presence of an uncontrolled fire in the event one occurs, better enable those threatened by a fire to survive, or to reduce the damage caused by a fire. Fire safety measures include those that are planned during the construction of a building or implemented in structures that are already standing, and those that are taught to occupants of the building.

Threats to fire safety are referred to as *fire hazards*. A *fire hazard* may include situations that increase the likelihood of fire or may impede escape in the event a fire occurs. Fire safety is often a component of building safety.

Key elements of a fire safety policy

- Building a facility in accordance with the version of the local building code.
- Maintaining a facility and behaving in accordance with the provisions of the fire code. This is based on the occupants and operators of the building being aware of the applicable regulations and advice.

Examples of these include:

- Not exceeding the maximum occupancy within any part of the building.
- Maintaining proper fire exits and proper exit signage (e.g., exit signs pointing to them that can function in a power failure)
- Compliance with electrical codes to prevent overheating and ignition from electrical faults or problems such as poor wire insulation or overloading wiring, conductors, or other fixtures with more electric current than they are rated for.
- Placing and maintaining the correct type of fire extinguishers in easily accessible places.
- Properly storing and using, hazardous materials that may be needed inside the building for storage or operational requirements (such as solvents in spray booths).
- Prohibiting flammable materials in certain areas of the facility.
- Periodically inspecting buildings for violations, issuing Orders to Comply and, potentially, prosecuting or closing buildings that are not in compliance, until the deficiencies are corrected or condemning it in extreme cases.
- That sprays fireproofing remains undamaged.
- Maintaining a high level of training and awareness of occupants and users of the building to avoid obvious Maintaining fire alarm systems for detection and warning of fire.
- Obtaining and maintaining a complete inventory of fire stops.
- Ensuring mistakes, such as the propping open of fire doors.
- Conduct fire drills at regular intervals throughout the year.

Common fire hazards

Improper use and maintenance of gas stoves often create fire hazards.

Some common fire hazards are:

- Electrical systems that are overloaded resulting in hot wiring or connections, or failed components
- Combustible storage areas with insufficient protection
- Combustibles near equipment that generates heat, flame, or sparks
- Candles
- Smoking (Cigarettes, cigars, pipes, lighters, etc.)
- Equipment that generates heat and utilizes combustible materials
- Flammable liquids
- Fireplace chimneys not properly or regularly cleaned
- Cooking appliances - stoves, ovens
- Heating appliances (wood burning stoves, furnaces, boilers, portable heaters)
- Electrical wiring in poor condition
- Batteries
- Personal ignition sources - matches, lighters
- Electronic and electrical equipment
- Exterior cooking equipment – BBQ



FIRE SAFETY TIPS IN THE WORKPLACE



Here are some basic safety tips that will help ensure you protect your staff in case the worst ever happens and you experience a fire.

1. *Anything that is capable of burning should be considered a potential risk. Any flammable item should be safely stowed away in an area that is well ventilated so as to minimize the risk of ignition. These may include things like paper, chemicals or waste materials.*
2. *A working ventilation fan should be present as this will help staff escape more safely in the event of a fire due to the smoke and fumes being cleared quicker.*
3. *Adequate emergency lighting should be installed and battery powered torches present for staff so as they can find their way out if the power blackens out the building. Never use a naked flame such as a lighter as this could ignite further fires during escape.*
4. *Do not leave unwanted rubbish or items such as waste paper or boxes to accumulate in the workplace as this represents a serious fire hazard as well as potentially blocking escape routes.*

5. Ensure that all staff are aware of the fire escape routes and install fire alarm if you don't already have one. If the office has one in place already make sure it is tested regularly each year by a qualified fire alarm engineer and that none of the detectors are covered, blocked or been painted over.
6. A major cause of office fires is due to a short circuit at the plug or in electrical machinery such as computers or heaters. Ensure that any unused power socket is switched off and have your sockets tested annually to make sure they are in proper working condition. Never ever plug multiple plugs into a power socket as this increases the risk of an overload and potential short circuit. Electrical fires can be very dangerous and so you should also provide the correct type of fire extinguisher for such a hazard. A CO2 extinguisher is especially designed for this very purpose.

ELECTRICAL SAFETY TIPS

When doing electrical work or using electrical equipment, you should practice safety to avoid electric shock.

- Shut off power to the circuit you're working on and verify it's off (treat all electrical as having power even after shutting off power).
- Wear rubber gloves.
- Wear rubber shoes with rubber soles.
- Use tools with insulated handles.
- Keep yourself dry.
- Keep the area around you dry.
- Wear safety glasses.
- Never handle electric switch with wet hands.
- Always report frayed electrical cords and ungrounded electrical cords.



How Much Have You Learned?

