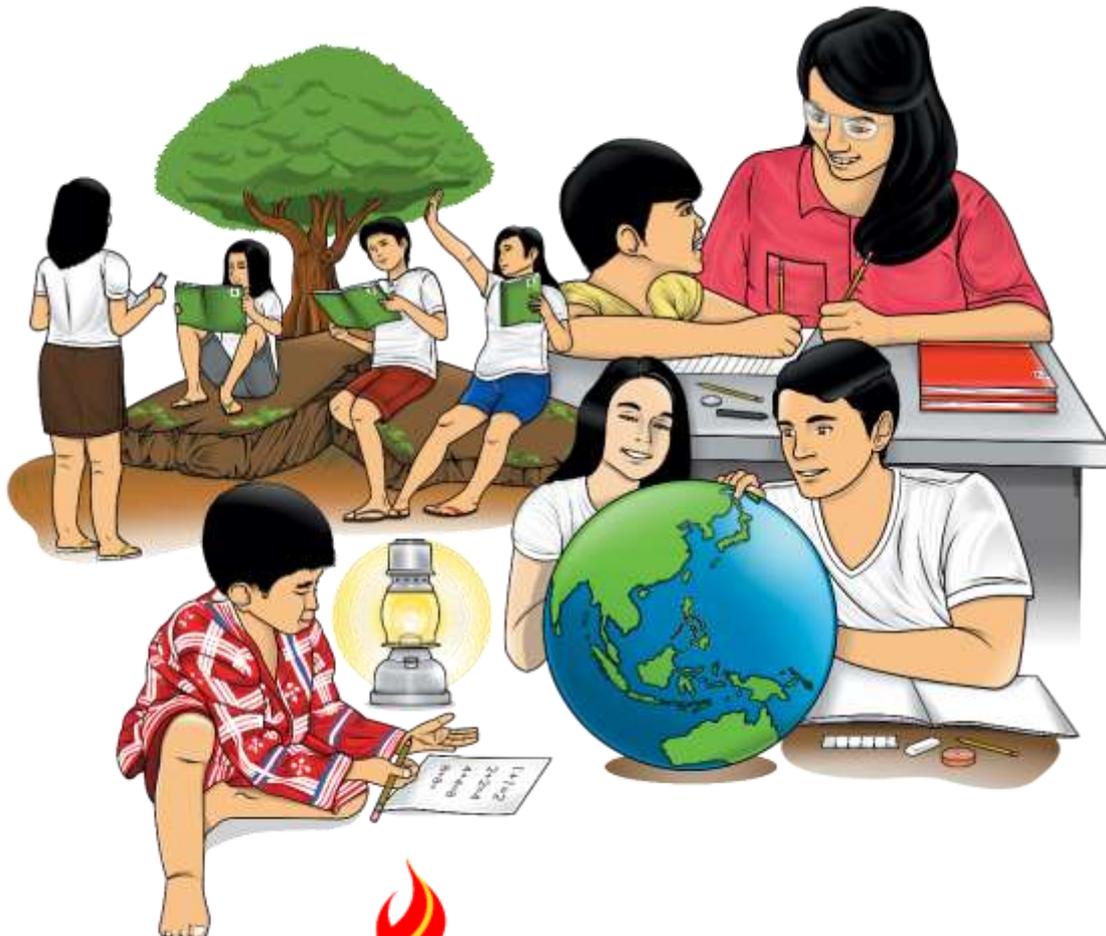


Science

Quarter 1 – Module 1: Useful and Harmful Materials



GOVERNMENT PROPERTY
NOT FOR SALE

Science– Grade 5
Alternative Delivery Mode
Quarter 1 – Module 1: Useful and Harmful Materials
First Edition, 2020

Republic Act 8293, section 176 states that: No copyright shall subsist in any work of the Government of the Philippines. However, prior approval of the government agency or office wherein the work is created shall be necessary for exploitation of such work for profit. Such agency or office may, among other things, impose as a condition the payment of royalties.

