

# 6

Grade



APCEIU

(GCED)

# Global Citizenship Education

Lesson Exemplar

# SCIENCE

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**Editorial Board**

Writer: Ranielle M. Navarro

Layout Artists: John Ray D. Barcena and Ariel C. Malate

Language Editor: Caridad N. Barrameda

Content Editors: Brando C. Palomar and Raul D. Balbuena

Developmental Editor: Raul D. Balbuena

Associate Editors: Serafin A. Arviola Jr., Carl O. Dellomos, Zyralie L. Bedural, Rowena R.  
Hibanada, and Gerry C. Areta

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**Consultants**

Bert J. Tuga, Jocelyn DR Andaya, and Rita B. Ruscoe

**Project Management Team**

*Project Director: Serafin A. Arviola Jr.*

*Deputy Project Director: Carl O. Dellomos*

*Core Team Members: Zyralie L. Bedural, Rowena R. Hibanada, and Gerry C. Areta*

*Faculty Assistant: Iona Ofelia B. Zanoria*

*Technical Assistants: Il Timothy D. Salegumba and Jean Pauline E. Maur*

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**Learning Area:** Science

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**GCED Domain/s:** Cognitive, Socio-Emotional, and Behavioral

**GCED Indicator/s:**

D1.1.a- Recognize complex situations or problems.  
D1.1.d- Analyze information from reliable and relevant sources.  
D2.1.b Communicate various perspectives through discourses and dialogues  
D3.1.a Demonstrate ethical and responsible behavior for a just  
and sustainable society

**GCED Theme and Topic:**

T.3.3 Environmental Practices and Behaviors

**Enhanced Content Standard/s:**

The learners demonstrate understanding of different techniques  
to separate mixtures.

**Enhanced Performance Standard/s:**

The learners must be able to separate desired materials  
from common and local products

**Time Allotment:**

60 minutes



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# SEPARATING MIXTURES FOR YOU AND FOR MOTHER EARTH

[Tree vector created by freepik - www.freepik.com](https://www.freepik.com/vectors/tree)



# LESSON INTRODUCTION

A mixture is formed when two or more substances are mixed physically and not chemically combined. It is referred as physical combination of substances where the unique identity of each substance is retained. It can be a combination of substances from solid to solid, solid to liquid, liquid to liquid, liquid to gas, and gas to gas. These combinations can be separated by physical and not chemical means. The method of separating mixture will depend on their physical properties like the sizes of the particles involved. Separating mixtures may include the use of magnet, decantation, evaporation, filtering, and sieving. These methods are always used in our daily living – from preparing our food up to segregating our wastes.

y of December to create awareness about the importance of mountains and its people. The celebration encourages the public to launch projects and programs on mountain conservation and calls the national leaders to create policies that will improve the mountain people's standard living.

In this lesson, we can use methods of separating mixtures in practicing waste segregation, proper waste disposal and addressing environmental catastrophe like oil spill. This lesson also includes bite-sized discussions on sustainable development goal numbers 12- Responsible Consumption and Production; 14 – life below water; and 15 – life on land. Finally, we will discuss how these techniques of separating mixtures help us attain these sustainable goals in our own little way starting at home.

## LESSON OBJECTIVES

### (WHAT I NEED TO KNOW / ALAMIN)

At the end of the lesson, pupils are expected to:

- analyze the technique applicable in separating certain mixtures;
- demonstrate the practice of separating mixture, specifically proper waste segregation and disposal practiced at home; and
- identify the benefits of separating mixtures for oneself and the environment

# PRETEST

## (WHAT I NEED TO KNOW / SUBUKIN)

**Directions:** Read and analyze each question carefully. Write the letter of the correct answer on your answer sheet.

1. What method is used to separate metallic from nonmetallic materials?  
A. Sieving  
B. Filtering  
C. Evaporation  
D. Magnetic Separation
2. What method of separating mixtures will you use to separate the lumps from the refined substances?  
A. Sieving  
B. Decantation.  
C. Evaporation  
D. Handpicking
3. What method of separating mixtures will you use to separate the salt from the salt and water solution?  
A. Filtering  
B. Sieving  
C. Decantation  
D. Evaporation
4. What should you do to remove the suspended materials in a used cooking oil?  
A. Evaporation  
B. Filtering  
C. Handpicking  
D. Volcanic Island arc
5. Which is not a proper way of waste disposal?  
A. Put together biodegradable materials.  
B. Throw the wastes to its assigned trash bin.  
C. Use one trash bin for all waste to save money.  
D. Put away the glass bottles into recyclable materials.