Self-Check 3.3

A. Identify whether it is a firehazard or not. Write **yes** or **no** only.

- ____ 1. candles
- ____ 2. bricks
- ____ 3. oven
- ____ 4. sand
- ____ 5. faulty electrical wiring

B. Identify that which is described.

- ____ 1. A major cause of office fires at the plug or in electrical machinery such as computers or heaters.
- ____ 2. Maintain this for detection and warning of fire
- ____ 3. It is often a component of building safety
- ____ 4. A portable metal container ejecting chemicals or water for putting out fire
- ____ 5. This should be installed so that workers or staff can find their way out if the power blackens out the building.

Read the Information Sheet 3.4 very well then find out how much you can remember and how much you learned by doing Self-check 3.4.

Information Sheet 3.4

WASTE MANAGEMENT

Waste management is the collection, transport, processing or disposal, managing and monitoring of waste materials. The term usually relates to materials produced by human activity, and the process is generally undertaken to reduce their effect on health, the environment or aesthetics. Waste management is a distinct practice from resource recovery which focuses on delaying the rate of consumption of natural resources. The management of wastes treats all materials as a single class, whether solid, liquid, gaseous or radioactive substances, and tried to reduce the harmful environmental impacts of each through different method.

Proper waste management plays a very important role especially in the kitchen where foods are being prepared and cooked.

Waste management procedures and techniques

1. Waste avoidance is engaging in activity that prevents generation of waste. **Waste segregation** is the process of dividing garbage and waste products in an effort to reduce, re – use and recycle materials.



2. Waste reduction is the minimization of wasteful consumption of goods.



3. Re-use is the process of recovering materials intended for some purpose without changing their physical and chemical appearance.



4. Recycling is the treatment of waste materials through a process of making them suitable for beneficial use and for other purposes.
5. Composting is the controlled decomposition of organic matter by microorganism mainly bacteria and fungi into a humus like product.
6. Waste disposal refers to the proper discharge of any solid waste into or any land.



Waste Disposal

Aim: To ensure proper management and disposal of waste.

- Determine whether the waste is characterized as hazardous waste or not.
- Pick up free characterized waste tags, containers, and guidelines from the prescribed locations:
- Ensure that containers holding hazardous wastes are compatible with wastes, and are in good condition, do not leak, and are closed when wastes are not being added or removed.
- Mark containers with the words "Hazardous Waste."

When the container is full

- Once the container is full, complete a characterized waste tag, specifying the contents, and attach to the waste container.
- Limit accumulation of waste to the amount mentioned on the container.

To schedule waste pick up

pickup:

- To schedule a hazardous waste pick up, call the transportation supervisor of the company and submit a Hazardous Waste Pick-up Request form

Responsibilities of the company:

- Assist the client or waste generator in performing hazardous waste determinations.
- Pick up waste from the generator on a routine schedule or by appointment.
- Maintain databases and inventories of all wastes generated.
- Maintain the accumulation facility and provide for the disposal of hazardous waste generated by client.

Safety meeting before picking up the waste:

- A complete checklist of all the equipments needed for the job is made and checked.
- The employee uses personal protective equipment.
- Tool kit to be checked by the supervisor.
- First aid kit to be checked by the supervisor and is placed in the pick – up.
- Fire extinguisher also checked.
- All important company telephone number to be pasted and checked in the pick –up.



How Much Have You Learned?

Self-Check 3.4

Directions: Match column A with Column B.

A	B
_____ 1. Making waste beneficial	a. Re –use
_____ 2. The recovering of materials for use in other purpose	b. Recycle
_____ 3. Proper discharge of waste into land	c. Segregation
_____ 4. Decompositio of organic matter	d. Composting
_____ 5. The process of dividing garbage and waste products in an effort to reduce, re-use and recycle materials	e. Waste disposal
	f. Sort

Refer to the Answer Key. What is your score?



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity.

Operation Sheet 3.1

PRACTICE PROPER SEGREGATION TECHNIQUE

Objectives: To be able to categorize waste as for re-use, recycle, reduce or dispose.

Materials Tools and Equipment: Waste bags or cans, different kinds of wastes

Procedure:

1. Look inside the classroom. Gather all the waste.
2. Segregate the wastes whether for recycle, re-use, reduce or for dispose.
3. Place on designated/labeled trash boxes or cans.
4. Put them on a safe place for pick up.



How Well Did You Perform?

Find out by accomplishing the Scoring Rubric honestly and sincerely. Remember it is your learning at stake!

Learner's Name	Date				
Competency: Practice occupational safety and health procedure	<table border="1"> <tr> <td></td> <td>Test Attempt</td> </tr> <tr> <td>1st</td> <td>2nd 3rd</td> </tr> </table>		Test Attempt	1st	2nd 3rd
	Test Attempt				
1st	2nd 3rd				

<p>Directions:</p> <p>Ask teacher to assess your performance in the following critical task and performance criteria below</p> <p>You will be rated based on the overall evaluation on the right side.</p>	OVERALL EVALUATION	
	Level Achieved	PERFORMANCE LEVELS
		4 - Can perform this skill without supervision and with initiative and adaptability to problem situations.
		3 - Can perform this skill satisfactorily without assistance or supervision.
		2 - Can perform this skill satisfactorily but requires some assistance and/or supervision.
		1 - Can perform parts of this skill satisfactorily, but requires considerable assistance and/or supervision.
Teacher will initial level achieved.		

