

Quarter 1

## SELF-LEARNING MODULE 3

2 Weeks



# SCIENCE 5

---

*Providing Alternative Uninterrupted Learning Instruction in the New Normal Education*

## 5 R's in Waste Management



Learner's Name: \_\_\_\_\_

*Grade Level and Section:*

MS. JOSEFINA O. GALICIA  
Writer/Teacher



## CURRICULUM CONNECTIONS

<b>Life Performance Outcome (LPO):</b>	<b>LPO5: Caring, Committed ADVOCATES for Peace and Universal Well-Being</b> I am a caring, committed advocate for peace and universal well-being, impelled by compassion and charity for all.
<b>Program Outcome (PO):</b>	<b>PO1:</b> Accurately apply and integrate sound concepts, skills, processes, technologies, and information from the major scientific disciplines to develop and implement workable strategies that have a direct bearing on their daily lives and decisions.
<b>Essential Performance Outcome (EPO):</b>	<b>APC2:</b> Participate actively in local projects that protect and preserve the environment and all life forms.
<b>Content:</b>	Participate actively in local projects that protect and preserve the environment and all life forms in waste management:  <ul style="list-style-type: none"> <li>Importance of 5R's in Waste Management</li> </ul>
<b>Performance Standards:</b>	Each Paulinian participates actively in local projects by using local, recyclable solid and/or liquid materials in making useful products that protect and preserve the environment and all life forms.
<b>Learning Outcomes/MELC:</b>	<b>ACQUISITION</b> Identify the five R's of proper waste management. (Added Competency)  <b>MAKE MEANING</b> Recognize the importance of recycle, reduce, reuse, recover and repair in waste management. S5MT-Ie-g-3  <b>TRANSFER</b> Participate actively in local projects in designing a product out of local, recyclable solid and/ or liquid materials in making useful products. S5MT-Ih-i-4

### INTRODUCTION:

Our planet is not just a beautiful place to live in. It has all the things we need in order to live. Since Earth is our only home, we should be its stewards. Products make our lives easier. They help us in almost all the activities we do at home, in school, and even in important occasions. We enjoy the benefits provided by products.

This self-learning module is designed to identify the five R's of proper waste management, recognize the importance of recycle, reduce, reuse, recover and repair in waste management and participate actively in local projects in designing a product out of local, recyclable solid and/ or liquid materials in making useful products.

Here's a simple guide for you:

1. Read and follow carefully the instructions.
2. Take the pre-test to assess how much you already know about the content of this lesson.
3. Practice being CARING, COMMITTED ADVOCATES FOR PEACE AND UNIVERSAL WELL-BEING to gain as much knowledge and understanding of the topic/unit.
4. Finally, take the post test at the end of the module.



## EXPLORE

Direction: Provide your own definition based on your prior knowledge or understanding of the word written in each box below.

### WASTE MATERIALS

<b>Reduce</b> <hr/> <hr/> <hr/> <hr/>	<b>Reuse</b> <hr/> <hr/> <hr/> <hr/>	<b>Recycle</b> <hr/> <hr/> <hr/> <hr/>
<b>Recover</b> <hr/> <hr/> <hr/> <hr/>	<b>Repair</b> <hr/> <hr/> <hr/> <hr/>	

## FIRM UP

### Proper Waste Management

**Wastes** refer to used or consumed products or materials. A very good example of this is garbage.

**Waste management** refers to the practice of proper and effective waste disposal.

Waste management is implemented anywhere in order to clean the environment and make everyone healthy. Surely, you do not want to live in a place full of garbage and wastes. Aside from their foul smell, you do not want to get sick because of them.

A kind of waste management we follow nowadays is the 5 Rs of waste management.

### » The 5 Rs of Waste Management

The 5 Rs of waste management is the modern way of organizing garbage and waste materials. The focus of this 5 Rs of waste management is to:

- promote a clean and healthful environment;
- transform garbage into something useful (for example, used cooking oil to fuel through recycling);
- making Earth free from any garbage or waste material "zero waste."

The ultimate goal of the 5 Rs of waste management is to free Earth from any kind of garbage or any kind of harmful materials that might adversely affect the environment or Earth - a situation referred to as **zero waste**.