Borrowed materials (i.e., songs, stories, poems, pictures, photos, brand names, trademarks, etc.) included in this module are owned by their respective copyright holders. Every effort has been exerted to locate and seek permission to use these materials from their respective copyright owners. The publisher and authors do not represent nor claim ownership over them.

Published by the Department of Education
Secretary: Leonor Magtolis Briones
Undersecretary: Diosdado M. San Antonio

Development Team of the Module

Writers:	Joan B. Suralta, Vera Leonora B. Balasanos
Editors:	Laarni R. Gabriola, Ronald R. Cabigon, Teodorico C. Peliño Jr.
Reviewers:	Christie Anne D. Bihag, Allan Garnace, Irhyn Reyes, Diana Rose Garrido, Rowena T. Vacal, Ryan R. Tiu
Layout Artists:	Ismael T. Posion, Bella C. Alberca, Henrissa M. Sible
Management Team:	Ramir B. Uytico, Arnulfo M. Balane, Rosemarie M. Guino, Joy B. Bihag, Ryan R. Tiu, Rowena T. Vacal, Manuel P. Albaño Henrietta T. Managbanag, Sherlita A. Palma, Felicidad T. Espinosa, Ismael T. Posion, Mauricio M. Catan, Socorro B. Ausa

Printed in the Philippines by _____

Department of Education – Region VIII

Office Address: Government Center, Candahug, Palo, Leyte
Telefax: (053) 832-2997
E-mail Address: region8@deped.gov.ph

5

Science

Quarter 1 – Module 1: Useful and Harmful Materials

Introductory Message

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

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

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

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

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

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

Thank you.



What I Need to Know

Everything around us is matter – the soil, water, and air.

Matter has different properties that make it distinct from one another. Some types have properties that make them good materials for producing useful products. Other types have properties that make them harmful.

There are different materials found at home. These are important because they are used in our daily activities such as cooking, cleaning our houses, treating ailments, maintaining personal hygiene, and many more. It is important to know their different properties so that we can identify whether a certain material is harmful or useful.

This module focuses on the different properties of matter that can be classified as useful or harmful. This also gives the importance of recognizing the physical and chemical properties of matter in determining the usability of a certain material. Moreover, it emphasizes the importance of product labels in identifying useful and harmful materials.

The module is divided into two lessons, namely:

- Lesson 1: Recognizing Useful and Harmful Materials
- Lesson 2: Importance of Labels in Identifying Useful and Harmful Materials

At the end of the module, you will be able to:

- identify the different properties of matter that can help you determine whether it is harmful or useful;
- enumerate useful and harmful materials at home and in school; and
- explain the importance of labels in identifying useful and harmful materials

Note: Use a separate sheet for your answers in all the activities in this module



What I Know

A. Directions: Determine which of the activities below is desirable or harmful.
Write **D** if desirable or **H** if harmful.

1. Placing the biodegradable wastes in the compost pit
2. Smelling the fumes exhausted by cars
3. Throwing banana peelings anywhere
4. Covering the textbook with acetate
5. Burning plastic bottles

B. Directions: Put a check (✓) mark if the statement is correct, an (✗) mark if not.

1. Halal certified food can be consumed by Muslims.
2. Keep pesticides in areas away from children's reach.
3. All household materials are useful.
4. Muriatic acid can be labeled as corrosive and poisonous.
5. Recyclable materials such as empty water bottles are harmful.

Lesson**1****Recognizing Useful and Harmful Materials*****What's In***

Directions: Classify the following materials usually found at home and in school using the table below as a guide.

cooking oil	demonstration table	laundry soap
arm chair	bell	chalkboard
bed	frying pan	mosquito repellent
flag	books	class record

Materials usually found at Home	Materials usually found in School



What's New

Directions: Copy the table. Observe how the materials in the pictures are being handled. Identify whether they are **useful** or **harmful** by putting a check mark (✓) on the appropriate column.