Read the Information Sheet 1.1 very well then find out how much you can remember and how much you learned by doing Self-check 1.1.

Information Sheet 3.5

1. EVACUATION

The Contingency Plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary situations which would warrant partial or complete evacuation are as follows:

- explosions resulting in airborne debris including container fragments and hazardous waste;
- spills or chemical reactions resulting in toxic fumes;
- fire when it cannot be contained and is spreading to other parts of the facility, or when fire could generate toxic fumes; and
- all incidents where necessary protective equipment is not available to emergency response personnel.

The evacuation plan must ensure the safe egress of facility personnel. The evacuation plan must indicate a recognizable signal to start evacuation, evacuation routes, and alternate evacuation routes (incase primary exit routes are blocked by releases of hazardous waste or fires)

Individuals involved in the evacuation should be trained and instructed in responding to likely emergency situations. They should be familiar with the location and use of:

1. fire alarm calls points
2. fire exits
3. firefighting equipment like the fire extinguisher

2. DECONTAMINATION

Decontamination is the process of removing or neutralizing harmful materials that have gathered on personnel or worker and/or equipment during the response to a chemical incident. Many stories are told of seemingly successful rescue, transport, and treatment of chemically contaminated individuals by unsuspecting emergency personnel who in the process contaminate themselves, the equipment, and the facilities they encounter along the way. Decontamination is of utmost importance because it:

- protects all workers especially hospital personnel by sharply limiting the transfer of hazardous materials from the contaminated area into clean zones;
- protects the community by preventing transportation of hazardous materials from their work to other sites in the community by secondary contamination; and
- protects workers by reducing the contamination and resultant permeation of, or degradation to, their protective clothing and equipment.

Avoiding contact is the easiest method of decontamination -- that is, not to get the material on the worker or his protective equipment in the first place. However, if contamination is unavoidable, then proper decontamination or disposal of the worker's outer gear is recommended. Segregation and proper disposal of the outer gear in a polyethylene

bag or steel drum is recommended. With extremely hazardous materials, it may be necessary to dispose of equipment as well.

Physical decontamination of protective clothing and equipment can be achieved in some cases by several different means. These all include the systematic removal of contaminants by washing, usually with soap and water, and then rinsing. In rare cases, the use of solvents may be necessary. There is a trend toward dry decontamination, which involves using disposable clothing (e.g., suits, boots, and gloves) and systematically removing these garments in a manner that precludes contact with the contaminant. The appropriate procedure will depend on the contaminant and its physical properties. A thorough work-up of the chemical involved and its properties or expert consultation is necessary to make these kinds of decisions.

Care must be taken to ensure that decontamination methods, because of their physical properties, do not introduce fresh hazards into the situation. Additionally, the residues of the decontamination process must be treated as hazardous wastes.

DECONTAMINATION OF PERSONNEL OR WORKER

Personnel should remove protective clothing in the following sequence.

- Remove tape securing gloves to suit.
- Remove outer gloves turning them inside out as they are removed.
- Remove suit turning it inside out and avoid shaking.
- Remove plastic shoe cover from one foot and step over "clean line." Remove other shoe cover and put that foot over the line.
- Remove mask. The last staff member removing his/her mask may want to wash all masks with soapy water before removing suit and gloves. Place masks in plastic bag and hand over the clean line, and place in second bag held by another member of the staff. Send for decontamination.
- Remove inner gloves and discard in drum inside dirty area.
- Close off dirty area until level of contamination is established and the area is properly cleaned.
- Personnel should then move to a shower area, remove scrub suit and place it in a plastic bag.
- Shower and redress in normal working attire.

Note: Double bag clothing and label appropriately.

Using personal protective equipment and clothing (PPE)

PPE can protect you from hazards associated with jobs such as handling chemicals or working in a noisy environment. In food preparation this is the cooking outfit which gives protection to the worker against different hazards that may be encountered during cooking. These are the following:

- **Hair covering/ hairnet** – prevents hair from falling into food product
- **Facial mask** – barrier to airborne contamination during sneezing, coughing and talking
- **Aprons** – reduce risk of contamination and help maintain cleanliness.
- **Gloves** – reduce risks of contamination.
- **Pot holder** – protects against burns when taking hot items on top of the stove.



How Much Have You Learned?