Each "R" focuses on a way to achieve zero waste. What are these? Let us refer to the following tip boxes:

### » Reduce!

<b>Tip Box No. 1</b>	<b>Reduce</b>
<ul style="list-style-type: none"> <li>• Buy what is only needed. The lesser we buy, the lesser garbage we make. Advise your helpers or your mother not to buy too many items in the grocery. Just buy what you need for the time being.</li> </ul>	





- Compost. Do not throw food scraps like peelings of fruits and vegetables. They make very good fertilizers for plants. Pencil scraps, wood, animal manure, and other biodegradable materials can be composted.

- Reuse materials. Plastics and other nonbiodegradable materials can be reused. For example, plastic bags can be used again when needed. Cans and plastic containers can be used as pots for plants.



Composting

- Refuse buying products that are harmful to the environment. Examples of these are: paints, varnishes, soaps, and laundry detergents. As an alternative, buy the "environment friendly" versions of these products-read their product labels to know.

### » Reuse!

Recall that some materials or products are nonbiodegradable. Nonbiodegradable materials are materials that cannot decompose. Some examples of nonbiodegradable materials are plastics, cans, metals, and rubber.

Reuse all nonbiodegradable materials as much as possible.



Reuse nonbiodegradable materials.

Tip Box No. 2	Reuse
<ul style="list-style-type: none"> <li>• "As is"--old plastic covers, foams, plastic containers-reuse them in such a way that their uses are "as is."</li> <li>• Donate the materials or things that you have used instead of throwing them. Surely, you will make someone happy. Give away your old toys, clothes, and books to charities.</li> <li>• Do a garage sale. As the saying goes, "Think wisely and you'll get money!" Sell clothes that do not fit you anymore. Sell your old toys, shoes, and bags in a garage sale.</li> </ul>	

### » Recycle!

If you cannot think of ways to reuse materials, do not throw them. Instead, recycle them. Recycling is the process of remanufacturing or reprocessing used materials. For example, instead of throwing paper, why don't you make them new again? Recycling paper is as easy as 1, 2, 3, 4, and 5!

Tip Box No. 3	Recycle
<ul style="list-style-type: none"> <li>• Transfer any recyclable materials like plastics, wood, paper, glasses, and rubber to nearby factories or junk shops that can remanufacture them.</li> <li>• Always think of recycling materials instead of throwing them. Who knows? These materials might help you in the future.</li> </ul>	

### » Recover!

What happens when there is a "brownout" or "blackout"? When do you usually experience this? Electricity powers almost all man-made things here on Earth. Electronic devices, transportation, work, and trading are powered by electricity. But how is electricity produced?



**Electricity** is usually derived from the conversion of petroleum products or fossil fuels like gasoline. This conversion usually happens in energy power plants. With the help of power distributors, like Meralco here in the Philippines, our communities are powered by electricity.

Moreover, petroleum products are nonrenewable resources. Nonrenewable resources are resources from Earth that are limited in amount or supply. Thus, the amount of petroleum on Earth is limited.

Recover means:

- converting waste materials or products to energy; and
- transforming used materials or garbage into useful substances in order to create electricity or energy

Petroleum is naturally finite, however, we can make petroleum by means of recovering. One way to make an alternative to petroleum is by converting garbage to steam by combusting or burning it. The steam produced in the process is used to generate electricity.

Tip Box No. 4	Recover
<ul style="list-style-type: none"> <li>• Store used products like cooking oil, tires, vegetable and fruit peelings, and even animal manures. They can be converted to gas as alternative to LPG (liquefied petroleum gas) used for cooking.</li> </ul>	

### » *Repair!*

What do you do when you accidentally break your favorite toy or your huggable teddy bear? Do you immediately throw them away or repair them if possible?

Repair means to fix anything broken as much as possible.



*Repair products that can still be repaired*

Tip Box No. 5	Repair
<ul style="list-style-type: none"> <li>• Be resourceful. Make a habit of repairing or fixing defective products. Unknowingly, you are saving the environment by repairing and reusing them. Aside from this, you are saving your parents'/ guardians' hard-earned money by not buying new ones.</li> </ul>	

### » **Benefits of Using the 5 RS of Waste Management**

The following are the benefits of using the 5 Rs of waste management:

1. **Community**
  - a. By utilizing 5 Rs, money is saved.
  - b. By recovering, we produce free alternative sources of petroleum products used in generating electricity and in making LPG.
2. **Health**

Because of zero waste management, harmful diseases like cholera, dengue fever, and various lung-related diseases caused by a polluted environment are reduced.
3. **Clean Environment**
  - a. We get to enjoy an environment free from any kind of pollution and waste materials.