OBJECT	USEFUL	HARMFUL
1. broken glass  <i>("Shattered Glass Free Image Peakpx" 2016)</i>		
2. an empty bottle being refilled  <i>(Balsanos.n.d)</i>		
3. candy wrapper-made bag  <i>(Prevost, Shelly, 2011)</i>		
4. vegetable peelings made into compost  <i>("Royalty-Free Photo: Bunch Of Fruit Peels Pickpik" 2021)</i>		
5. used boxes as book organizers  <i>(Greyling, Lynn.n.d)</i>		

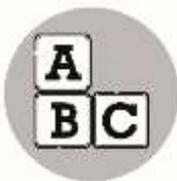


What is It

How do the materials become useful or harmful?

Materials are said to be useful when they serve their purpose. These may have properties such as durability, flexibility, elasticity, hardness, and resistance to water, heat, or acid. Most of the useful materials can be reused and recycled. For example, a container for solid or liquid, when it is already empty, can still be used for other purposes such as a flower vase, a coin bank, or a house decor. Whether a bottle is made of plastic or glass, it has a property that makes it reusable. Other materials can be recycled by making new products from these materials. For example, candy wrappers can be turned into fancy curtains and plastic bottles into Christmas lanterns.

Some useful materials may also bring hazards. For example, a broken glass jar can cause cuts or injury. Toxic substances may also be present in the things you commonly use such as paints, cleaners, fumes, gels, or powders. These materials may bring harm to your health, environment, and other organisms when not used properly. That's why you should be careful when handling and using different materials.

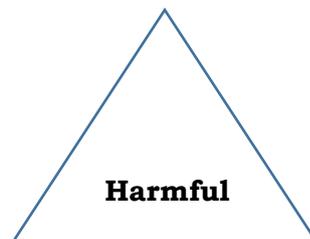
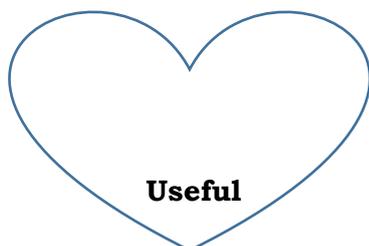


What's More

Activity 1: Where do I belong?

Directions: Classify the different materials found in the word pool below as **useful** or **harmful**. Draw the shapes with labels in your answer sheet and write your answers inside them. Afterwards, answer the follow-up questions.

old newspapers	food cartoons	Single-use plastic water bottles
candy wrappers	used syringe	rusted metal container
drained batteries	single-use plastic bags	empty mayonnaise jar (glass)
vegetable peelings		



Answer the following:

1. Which materials are useful? When do they become useful?
2. Which materials are harmful? When do they become harmful?

Activity 2: Happy or sad?

Directions: Draw a happy face (😊) if the material is useful and sad face (😞) if it is not.

1. candy wrappers made into bag
2. a broken glass thrown in the backyard
3. disinfectant bottles thrown everywhere
4. a box made into a bookshelf
5. leftover food from restaurants turned into fertilizers
6. used syringes and needles placed beside children's toys
7. a broken container turned into a decorative plant holder
8. used car tires turned into park benches
9. old colorful magazines made into paper baskets
10. empty bottles of paint thrown into the garbage bin for burning

Lesson

2

Importance of Labels in Identifying Useful and Harmful Materials



What's In

Directions: Identify the following materials whether they are useful or harmful. Write **U** for useful, or **H** for harmful.

1. drained batteries
2. old newspapers
3. fruit peelings
4. shattered glass
5. expired medicine



What's New

I. Directions: Study the pictures below and match the common product labels to its corresponding product. Write the letter of the correct answer.

Products

1. Plastic bottles
2. Muriatic Acid
3. Commercial Fertilizer

Label

A.



("Inflammable, Signs, Danger, Warning, Flammable - Free Image From Needpix.Com" 2021)

B.



("Safety, Signs, Corrosion, Alkali, Acids - Free Image From Needpix.Com" 2021)

C.



("Recyclable-Sign-Green-Background-Shadow-Free Image From Needpix.Com".2021)

4. Alcohol

D.



("File:WHMIS Class D-1.Svg - Wikimedia Commons" 2006)

5. Food products

E.