Self-Check 3.5

A. Write **true** if the statement is correct and **false** if the statement is wrong.

- _____ 1. Decontaminating the PPE can be done by just washing and rinsing with water only.
- _____ 2. Evacuation is not necessary in cases of spills or chemical reactions resulting in toxic fumes.
- _____ 3. Avoiding contact is the easiest method of decontamination -- that is, not to get the material on the worker or his protective equipment in the first place.
- _____ 4. Double bag clothing and label appropriately is necessary to avoid contamination.
- _____ 5. The residues of the decontamination process must be treated as non-hazardous wastes.

B. Give 5 personnel protective equipment and clothing (PPE). Give their uses.

Refer to the Answer Key. What is your score?



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

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LEARNING OUTCOME 4

Maintain occupational safety and health awareness.

PERFORMANCE STANDARDS

- Procedures in emergency related drill are strictly followed in line with the established organization guidelines and procedures.
- OSH personal records are filled up in accordance with workplace requirements



What Do You Already Know?

Let us determine how much you already know about maintaining occupational safety and health awareness. Take this test.

Pretest LO 1

- A. Identify whether the following pictures is a fire drill or an earthquake drill. Write letter **F** for fire and **E** for earthquake.



B. Write **true** if the statement is correct and **false** if the statement is wrong.

- _____ 1. Remove jewelries when working with food.
- _____ 2. Accidents are caused by people due to haste.
- _____ 3. In an earthquake drill DROP means to go out of the building.
- _____ 4. Beware of facing windows and mirror in the event of earthquake.
- _____ 5. Safety practices in the workplace result to high rates of accidents.



What Do You Need To Know?

Read Information Sheet 4.1 very well then find out how much you can remember and how much you learned by doing Self-check 4.1.

Information Sheet 4.1

OPERATIONAL SAFETY AND HEALTH PROCEDURES, PRACTICES AND REGULATIONS

Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention among workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities; and, to summarize, the adaptation of work to man and of each man to his job.

The main focus in occupational health is on three different objectives:

1. maintain and promote workers' health and working capacity;
2. improve working environment and work; and
3. develop work organizations and working cultures in a direction which supports health and safety at work and in doing so also promotes positive social climate and smooth operation and may enhance productivity of the undertakings.

Safety procedures, practices in the workplace contribute to:

1. low rates of accident;
2. good employee morale;
3. employee satisfaction;
4. reduction of insurance and other operating cost; and
5. reduction of losses of employees due to disabling accidents.

Some health and safety procedures and practices

A. *Personal hygiene practices*

1. Keep your hands always clean and nails cut short.
2. Wear comfortable clean clothes.
3. Use of PPE when working.
4. Remove jewelries especially when working with food.
5. Use gloves when hands are thoroughly washed.

B. *Good housekeeping practice.*

1. Keep the area clean. Plan and implement a program of regular cleaning of the equipment and all other areas.
2. Eliminate the possible breeding of flies. Screen the house and use effective insecticides whenever necessary.
3. Exterminate rodents. Prevent their increases by not leaving food and dirty dishes on the table or in the sink. Keep foods likely to be eaten by rats in rodent-proof containers.

C. *Observance of safety precautions.* The observance of safety precaution to promote work efficiency and to avoid accident is important. Accidents are caused either by people themselves, by unsafe environment, or defective equipment. Accidents are caused by people are due to haste, distraction or failure to observe safety regulations. Carelessness causes slips, falls, burns and bumps and the destruction of things in the workplace. Accidents in the laboratory area are caused by contact with exposed electrical tools or kitchen equipment and short circuits.

Workplace safety checklist

OSH requirements mean that managing risk in the workplace is more than a priority. It is a fundamental issue of effective workplace management. Occupational safety and health risks exist, even though they may not be as apparent as the obviously dangerous machines or situations that you would normally find in a warehouse or factory or industry.

Check the guide below for some of the OSH responsibilities for the workers to ensure their personal safety.

1. **First Aid.** The requirement for a first aid kit or a trained first aid person will depend on the number of people in the workplace. Where 25 or more people are located in a workplace on you need to train a first aid person. There is also the requirement for a first aid kit, register of injuries book and a notice specifying who to contact in the workplace if first aid is required. A first aid room is only required where there are 200 employees in an office workplace.
2. **Ergonomics.** Ergonomics is crucial in offices yet commonly overlooked. A workstation has correct ergonomics if the alignment of the computer screen, keyboard, person and chair is in a straight line, with no twisting of the head or body. The height of the screen, keyboard and chair will also be important for good ergonomics. A footrest and document holder may be required, depending on the situation.
3. **Fire control.** Sources of ignition and combustible materials should be separated to avoid potential fires. Fire equipment should be available and unobstructed, with some employees trained in its use. The complexity of your evacuation system will depend on the size of the business, number of floors involved and number of people to be evacuated.

Sources of ignition include heat sources (photocopiers, computers, printers, portable heaters) and electrical sources including damaged electrical cables and piggy-backed double adaptors. Cleaning cloths in cleaners' cabinets can also be sources of heat, depending on the chemicals used and how the materials are stored.

