

4

Learning Activity Sheet for Science

Quarter 1

Week

5

Learning Activity Sheet Science Grade 4 Quarter 1: Week 5

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Secretary: Juan Edgardo “Sonny” Angara
Undersecretary: Gina O. Gonong

Development Team

Enhanced by: Liza A. Alvarez, Eleanor V. de Roja,
Content Validators:
Internal: Jeric N. Estaco, Hernan C. Apura,
Bradley Goldie K. Loo, Maria Pilar O. Capalongan,
Emiterio C. Macarubo, Manolo C. Davantes, Jr
External: Coleen Amada, Abigail Arillaga
Language Validator: Manuel S. Are
Illustrator: Lovely Rollaine B. Cruz
Layout Artist: Danica Joy B. Delorino

Management Team

JOCELYN DR ANDAYA CESO IV, Director IV
CRISTITO A. ECO CESO III, Assistant Regional Director
MICAH G. PACHECO, OIC-Chief Education Program Supervisor, CLMD
DENNIS M. MENDOZA, Regional EPS/ LRMS Head
MYRON WILLIE III B. ROQUE, SDO Valenzuela LRMS Education Program Supervisor

Department of Education – National Capital Region (DepEd- NCR)

Office Address: 6 Misamis St, Bago Bantay, Quezon City
Metro Manila, Philippines, 1105
Telefax: (02) 85229412
Email Address: ncr@deped.gov.ph

LEARNING ACTIVITY SHEET

Learning Area:	Science 4	Quarter:	1
Week:	5	Day:	1
Lesson Title/ Topic:	Materials and Their Uses		
Name:		Grade & Section:	4

Activity 1: How to Avoid the Harmful Effects of Hazardous Materials

Objectives: Suggest ways to minimize harmful changes in materials

Activity 1.1 Read the passage and answer the questions below.

Impact of Hazardous Materials on Environment

When we use materials like pesticides, paints and solvents, household cleaners, polishes and waxes, and automotive products, it's important to consider their impact on the environment and our health. Some ingredients in these products can release harmful chemicals into the air, affecting the atmosphere. Similarly, these products can contaminate water sources like rivers and oceans, harming plants, animals, and humans. Additionally, the production, use, and disposal of certain products can contribute to land pollution, leading to habitat loss and soil contamination. Moreover, some ingredients in these products can pose risks to human health, especially if they accumulate in our bodies or the environment over time. It's important to understand whether a product is biodegradable or if it persists in the environment. Since everything we do impacts the world around us, it's essential to be mindful of the products we use and how we use them, striving to minimize our negative impact on the environment and maintain a balanced environment.

Questions:

1. What are some examples of hazardous materials that are mentioned in the article?

2. What are the possible negative effects of these hazardous materials to the environment and to humans?"

3. What might happen if we will not be conscious of the ingredients of the products we are using?

Activity 1.2 Hazardous Materials Checklist

Put a check mark (✓) if the materials are present in the household.

___ 1. Liquid Bleach - DANGER! - Causes severe eye injuries. Can damage the mouth, throat, and stomach. Vapor irritates the nose, throat, and lungs.

___ 2. Toilet Bowl Cleaner - DANGER! - Contains hydrochloric acid which is highly corrosive. Burns the skin, mouth, and throat. Causes blindness.

___ 3. Furniture Polish - DANGER! - Contact with skin can dissolve vital skin oils and cause severe dermatitis (skin burns). Can permanently injure eyes.

___ 4. Stainless Steel Cleaner - DANGER! - It can burn the eyes and skin. Its vapor can cause headaches, dizziness, and stupor or state of near-unconsciousness.

___ 5. Aerosol Dusting Spray - DANGER! - Flammable. Irritates the eyes, lungs.

___ 6. Disinfectant Cleaner - WARNING! - Contains flammable propellants. Can burn skin and cause permanent corneal damage. Fumes can strongly irritate the nose, throat and lungs.

___ 7. Powdered Bleach - WARNING! - Breathing the dust can produce asthma-like symptoms. Damages eyes and skin. Mixing it with ammonia can produce deadly fumes.

___ 8. Aerosol Air Freshener - WARNING! - Contains highly flammable propellants. Can cause moderate irritation to the eyes. Can cause mild to moderate lung irritation, including asthma-like symptoms.

___ 9. Window Cleaner - WARNING! - Can cause moderate irritation and damage to eyes. Fumes can be moderately to highly irritating to the lungs. Can irritate the skin.

___ 10. All-Purpose Cleaner - WARNING! - Strong lung irritant. Can cause mild to moderate damage to the eyes. Fumes can cause weakness and dizziness.