# LESSON PROPER

## REVIEW (WHAT'S IN / BALIKAN)

Mixtures that are physically combined can be separated by the techniques presented in the past lessons. Mixtures like solid to solid, liquid to liquid, and solid to liquid can be separated but, at times, not easily. Hence, to identify the proper method, we must carefully observe the mixture we need to separate.

### Activity 1: Collisions Reimagined

Study and analyze the illustration below. What are these?

These are the different techniques to separate mixtures that we have discussed for the past few days. Let us review these techniques by analyzing the illustrations below. Identify the material/s needed to separate the mixtures in each method presented.

Write your answers in the box provided.



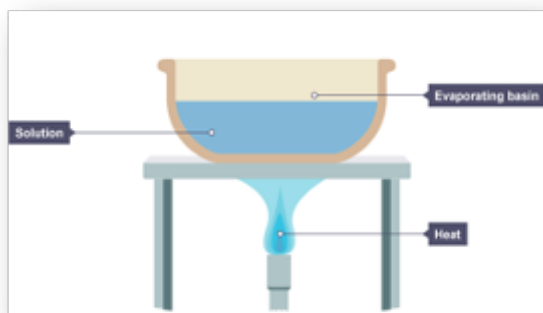
<https://byjus.com/chemistry/filtration/>

#### FILTRATION

Material/s used to separate the mixture:

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<https://katiegatercondonsciencerevision.wordpress.com/2017/02/07/mixtures-and-methods-of-separating-them/>

#### EVAPORATION

Material/s used to separate the mixture:

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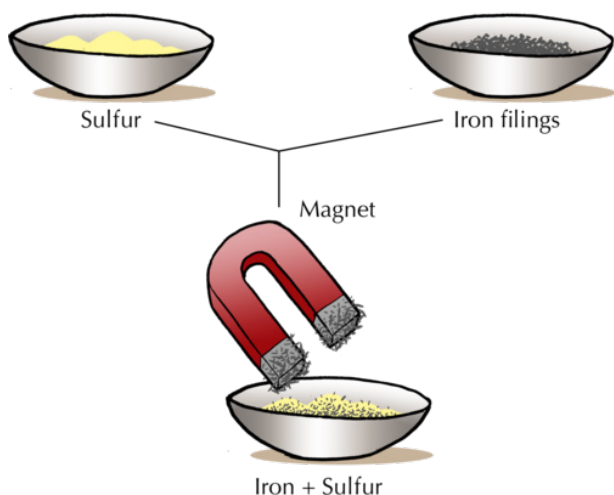
[https://pngtree.com/freepng/cartoon-girl-boy-picking-up-trash\\_3165702.html](https://pngtree.com/freepng/cartoon-girl-boy-picking-up-trash_3165702.html)

#### HANDPICKING

Material/s used to separate the mixture:

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[https://pngtree.com/freepng/cartoon-girl-boy-picking-up-trash\\_3165702.html](https://pngtree.com/freepng/cartoon-girl-boy-picking-up-trash_3165702.html)

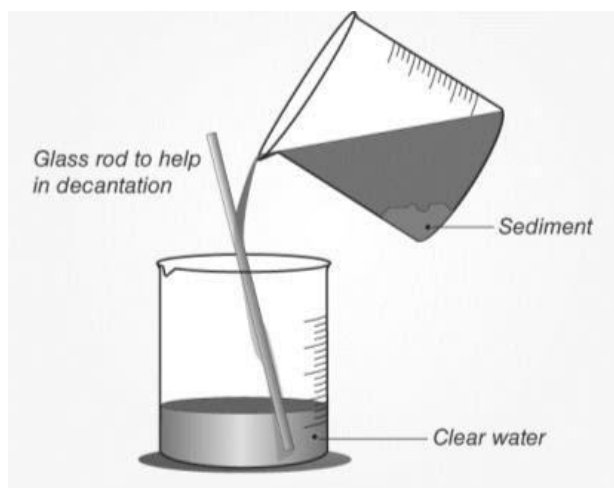
### FILTRATION

Material/s used to separate the mixture:

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<https://byjus.com/chemistry/decantation/>

### Decantation

Material/s used to separate the mixture:

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<https://classnotes.org.in/class-6/science/separation-of-substances/sieving-magnetic-separation/>

### SIEVING

Material/s used to separate the mixture:

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# LESSON PROPER

## ACTIVITY (WHAT'S NEW / TUKLASIN)

### Activity 2: Situation Analysis

Analyze the situation in each item. List down at least one benefit and disadvantage of using the method indicated in each item for each situation.