- 4. Emergency Evacuation.** Have a documented evacuation procedure, which has been communicated to all employees, and has been practiced as an evacuation drill at least once each year. The evacuation procedure should differentiate between bomb threat and other types of emergencies, as the procedure will vary slightly. Your office area will have a different procedure to other parts of the business if you are part of a high rise office block while other areas are in an industrial estate.

Determine an assembly point, and keep a record of people's names to determine who might be left in the building. This will be useful for the emergency services if a rescue is required. Consideration should also be given to first aid provision at the assembly point and the identification of a person who is trained in first aid should anyone be injured.

Also include in your procedure the method to be used to contact the emergency services, for example whether you will contact them before or after you evacuate the building.

- 5. Electrical Hazards.** All electrical cables should be periodically inspected for integrity and replaced if damaged. The practice of 'piggy backing' double adaptors should be eliminated as this can create a fire risk. If there are insufficient power points, a power board is a safer option. Alternatively, you could have an electrician install more power points. Electrical switchboards should be checked to ensure that neither combustible materials nor flammable liquids are stored nearby.
- 6. Chemical Safety.** You have legal obligations even if your office keeps very small quantities of dangerous chemicals. These include addressing hazardous substances requirements in the OSH Regulation 2001. This requires you keep a register of hazardous substances, copies of material safety data sheets, precautions in place to prevent injury to anyone using the chemicals, and assessing whether control measures (gloves, glasses etc.) are sufficient. All containers must be labeled with the product name, and any hazards associated with it, for example flammable, corrosive, poison etc.
- 7. Housekeeping.** Untidy offices with materials placed in boxes or in piles on the floor create a hazardous environment - not only a trip hazard, but could indicate that there is insufficient storage space, insufficient time for storing materials, or just poor management of the work area.

Many workplaces have difficulty finding a temperature setting that all workers find comfortable. The recommended range is 22 to 26 person's egress from the workplace, as well as leading to injury if a person is constantly moving around a cluttered work area.

- 8. Temperature.** Many workplaces have difficulty finding a temperature setting that all workers find comfortable. The recommended range is 22 to 26 person's egress from the workplace, as well as leading to injury if a person is constantly moving around a cluttered work area.

Set the temperature at 22 or 23 degrees and make adjustments from that point.

Check that the air conditioning reaches all areas in the office, and that windows receiving substantial quantities of sunlight are not causing problems.

9. **Manual handling.** Whenever staff are required to lift, shift or move heavy items, for example moving stationery supplies in and out of cabinets and printers/photocopiers, or moving quantities of mail, computers, printers and other office furniture, there are manual handling procedures that should be used to avoid injury.



How Much Have You Learned?

Self-Check 4.1

A. Write the letter of your answer.

- _____ 1. The following are the causes of accident except for one. Which one?
A. people themselves
B. organized work area
C. defective tools and equipment
D. unsafe environment
- _____ 2. Safety procedures, practices in the workplace contribute to:
A. high rates of accident
B. good employee morale
C. employee dissatisfaction
D. increase of insurance and other operating cost
- _____ 3. Which of the following is not a personal hygiene practice?
A. Keep your hands always clean and nails cut short.
B. Wearing of comfortable clean clothes.
C. Use of PPE when working.
D. Having a ring on fingers while working with food.
- _____ 4. All of these describe the working environment that is conducive to safety and health EXCEPT for one. Which one?
A. Clean floor area, free from waste and grease
B. Clean cabinets, dry and closed tightly to keep away rodents and insects
C. A well fixed electrical connections
D. Defective lighting and ventilation facilities.
- _____ 5. Which of the following could be avoided due to carelessness?
A. Slips
B. Burns
C. Electric shock
D. Stress

B. Give 5 OSH responsibilities for the workers to ensure their personal safety. Give a short explanation for each.

Refer to the Answer Key. What is your score?

Read the Information Sheet 4.2 very well then find out how much you can remember and how much you learned by doing Self-check 4.2.

Information Sheet 4.2

EMERGENCY-RELATED DRILLS AND TRAINING

Emergency drills and training have the objective of preparing a trained and organized response to situations of great difficulty which may unexpectedly threaten loss of life at sea. It is important that they should be carried out realistically, approaching as closely as possible to emergency conditions. Drills and training should stress and include emergency procedure and equipment, emergency personnel duties.

Emergency Evacuation Drills

Fire is only one type of emergency that happens at work. Large and small workplaces alike experience fires, explosions, medical emergencies, chemical spills, toxic releases, and a variety of other incidents. Here are some basic drills that you should know.

Fire Drill

A **fire drill** is a practice event, where people leave a building. They are practicing what they would do if there was a fire in the building. The event is started when a fire alarm is turned on.

Fire drills can be helpful in saving lives in the event of an actual fire. A fire drill is a simulation of what a person or group of people would do if an actual fire occurred.