("Halal Sign And Symbol Logo Vector Image On Vectorstock" 2021)

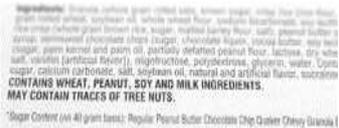
II. Directions: Write **True** if the statement is correct, and write **False** if it is incorrect.

1. Consumers must read product labels when buying grocery items.
2. Place fertilizers in containers and label them as poisonous.
3. Throw away anywhere the plastic bottles after using them.
4. Labels are not important in classifying materials as to useful or harmful.
5. Food allergen warnings are helpful especially for those who have allergies.



What is It

Various household products are found in our homes. These are composed of different materials with different properties. It is therefore important for consumers to read product labels. Through product labels, consumers become aware of whether the product is harmful or not. Expiration dates and hazardous signs are some of the most important elements in a product label. Some products are flammable, such as paints and therefore must be stored away from open flames. Others are corrosive, like muriatic acid, so it is advisable to keep them away from children's reach. Pesticides, fertilizers, and muriatic acid are poisonous if not handled properly. Reading product labels can help you identify whether the product is useful or harmful. These simple symbols in labels give ideas on how to use and store the product properly, and to help prevent accidents from happening and therefore save lives. The following are common signs in product labels which can help consumers decide whether the product is useful or harmful:

Symbol	Meaning	Example
Useful Product Labels		
 <p data-bbox="204 555 574 611">("Halal Sign And Symbol Logo Vector Image On Vectorstock" 2021)</p>	<p data-bbox="625 398 903 555">Halal - product is certified as safe for consumption (for Muslims)</p>	 <p data-bbox="1066 562 1316 589"> (Floro, Florentino.2017)</p>
 <p data-bbox="252 840 587 893"> ("File:Ale Rgias.Png - Wikimedia Commons" 2019)</p>	<p data-bbox="625 633 884 869">Food Allergen Warning - warns consumers of ingredients in the product that may cause allergy</p>	 <p data-bbox="986 786 1378 869"> ("File:US Allergen Information Example.Jpg - Wikimedia Commons" 2010)</p>
 <p data-bbox="209 1099 595 1182"> ("Recyclable-Sign-Green-Background-Shadow-Free Image From Needpix.Com".2021)</p>	<p data-bbox="625 947 884 1077">Recyclable - products can be recycled</p>	 <p data-bbox="991 1093 1398 1144"> ("File:Recycling Codes On Products.Jpg - Wikimedia Commons" 2014)</p>
 <p data-bbox="204 1402 595 1485"> ("Inflammable, Signs, Danger, Warning, Flammable - Free Image From Needpix.Com" 2021)</p>	<p data-bbox="625 1317 938 1406">Flammable - can easily catch fire</p>	 <p data-bbox="1023 1424 1362 1476"> ("Category:Kerosene - Wikimedia Commons" 2007)</p>
 <p data-bbox="252 1709 555 1760"> ("File:WHMIS Class D-1.Svg - Wikimedia Commons" 2006)</p>	<p data-bbox="625 1585 948 1715">Poisonous - harmful to the body; may cause death</p>	 <p data-bbox="999 1727 1390 1778"> ("Free Images-Poisonous-598652-Free Stock Potos-Pxhere".2021)</p>
 <p data-bbox="204 1955 603 2007"> ("Safety, Signs, Corrosion, Alkali, Acids - Free Image From Needpix.Com" 2021)</p>	<p data-bbox="625 1839 895 1968">Corrosive - can cause severe burns</p>	 <p data-bbox="999 1955 1394 2007"> ("File:Battery Fluid, Plastic Bottle.Jpg - Wikimedia Commons" 2017)</p>



What's More

Directions: Copy and complete the table below. Identify whether the household material is useful or harmful, then determine the product label that would help you identify its category. The first one is done for you.