Situations	Separating Method	Benefits of using it (+)	Disadvantages of using it (-)
1. Your baby brother accidentally spilled the contents of your mom's sewing kit with sharp needles in it.	a. Handpicking		
	b. Magnetic Separation		
2. Your mother cooked fried chicken for lunch. She wants to use the cooking oil she used once again but there are solid particles from the last food she cooked with it.	a. Filtering		
	b. Decantation		
3. You are asked to cook rice but there are lot of rice chaff (ipa) with it.	a. Decantation		
	b. Handpicking		
4. The construction workers need to separate the gravel from the sand.	a. Decantation		
	b. Handpicking		



**SELF CHECK:** Based on Activity Number 2, what do you need to consider in choosing proper method in separating mixture?

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# LESSON PROPER

## DISCUSSION (WHAT IS IT / TALAKAYIN)

From our previous lessons, you learned that creating mixtures is helpful to us. In this lesson, we will also know the benefits of separating mixtures not only to us humans but also to other living organisms and to the environment. Same as in creating mixture, we must separate mixtures to get a specific substance or outcome

that we need. You must also know the raw materials used in a mixture to identify the proper way to extract it.

### Cognitive:

**D1.1.a-** Recognize complex situations or problems.

**D1.1.e-** Analyze information from reliable and relevant sources.

### Activity 3: What's on the news

Study the news article about the oil spill that happened in Guimaras Island last July 2020. Answer the questions shown below the news article.

Optional: Watch the video, "Iloilo-Guimaras Oil Spill," news by GMA Regional TV Week-end News( <https://youtu.be/TIO8cCJp33M> ) for additional information.

#### Guimaras folks stop fishing as oil spill reaches their shores

**ILOILO CITY, Iloilo, Philippines** — Fourteen years after Guimaras was devastated by the worst oil spill in the country when the MT Solar I tanker sank, residents of the island-province are again trying to contain the spread of bunker fuel that leaked on Saturday from a damaged power barge in nearby Iloilo.

They started using improvised spill booms to contain oil sheen and to prevent it from spreading. It is later collected by skimmers.

"We are trying to contain it. But residents of coastal barangays have also stopped fishing and shell gathering because their nets and boats are coated with oil," Mayor Eugene Reyes of Buenavista town in Guimaras, told the Inquirer on Monday.

Reyes said 17 of 30 villages in his town were affected.

The Guimaras Provincial Disaster Risk Reduction and Management Office reported that 20 villages in the province reported the presence of oil sludge or sheen.

Gov. Samuel Gumarin also raised concern over the environmental and health impact of the accident. Aside from Guimaras, three coastal villages of Iloilo City, and the towns of Leganes and Dumangas in

Iloilo province are affected by the spill.

### Think Pad: The Guimaras Oil-Spill

1. What is the problem faced by the Province of Guimaras in July 2020?

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2. What are the possible effects of oil spill to the residents?

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3. How did the oil spill affect the livelihood of the residents of Guimaras?

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4. How did the residents separate the oil sheen from the water?

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5. Is separating mixture helpful in this situation? Why or why not?

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Separating mixtures is beneficial to us and the environment especially if we separate harmful substances to bodies of water and land. The efforts of extracting the oil sheen in Guimaras Island helped both the residents, other living organisms such as marine life, and the bodies of water and land in it.

Can you name another situation where separating mixture is beneficial?

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## Cognitive and Socio-Emotional

**D1.1.a-** Recognize complex situations or problems.


**D1.1.b-** Communicate various perspectives through discourses and dialogues

### Activity 4: “Oil Spill Cleaner Experiment”

Prepare the following materials. Remember not to swallow or put in any part of your body the liquid substances mentioned.

A basin of water	Blue Food Coloring (Optional)	Metal Spoon	Used Cloth
Cotton Balls	Feathers	Used Cooking Oil	

1. Fill the basin with water. You can add blue food coloring to the water to make it ocean-like. You can add a boat toy too if you want. Now, spill about  $\frac{1}{4}$  parts of used cooking oil. Mix it with the spoon and let it sit for a while and observe what will happen.
2. After five minutes, use the metal spoon, cotton balls, feather, and rag, one at a time, in separating the oil from the water. Write your observations in the table below by listing down the advantages and disadvantages of each tool in separating the mixture. Use the table in the next page to note your observation.
3. Do this experiment with a sibling/housemate/friend/classmate, or peer. Answer the Self-check activity below. You can discuss and exchange your findings after the experiment.