Fire drills happen a couple of times a year. Even though they are drills, they are very important because through practice you will learn what to do and how to behave in an emergency. Observe the following:

1. Take the drill seriously.
2. Review the expectations before drill.
3. Know your escape route beforehand.
4. Remain calm.
5. Line up and stay in line.
6. Go quietly through the school to your destination.



Earthquake Drill Procedures

1. Once the drill is announced, conduct the DROP Procedure (duck, cover and hold).
2. Leave quickly the building in an orderly manner.
3. Stay away directly under the corridors.
4. Walk away from the building then unto the escape route.
5. Once safe, help others go to safety.



How Much Have You Learned?

Self-Check 4.2

A. Arrange the fire drill procedure in proper sequence. Write A for the first, B for second and so on and so forth.

- _____ 1. Remain calm.
- _____ 2. Review the expectations before drill.
- _____ 3. Line up and stay in line.
- _____ 4. Know your escape route beforehand.
- _____ 5. Go quietly through the school to your destination.

B. Sequence the earthquake drill procedure. Write A for the first, B for second and so on and so forth.

- _____ 1. Stay away directly under the corridors.
- _____ 2. Duck, cover and hold.
- _____ 3. Once safe, help others go to safety.
- _____ 4. Walk away from the building then onto the escape route.
- _____ 5. Leave quickly the building in an orderly manner.

Refer to the Answer Key. What is your score?



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity.

Activity Sheet 4.1

Objectives: To develop preparedness and alertness in times of emergencies for safety.

Directions: You are going to perform an earthquake drill. Follow the procedure correctly.



How Well Did You Perform?

Find out by accomplishing the Scoring Rubric honestly and sincerely. Remember it is your learning at stake!

Find out how well you performed by referring to the rubrics below:

Learner's Name				Date
Competency: Performing an earthquake drill				
Criteria	5	3	1	Your Score
Accuracy	All the steps were carried out correctly	Only two steps were carried out correctly	Only one step was carried out correctly	
Cleanliness	The equipment was cleaned thoroughly	Cleaning of equipment was not enough.	The tool was not really cleaned.	
Care in handling the tools and equipment.	Care in handling has been much emphasized	Care in handling has been moderately emphasized	Care in handling has not been emphasized.	
Maximum Score - 15			Your Total Score	_____
				15

Score Equivalent

10 – 15 = Very good

6 - 9 = Good

1 - 5 = Fair



How Do You Apply What You Have Learned?

Show that you learned something by doing this activity.

Activity Sheet 4.3

FIRST AID RULES

Directions: The following first aid instructions are intended for emergencies involving accident or illnesses. Perform the different ways of giving first aid to patient by following the instructions given through simulation.

1. BURNS

- Cool the burn with cool water. Do not put grease, or oil on burn – they can make it worst. Do not try to clean a burn or break blisters. Call a physician.

2. FALLS

- Stop severe bleeding. Cover wounds with sterile dressing. Keep the person comfortable and warm. If you think the bone is broken, do not move the person unless necessary as in the event of fire, call for a medical assistance.

3. POISONING

- Swallowed Poison. If the container is available, use antidote recommended in the label. If none is given call the emergency station of a hospital, the nearest clinic, or rural health center. Tell them what kind of poison was taken and they will recommend an antidote.
- Do not try to neutralize a poison by giving raw eggs, salt water, mustard, vinegar or citrus fruit juices as an antidote or to cause vomiting. Never attempt to induce vomiting by sticking your fingers anywhere in the patient's mouth; this procedure can be very dangerous.



How Well Did You Perform?

Find out by accomplishing the Scoring Rubric honestly and sincerely. Remember it is your learning at stake!

Learner's Name				Date
Competency: Giving first aid				
Criteria	5	3	1	Your Score
Accuracy	All the steps were carried out correctly	Only two steps were carried out correctly	Only one step was carried out correctly	
Cleanliness	The equipment was cleaned thoroughly	Cleaning of equipment was not enough.	The tool was not really cleaned.	
Care in handling the tools and equipment.	Care in handling has been much emphasized	Care in handling has been moderately emphasized	Care in handling has not been emphasized.	
Maximum Score - 15			Your Total Score	_____
				15



Congratulations! You did a great job!

REFERENCES

LO1

- SEDP Series Food Management and Service p 70
- Module in Food Trades
- <http://www.megadox.com/docpreviews>
- <http://www.infospace.com/search/images>
- <http://www.bpace.k12.ca.us/images>
- <http://www.nswbusinesschamber.com>.

LO 2

- <http://ph.jobsdb.com/PH/EN/V6HTML/Home/inside->
- <http://cupe.ca/health-and-safety>
- <http://www.ccohs.ca/oshanswers/hsprograms>

LO 3

- <http://www.buzzle.com/articles/safety-regulations-in-the-workplace.html>
- <http://www.infospace.com/search/images>

LO 4

- SEDP Series Food Management and Service p 70
- Module in Food Trades
- <http://www.megadox.com/docpreviews>
- <http://en.wikipedia.org/wiki>
- <http://www.infospace.com/search/images>
- <http://www.bpace.k12.ca.us/images>
- <http://www.nswbusinesschamber.com>.