Household Material	Useful	Harmful	Product Label
1. Muriatic acid		✓	Corrosive/poisonous
2. LPG			
3. Paper cups			
4. empty plastic bottles			
5. insecticides			



What I Have Learned

A. Directions: Complete the paragraph using the words in the box.

harmful	hazardous	purpose
recycled	useful	painful

Many materials and substances are ___ (1) ___ at home and in school, but they can be ___ (2) ___ if not used properly. Materials are considered useful when they serve their ___ (3) ___. Some useful materials can be ___ (4) ___, for example an empty container can be used as a house decor. But some materials can be ___ (5) ___ like a broken glass jar that can cause cuts or injury.

B. How do you classify the materials at home? What is your basis in grouping the different materials? Are product labels important? Why?



What I Can Do

- A. Directions: List 5 different materials used at home and in school. Write a sentence describing how the material can be useful or harmful. Afterwards, answer the follow-up question. An example is provided.

Materials	Sentence
Chalk	Useful in writing notes on the blackboard. However, this could also be harmful if the chalk dust are inhaled especially those with asthma.

- Based on the lists, how do you properly dispose the harmful materials?

- B. What do you think will happen to us if we will not read product labels? What harm can it bring to us?



Assessment

- A. Directions: Write a checkmark (✓) if the material is useful and write a cross mark (✗) if it is harmful.

1. Used empty bottles made into a flower vase
2. Fruit and vegetable peelings converted into fertilizers
3. Expired medicine stored in the cabinet
4. Old newspapers used to pack things in the store
5. Scattered broken glass found inside the classroom

- B. Read each situation below and choose the best answer. Write the letter only.

1. Your aunt gave you chocolates as birthday presents. You were very excited to share it with your younger brother who loves chocolates, but when you read the label, you noticed that some have food allergen warning. Some of these contain peanuts, which can cause allergy to your brother. What will you do?
 - A. I will still give him the chocolates and ignore the effects.
 - B. I will choose the one without peanuts and give it to him.
 - C. He will not be given any chocolate because he has an allergy.
 - D. I will go to the grocery store and buy candies for my brother.

2. Father came home from work. Upon entering the gate, he disinfects his hands by using 70% alcohol. However, Mother was carrying a lighted candle and about to approach Father. What is the best thing to do?
 - A. Mother may bring a kerosene lamp instead of a candle.
 - B. Let her continue to approach Father with a lighted candle.
 - C. Tell Mother to put out the flame before going to the gate.
 - D. Bring more bottles of alcohol for Father.

3. Your best friend bought a cough syrup from the pharmacy. You noticed that the medicine is expired already. What are you going to say to her?
 - A. Continue to take medicine.
 - B. Do not take the cough syrup.
 - C. Mix it with new medicine.
 - D. Scold the pharmacist for giving expired medicine.

4. Mang Lito is a farmer. He used commercial pesticides in controlling pests in his rice field. Where can he store this poisonous product?
 - A. at the kitchen sink
 - B. on top of the dining table
 - C. in a closed and secured cabinet
 - D. under the table

5. Your Muslim friend visited your home. After some time, you decided to prepare food for lunch. What food products are you going to serve?
 - A. meat products
 - B. any available food
 - C. Halal certified food
 - D. dairy products



Additional Activities

Directions: Visit your kitchen and list down 10 household materials. Read each product labels and classify the materials as useful or harmful using the table below. An example is done for you.

Household Material	Useful	Harmful
Expired medicine		✓



Answer Key

Lesson 1: Recognizing Useful and Harmful Materials

What's In	
Materials usually found at home	Materials usually found in school
cooking oil	arm chair
Bed	Flag
frying pan	demonstration table
laundry soap	Books
mosquito repellent	Chalkboard
	class record
	Bell

- What's New**
1. harmful
 2. useful
 3. useful
 4. useful
 5. useful

- What I Know**
- A. 1.D.
 - 2.H
 - 3.H
 - 4.D
 - 5.H
- B. 1. ✓
2. ✓
 - 3.x
 4. ✓
 - 5.x

What's More

Activity 1

Useful

old newspaper
candy wrappers
vegetable peelings
food cartoons
empty mayonnaise jar

Harmful

Drained batteries, used syringe, single-use plastic bags, single-use plastic water bottles, rusted metal container

(Possible answers)

1. Materials are useful when they serve their purpose and do not cause harm.
2. Harmful materials bring hazard to humans and harm the environment.