- b. Because their habitats are intact, other living things such as animals and plants will continue to proliferate; thus, reducing the number of endangered species and/or preventing their extinction.

#### 4. Maintains Resources by Living Sustainably

Earth is a finite planet; if its resources are used indefinitely, it will continue to run out of supply. By applying the 5 Rs, we do not need to consume everything in the environment over and over again. Thus, available resources are maintained and resources intended for the future generations are ensured.

### DEEPEN

#### Activity 2: Extinguishing Bad Practices

It has been a long time since Andrei visited their home in the province. In the middle of his nap, Andrei woke up with the smell of smoke. To his surprise, he saw his grandpa doing an old practice that is already banned in the city - burning of trash or *pagsisiga*.



Share what you have learned in your community and do the same as Andrei. Write an essay on how you can raise the awareness to help the environment.

---

---

---

---

---

---

---

---



**Activity 4:** Briefly answer the following questions. Write your answers on the space provided.

1. Why is waste management important?

---

---

---

2. Sustainability means using current available resources without consuming the resources intended for the future. How do the 5 Rs of waste management promote sustainability?

---

---

---

3. In waste management, is it enough to segregate biodegradable from nonbiodegradable waste materials alone? Explain your answer.

---

---

---



### Values Integration

#### Life Lesson

Make a reflection on the statement below:

"Despite our many scientific and technological advances, we are utterly dependent on the environment for clean air and water, food, shelter, energy and everything else we need to stay alive and healthy. As a result, we are part of, and not apart from, the rest of nature." (Miller, 2010)

---

---

---

---

---

---

### TRANSFER



### Using the 5 Rs of Waste Management in the Community

**Problem:** How does the community benefit in using the 5 Rs of waste management?

**What You Need:** any environment-friendly, locally available recyclable materials

**What To Do:**

1. Think of a simple product that is beneficial or a product that aids one from the following sectors of the community.

family	barangay
school	village/subdivision



2. Out of any environment-friendly, locally available recyclable materials, create a product you have thought of.

**What Have You Found Out?**

1. Illustrate or attach a picture of the product you have made in the space below.

2. Describe the product. Use the following questions as guidelines:

a. Why have you made the product?

---

---

b. What is it made of? Describe each.

---

---

---

c. How will it benefit/help the sector of community you have chosen?

---

---

---

d. In making the product, how did you follow the 5 Rs of waste management?

---

---

---

**Conclusion:**

How does a community benefit in using the 5 Rs of waste management?




---

---

---





 List 3 things you learned today.	 List 2 things you'd like to learn more about.	 List 1 question you have about.
<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	

### SUMMARY

- **Waste management** refers to the practice of proper waste disposal.
- **Wastes** refer to used or consumed products or materials.
- The **5 Rs of waste management** is the modern way of organizing garbage and waste materials. The focus of 5 R's waste management is to:
  - promote a clean and healthy environment
  - transform garbage into something useful
  - making the earth free of any garbage or waste material – “zero waste”
- **Reduce** means reducing or lessening the amount of possible waste materials.
- **Reuse** means reusing all materials as much as possible.
- **Recycling** is the process of remanufacturing or reprocessing used materials.
- **Recover** means converting waste to energy.
- **Repair** means fixing anything broken as much as possible.

### REFERENCES

Larisma, E. T., & Mariano, J. J. M. (2020). Worktext for Scientific and Technological Literacy. Science Links. Manila, Philippines: Rex Bookstore, Inc.

Xavax [Public domain]

<https://pixabay.com/photos/egg-easter-colorful-underwater-3176430/> | public domain

<https://www.pexels.com/photo/lightning-and-gray-clouds-1162251/>

Ato9kg (CC BY-SA 3.0 (<https://creativecommons.org/licenses/by-sa/3.0/>))

<https://www.kissclipart.com/ice-cube-ginrvy/>

[https://www.pngitem.com/middle/ihimxJ\\_clipart-fire-june-holidays-free-clip-art-images/](https://www.pngitem.com/middle/ihimxJ_clipart-fire-june-holidays-free-clip-art-images/)

<https://www.shutterstock.com/image-vector/5-rs-zero-waste-vector-illustration-1406808170>