ANSWER KEY

LESSON 1 USE OF TOOLS AND BAKERY EQUIPMENT

LO1. Prepare tools and equipment for specific baking purposes

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

Self CHECK 1.1

1. Dry measuring cup
2. Glass measuring cup
3. Flour sifter
4. Wooden mixing spoon
5. Mixing bowl
6. Rubber scrapper
7. Baking pan (round, square, or rectangle)
8. Oven
9. Spatula
10. Utility tray

Self Check 1.2

1. Baking ware
2. Preparation
3. Baking equipment
4. Mixing
5. Baking ware
6. Preparation
7. Measuring
8. Mixing
9. Preparation
10. Cutting
11. Preparation
12. Measuring
13. Baking ware
14. Baking ware
15. Preparation

LESSON 2 PERFORM MENSURATION AND CALCULATION

LO1. Familiarize oneself with the table of weights and measures

- Pre-Test
1. 16 T.
 2. 1/3 cup
 3. 3 teaspoon
 4. 1 pint
 5. 1 quart
 6. 8 T
 7. 2.21 pounds
 8. 16 ounces
 9. 2 quarts
 10. 4 T.

Self CHECK 1.1

1. 32 T.

2. 1 ½ quarts
3. 2.42 lbs.
4. 12 tbsp.
5. 1 ½ pints
6. 32 ounces
7. 1 /4 cup
8. 8 quarts
9. 2 tbsp.
10. 0.70 ounces

LO2. Apply basic mathematical operation in calculating weights and measures

Pre-Test A.

1. 1 T cornstarch
2. 7/8 cup all purpose flour sifted
3. 3 T cocoa and 1T fat
4. 2 egg yolk
5. 7/8 cup milk and 3 T butter

B.

1. vinegar
2. salt
3. sugar plus liquid
4. flour
5. oil

Self check 2.1 I. $F = C \times 9 / 5 + 32$
 $= 100 \times 9 / 5 + 32$
 $900 / 5 + 32$
 $180 + 32$
 $= \mathbf{212}$ degrees Fahrenheit

2. $C = F - 32 \times 5 / 9$
 $= 320 - 32 \times 5 / 9$
 $288 \times 5 / 9$
 $1440 / 9$
 $= \mathbf{160}$ degrees Centigrade

II. Analogy

1. 1 ¼ C margarine
2. 3T sifted crystals + ½ C water
3. ½ T all purpose flour
4. ¾ cocoa + ¼ T fat
5. 1 ½ rice starch

LO3. Measure dry and liquid ingredients accurately

1. brown sugar
2. glass or liquid measuring cup
3. spatula
4. lumps
5. tap or shake
6. overflowing
7. lift the cup
8. straight edge or back edge of the knife
9. stirring
10. sifting

LESSON 3. MAINTAIN TOOLS AND EQUIPMENT

LO1. Check condition of tools

A.

1. Good quality service
2. Sanitation
3. Fire prevention
4. Safety
5. Lessen expenses

B.

1. sharp
2. bread
3. repair
4. dry
5. discarded

LO1.

A. Identification

1. Store knives, choppers and cutting blades in designated places. Label them.
2. Repair broken tools and equipment immediately.
3. Check wiring of electrical equipment regularly. Report kitchen equipment that are not functioning.
4. Handle fragile tools or those tools made of glass with care. Those with breaks should be discarded.
5. Store tools and equipment in a clean dry place. Do not keep them when wet.
6. Good quality of service
7. Sanitation
8. Fire prevention
9. Safety
10. Less cost of production

A.

11. T
12. T
13. F
14. T
15. F

LO2. Perform basic preventive measure

A.

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

B.

1. T
2. T
3. F
4. T
5. T

2.1

1. paste
2. sponge
3. disinfectant
4. tea tree oil
5. baking soda

2.2

1. T
2. T
3. T
4. T
5. F

LO3. Store tools and equipment

A

1. knives
2. wet
3. label
4. cabinet
5. proper storage

B

- | | |
|------|-------|
| 1. T | 6. F |
| 2. T | 7. F |
| 3. F | 8. F |
| 4. F | 9. T |
| 5. T | 10. T |

3.1

1. Have a designated place for each kind of tools.
2. Store knives properly when not in use
3. Wash and dry properly before storing.
4. Label the storage cabinet or place correctly for immediate finding.
5. Store them near the point of use.

LESSON 4 PRACTICE OCCUPATIONAL HEALTH AND SAFETY PROCEDURES

LO1. Identify hazards and risks.