Activity 2

1. 😊	9. 😊
2. 😊	7. 😊
3. 😊	8. 😊
4. 😊	9. 😊
5. 😊	10. 😊

Lesson 2: Importance of Labels in Identifying Useful and Harmful Materials

<p style="text-align: center;">What's In</p> <p>1.H 2.U 3.U 4.H 5.H</p>	<p style="text-align: center;">What's New</p> <p>I. 1.C 2.B/D 3.D 4.A 5.E</p> <p>II. 1.True 2.True 3.False 4.False 5.True</p>	<p style="text-align: center;">What's More</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25%;">Household Materials</td> <td style="width: 25%;">Useful</td> <td style="width: 25%;">Harmful</td> <td style="width: 25%;">Product Label</td> </tr> <tr> <td>1. Muratic acid</td> <td></td> <td>✓</td> <td>Corrosive/ Poisonous</td> </tr> <tr> <td>2. LPG</td> <td></td> <td>✓</td> <td>Flammable</td> </tr> <tr> <td>3. Paper cups</td> <td>✓</td> <td></td> <td>Recyclable</td> </tr> <tr> <td>4. Empty plastic bottles</td> <td>✓</td> <td></td> <td>Recyclable</td> </tr> <tr> <td>5. Insecticides</td> <td></td> <td>✓</td> <td>Poisonous</td> </tr> </table>	Household Materials	Useful	Harmful	Product Label	1. Muratic acid		✓	Corrosive/ Poisonous	2. LPG		✓	Flammable	3. Paper cups	✓		Recyclable	4. Empty plastic bottles	✓		Recyclable	5. Insecticides		✓	Poisonous
Household Materials	Useful	Harmful	Product Label																							
1. Muratic acid		✓	Corrosive/ Poisonous																							
2. LPG		✓	Flammable																							
3. Paper cups	✓		Recyclable																							
4. Empty plastic bottles	✓		Recyclable																							
5. Insecticides		✓	Poisonous																							

What I Have Learned

A.
1. useful
2. harmful
3. purpose
4. recycled
5. painful

Possible Answer: We classify based on their use and where they are stored. Another is whether they can still be used or not. Product labels are important because it gives use the direction on how to use it, the expiration date, and ways to handle them properly.

What Can I Do

A. Answers may vary

(sample possible answer: for the chalk, cover your nose when erasing the writings on the board or cleaning the eraser)

B. If we do not read product labels, we will not be able to know if the material is safe to use or not. For example, expiration dates and warning labels tell consumers that a certain material can bring hazard like being poisoned.