	<b>SELF CHECK:</b>
Based on my findings, the best oil spill cleaner for this experiment is _____ because _____	
_____	
_____	
However, if it will be used in the real life oil spill like in Guimaras Island, this material will _____	
_____	
_____	

Materials	Advantages	Disadvantages
Metal Spoon		
Feather		
Cotton		
Used cloth		

## LESSON PROPER

### GENERALIZATION (WHAT I HAVE LEARNED / ISAISIP)



As part of the global community, you are also responsible for taking good care of the environment by being a disciplined and mindful global citizen. Practicing proper means of separating mixtures will provide different benefits for you, your family and community as well as other living organisms. By learning the benefits of separating mixtures, it is also essential to know your role as a steward of nature.

Your role is to advocate the proper use of mixtures and proper ways of separating them to avoid wastes and improper disposal. What do you think will happen if you will not separate mixtures?

List down three (3) possible scenarios that may happen.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

# LESSON PROPER

## REFLECTION (WHY IS IT MEANINGFUL AND RELEVANT / ISAPUSO)

### Socio-Emotional

**D2.1.b-** Communicate various perspectives through discourses and dialogues

### Activity 5: #TRASHtalk

Read the article titled “Here’s Where the Ocean’s Trash Comes From”. Answer the guide questions for your reflection.



<https://www.bostonglobe.com/opinion/2015/02/18/editorial-cartoon-trash-sea/0BfrsZlqFtahaR8lyNTvyH/story.html>

### Here’s Where the Ocean’s Trash Comes From

By Catherine Zuckerman

Roughly eight million tons of plastic enters the ocean every year. That’s according to a 2015 report, which also identified where the bulk of this trash originates. At the top of the list: China, the Philippines, and Indonesia.

Sightings of junk-filled waters are common—and not only in Southeast Asia, says marine biologist Nicholas Mallos, who runs the Ocean Conservancy’s Trash Free Seas program. “Accumulations like this are unfortunately the norm,” he says, particularly in developing parts of the world where there are “rising middle-class populations along coastlines, and spending and consumption have increased, but waste management has not.”

Though trash remains a global problem, Mallos sees reasons to be hopeful. In the United States, for example, California voters in 2016 upheld a statewide ban on plastic bags. And in Indonesia, he says, there has been a shift in awareness: “We’re seeing an eager and willing group of stakeholders who are trying to step up and tackle these issues.” Put another way: The tide may be turning.

### What's on your mind?

Share your thoughts on how separating mixtures can help solve the problem such as land and water pollution. You can create your own hashtag for this reflection.

As a responsible global citizen, I will use separating mixtures to\_\_\_\_\_

\_\_\_\_\_

I will make sure that I will\_\_\_\_\_

\_\_\_\_\_

Lastly, I am going to\_\_\_\_\_

\_\_\_\_\_

#

## LESSON PROPER

### APPLICATION (WHAT I CAN DO / ISAGAWA)

The Sustainable Development Goals (SDG) or Global Goals are a collection of 17 inter-linked global goals designed to be a “blueprint to achieve a better and more sustainable future for all”. The SDGs were set up in 2015 by the United Nations General Assembly and are intended to be achieved by the year 2030.



Sustainable consumption and production is about doing more and better with less. It is also about decoupling economic growth from environmental degradation, increasing resource efficiency and promoting sustainable lifestyles.



Saving our ocean must remain a priority. Marine biodiversity is critical to the health of people and our planet. Marine protected areas need to be effectively managed and well-resourced and regulations need to be put in place to reduce overfishing, marine pollution and ocean acidification.



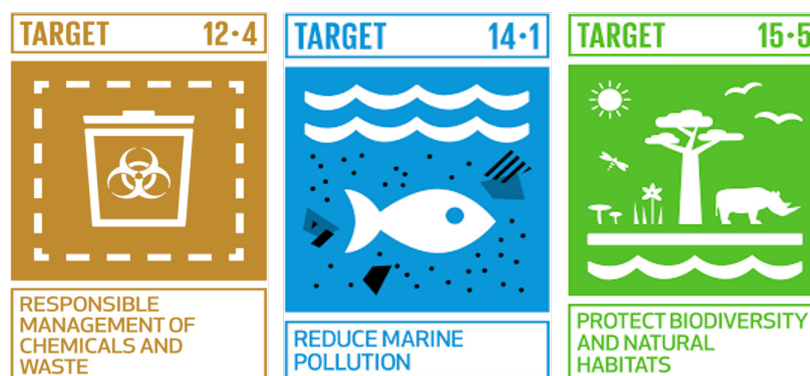
Nature is critical to our survival: nature provides us with our oxygen, regulates our weather patterns, pollinates our crops, produces our food, feed and fibre. But it is under increasing stress. Human activity has altered almost 75 per cent of the earth's surface, squeezing wildlife and nature into an ever-smaller corner of the planet.