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

1.1

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

LO2. Evaluate hazards and risks

1. false
2. true
3. false
4. true
5. true
6. true
7. false
8. true
9. false
10. true

1.2

A. Identification

1. Safety signs
2. Yellow color
3. Occupation Health And Safety
4. Green color
5. Safe work environment

B. Multiple Choice

1. A
2. B
3. C
4. E
5. D

1.3

1. F
2. F
3. T
4. T
5. F
6. F
7. T
8. T
9. F
10. T

LO3. CONTROL HAZARDS AND RISKS

1. labeled
2. reported
3. fire alarm
4. fire exit
5. waste management
6. dry
7. decontamination
8. cooking outfit
9. pot holders
10. recycling

LO3 Control hazards and risks

3.1

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

3.2

1. air pollution
2. Food Processing Concept Air Act
3. emission
4. incineration
5. smoking

3.3

A

1. yes
2. no
3. yes
4. no
5. yes

B.

1. short circuit
2. fire alarm system
3. fire safety
4. fire extinguisher
5. emergency lighting or battery powered torches

3.4

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

3.5

1. F

- 2. F
 - 3. T
 - 4. T
 - 5. F
- 4.1**
- 1. d
 - 2. b
 - 3. d
 - 4. d
 - 5. a

LO4. MAINTAIN OCCUPATIONAL HEALTH AND SAFETY AWARENESS

A

- 1. earthquake drill
- 2. earthquake drill
- 3. fire drill
- 4. earthquake drill
- 5. fire drill

B.

- 1. true
- 2. true
- 3. false
- 4. true
- 5. false

LO2 Evaluate hazards and risks

2.1

- 1. T
- 2. T
- 3. T
- 4. F
- 5. T

2.2

- 1. T
- 2. T
- 3. F
- 4. F
- 5. T
- 6. T
- 7. T
- 8. T
- 9. T
- 10. F

LO4 Maintain occupational health and safety awareness

4.2

A. Arrange the fire drill procedure in proper sequence. Write A for the first, B for second and so on and so forth.

- _____ 1. C
- _____ 2. A
- _____ 3. D
- _____ 4. B
- _____ 5. E

B. Sequence the earthquake drill procedure. Write A for the first, B for second and so on and so forth.

- _____ 6. B
- _____ 7. A
- _____ 8. E
- _____ 9. D
- _____ 10. C

LIST OF MATERIALS, TOOLS, EQUIPMENT AND CONSUMABLES FOR THIS MODULE

MATERIALS

Match
Dish towels
Hand towels
Clean rags
Detergent bar
Dishwashing liquid
Wash cloth
Scoring pads
Pentil pen
Watercolor
Color pen
Bond paper or oslo paper
Cartolina
Pencil
Ruler
Waste bag or can
Improvised bottle of toxic substance
Gauze or sterile dressing

TOOLS

Igniter
Measuring cup (glass and dry measuring cup)
Measuring spoon
Scooper
Tray
Strainer
Flour sifter
Spoon
Knife
Mixing bowl

EQUIPMENT

Gas range or oven
Mixer with stand
TV
Laptop
LCD projector

CONSUMABLES

Flour
Granulated sugar
Brown sugar
Baking powder
Baking soda
Powdered milk
Butter, Margarine or lard
Evaporated milk, oil, water or juice

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This Learning Module on **BREAD AND PASTRY PRODUCTION NC II** was developed by the following personnel:

MODULE WRITER

TERESITA M. JATAYNA

Teacher III

San Pedro Relocation Center National High School
San Pedro, Laguna
Region IV-A, Calabarzon

REVIEWERS

GIL P. CASUGA

Chief TESD Specialist

REYNALDO S. DANTES

Senior TESD Specialist

MARIA A. ROQUE

Senior TESD Specialist

BERNADETTE S. AUDIJE

Senior TESD Specialist

VICTORIO N. MEDRANO

Principal IV, SPRCNHS

PARALUMAN R. GIRON, Ed.D.

Chair, Sub-TWG on K to 10

BRENDA B. CORPUZ, Ph.D.

TA for K to 12 Curriculum

OFELIA O. FLOJO

Retired Assistant Chief, EED, Region IV-A

BEATRIZ A. ADRIANO

Principal IV, ERVHS

AIDA T. GALURA

VSA II, ACNTS

DOMINGA CAROLINA F. CHAVEZ

Principal II, MBHS

DOCUMENTORS / SECRETARIAT

PRISCILLA E. ONG

K to 12 Secretariat

FREDERICK G. DEL ROSARIO

Head Teacher III, BNAHS

EMMANUEL V. DIONISIO

Head Teacher III, AFGBMTS

LYMWEL P. LOPEZ

Teacher I, AFGBMTS

DANTE D. VERMON JR.

Teacher I, AFGBMTS

JOANNA LISA C. CARPIO

Teacher I, BNAHS

Dir. IMELDA B. TAGANAS

*Executive Director, Qualifications Standards Office
K to 12 Learning Area Team Convenor, TLE/TVE*