Assessment

A.
1. ✓
2. ✓
3. x
4. ✓
5. x

B.
1.B
2.C
3.B
4.C
5.C

References

- "Shattered Glass Free Image | Peakpx". 2016. *Peakpx.Com*.
<https://www.peakpx.com/14189/shattered-glass>.
- Prevost, Shelly. 2011. "Flickr". *Flickr*.
<https://www.flickr.com/photos/photogism/5829462808>.
- "Royalty-Free Photo: Bunch Of Fruit Peels | Pickpik". 2021. *Pickpik.Com*.
Accessed July 25. <https://www.pickpik.com/green-waste-compost-compost-bin-bunch%20fruit-peels-132514>.
- Greyling, Lynn. 2021. Accessed July 25.
https://www.publicdomainpictures.net/en/view-image.php?image=263092&picture=old-second-hand-books-for-sale&__cf_chl_jschl_tk__=pmd_f943b8f729d3f0eb94148db85894743392d6fcbd-1627211883-0-gqNtZGzNAmKjcnBszQk6.
- "Inflammable, Signs, Danger, Warning, Flammable - Free Image From Needpix.Com". 2021. *Needpix.Com*. Accessed July 25.
<https://www.needpix.com/photo/21783/inflammable-signs-danger-warning-flammable-caution-hazardous-flammability-materials>.
- "Safety, Signs, Corrosion, Alkali, Acids - Free Image From Needpix.Com". 2021. *Needpix.Com*. Accessed July 25.
<https://www.needpix.com/photo/21773/safety-signs-corrosion-alkali-acids-corrosives-logo-hazard-warning>.
2021. Accessed July 25. <https://www.needpix.com/photo/130393/recycle-sign-green-background-shadow>.
- "File:WHMIS Class D-1.Svg - Wikimedia Commons". 2006. *Commons.Wikimedia.Org*.
https://commons.wikimedia.org/wiki/File:WHMIS_Class_D-1.svg.
- Halal Sign And Symbol Logo Vector Image On Vectorstock". 2021. *Vectorstock*. Accessed July 25. <https://www.vectorstock.com/royalty-free-vector/halal-sign-and-symbol-logo-vector-21843073>.
- Floro, Florentino. 2017. "File:05349Jfphilippine Foods Cusinesfvf 17.Jpg - Wikimedia Commons". *Commons.Wikimedia.Org*. https://commons.wikimedia.org/wiki/File:05349jfPhilippine_foods_cusinesfvf_17.jpg.
- "File:Ale Rgias.Png - Wikimedia Commons". 2019. *Commons.Wikimedia.Org*.
https://commons.wikimedia.org/wiki/File:Ale_rgias.png.
- "File:US Allergen Information Example.Jpg - Wikimedia Commons". 2010. *Commons.Wikimedia.Org*.
https://commons.wikimedia.org/wiki/File:US_Allergen_Information_Example.jpg.
- "File:Recycling Codes On Products.Jpg - Wikimedia Commons".

2014. *Commons.Wikimedia.Org*.
https://commons.wikimedia.org/wiki/File:Recycling_codes_on_products.jpg.
- "Inflammable,Signs,Danger,Warning,Flammable - Free Image From Needpix.Com".
2021. *Needpix.Com*. Accessed July 25.
<https://www.needpix.com/photo/21783/inflammable-signs-danger-warning-flammable-caution-hazardous-flammability-materials>.
- "Category:Kerosene - Wikimedia Commons". 2007. *Commons.Wikimedia.Org*.
https://commons.wikimedia.org/wiki/Category:Kerosene#/media/File:Kerosene_bo%20ttle.jpg.
- "File:WHMIS Class D-1.Svg - Wikimedia Commons".
2006. *Commons.Wikimedia.Org*.
https://commons.wikimedia.org/wiki/File:WHMIS_Class_D-1.svg.
- "Free Images : Table, Liquid, Wood, Retro, Purple, Glass, Old, Sign, Symbol, Shadow, Drink, Medicine, Health, Alcohol, Wine Bottle, Cork, Science, Container, Danger, Toxic, Poison, Closed, Caustics, Pharmacy, Drug, Icon, Alchemy, Liqueur, Dangerous, Chemical, Apothecary, Medical, Chemistry, Fluid, Flavor, Poisonous, Chemist, Flask, See Through, Life Threatening, Distilled Beverage 4000X2250 - - 598652 - Free Stock Photos - Pxhere".
2021. *Pxhere.Com*. Accessed July 25.
<https://pxhere.com/en/photo/598652>.
- "Safety,Signs,Corrosion,Alkali,Acids - Free Image From Needpix.Com".
2021. *Needpix.Com*. Accessed July 25.
<https://www.needpix.com/photo/21773/safety-signs-corrosion-alkali-acids-corrosives-logo-hazard-warning>.
- "File:Battery Fluid, Plastic Bottle.Jpg - Wikimedia Commons".
2017. *Commons.Wikimedia.Org*. https://commons.wikimedia.org/wiki/File:Battery_fluid,_plastic_bottle.jpg.

For inquiries or feedback, please write or call:

Department of Education - Bureau of Learning Resources (DepEd-BLR)

Ground Floor, Bonifacio Bldg., DepEd Complex
Meralco Avenue, Pasig City, Philippines 1600

Telefax: (632) 8634-1072; 8634-1054; 8631-4985

Email Address: blr.lrqad@deped.gov.ph * blr.lrpd@deped.gov.ph