## Activity 6: I know my SDGs

### Behavioural:

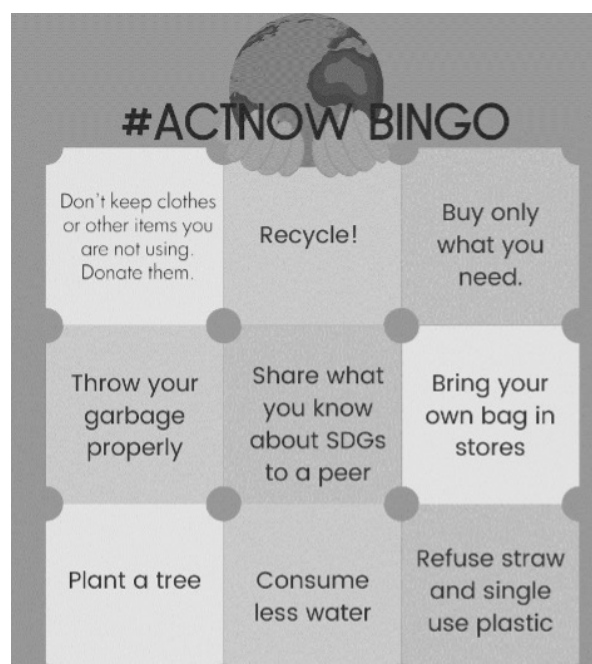
**D3.1.a-** Demonstrate ethical and responsible behavior for just and sustainable society

Study the targets for the Sustainable Developmental Goals number 12- Responsible Consumption and Production; 14- Life below water; and 15- Life on Land below.



<https://knowsdgs.jrc.ec.europa.eu>

Check boxes with activities that you can do to achieve those targets mentioned in the previous page.



# ASSESSMENT

## TAYAHIN

Read and analyze the following situations below. Choose the best answer and write your answer on a separate paper.

1. Which of the following is TRUE about separating mixture if appropriately used?
  - A. Beneficial to us humans but not the environment
  - B. Beneficial to humans, other organisms, and the environment
  - C. Neither a nor b
  - D. All of the above
2. Which of the following is not a beneficial application of separating mixture?
  - A. Waste segregation
  - B. Sieving of gravel and sun.
  - C. Separating vegetables in your dish.
  - D. Drying of clothes under the heat of the sun.
3. Plastic pollution is a global problem affecting all the organism. Which is not an effective way to reduce plastic consumptions?
  - A. Let plastic rot.
  - B. Refuse plastic.
  - C. Reduce plastic consumption.
  - D. Recycle plastic bottles if necessary.
4. Your best friend does not practice waste segregation. He usually throws his trash in whichever bin he chooses. He explains that the garbage collector will just segregate it anyway. How will you convince your best friend to segregate his trash properly?
  - A. I will tell his mother to teach him to segregate.
  - B. I will just copy what he does because we are best friends!
  - C. I will not tell him anything because I don't want to hurt his feelings.
  - D. I will tell and show him that segregating wastes will help the garbage collector and the environment.
5. Which of the following children does not demonstrate ethical and responsible behavior through separating mixtures?
  - A. Ritz joins the annual coastal cleanup.
  - B. Farah separates toys that can be donated.
  - C. Gino filters the water from the well to drink it.
  - D. Susan removes fruits from her mom's cart because she doesn't like it

# ANSWER KEY

## SUSI SA PAGWAWASTO

### Pretest

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

### Review: Activity 1

### Activity 2:

1. Answers may vary
2. Answers may vary
3. Answers may vary
4. Answers may vary
5. Answers may vary

### Activity 3:

1. An Oil Spill happened in Guimaras Island last July 2020.
2. It affected the resident's health and livelihood.
3. It destroyed the marine life and ecosystem.
4. They tried to contain the oil sheen putting spill boom that will be later collected by skimmers.
5. Yes. Separating mixture, like the oil and water, will save the people and environment

**Activity 4:** Answers may vary

**Activity 5:** Answers may vary

**Activity 6:** Answers may vary

### Assessment

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

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