___ 11. Pesticides - Warning: Exposure can occur through inhalation, skin contact, or ingestion, leading to symptoms such as headaches, dizziness, nausea, and respiratory issues.

___ 12. Motor Oil - Danger/Warning: Used motor oil contains hazardous substances such as heavy metals (lead, zinc, cadmium).

LEARNING ACTIVITY SHEET

Learning Area:	Science 4	Quarter:	1
Week:	5	Day:	2
Lesson Title/ Topic:	Materials and Their Uses		
Name:		Grade & Section:	4

Activity 2.1: Non-biodegradable Waste

Objectives:

1. Identify the non-biodegradable waste generated at home and in school
2. Group the non-biodegradable materials into plastic, glass, metal, textile, paper, and cardboard
3. Classify the materials as recycle, reduce, recover, reuse and refuse

Activity 2.1 Read the passage below and answer the questions below.

Maya's Journey of the Five Rs



Once upon a time, there lived a young girl named Maya. Maya loved exploring the natural wonders around her home, but she couldn't help but notice the growing presence of litter hindering the beauty of her surroundings. Maya, determined to make a difference, embarked on a journey to learn about the 5 Rs of non-biodegradable materials. Non-biodegradable materials can be recycled, reduced, recovered, reused, and refused.

Reduce: As Maya wandered through the town's market, she noticed vendors selling fruits and vegetables wrapped in layers of plastic. Determined to reduce waste, Maya approached the vendors and suggested using biodegradable packaging or selling produce without any wrapping at all. With Maya's encouragement, the vendors embraced the idea of reducing unnecessary packaging, setting a positive example for others in the community.

Reuse: On her way home, Maya stumbled upon an abandoned warehouse filled with discarded items. Instead of seeing them as trash, Maya saw potential. She gathered broken furniture, old jars, and scraps of fabric, envisioning ways to breathe new life into them. With a little creativity and a lot of determination, Maya transformed the forgotten objects into beautiful decorations and useful household items, demonstrating the power of reuse to her neighbors.

Recycle: As Maya continued her journey, she encountered a group of children playing near a recycling center. Curious, Maya joined them as they sorted through bins of glass, plastic, and paper, learning about the importance of recycling. Inspired by their enthusiasm, Maya organized a recycling drive in her community, encouraging everyone to collect and recycle their waste. Together, they turned trash into treasure, paving the way for a cleaner, greener future.

Recover: One day, while exploring the forest, Maya stumbled upon an old tire abandoned in a clearing. Determined to find a use for it, Maya enlisted the help of her friends to brainstorm

ideas. After much deliberation, they decided to repurpose the tire into a colorful flower planter, filling it with soil and seeds. As the flowers bloomed, the tire became a symbol of creativity and ingenuity, inspiring others to look at waste in a new light.

Refuse: Finally, Maya realized that the most powerful way to combat non-biodegradable materials was to refuse them altogether.

Maya encouraged her community to say no to single-use plastics. And so, armed with the knowledge of the 5 Rs, Maya and her community worked together to protect the environment they cherished. Through their actions, they proved that even the smallest individual efforts could make a big difference in the fight against non-biodegradable materials. Together, they embarked on a journey of sustainability, leaving behind a legacy of stewardship and responsibility for generations to come

Questions

1. How did Maya promote the concept of "Reduce" in her community, and what impact did it have?

2. What did Maya and her friends do with the old tire they found in the forest, and how did it contribute to their mission?

3. How will you segregate these non-biodegradable materials using 5Rs?

Activity 2.2 Make a Collage

A. Make a collage using the pictures of the following materials listed in the box.

Newspapers	magazines	cardboard	boxes
packaging materials	junk mail	plastic bottles	containers
Bags	packaging materials	disposable utensils	glass containers
bottle jars	aluminum cans	tin cans	steel
food containers	metal packaging materials	old clothing	linens
towels	other textile products	sold computers	televisions
cell phones	kitchen appliances		

Activity 2.3 Classify if the materials in the box can be recycled, reduced, recovered, reused, refused.

To be Recycled	To be Reduced	To be Recovered	To be Reuse	To be Refused

LEARNING ACTIVITY SHEET

Learning Area:	Science 4	Quarter:	1
Week:	5	Day:	3
Lesson Title/ Topic:	Materials and Their Uses		
Name:		Grade & Section:	4

Activity 3: Waste Segregation Practices in the Community

Objectives:

1. Participate in the waste segregation practices in school and community to minimize harmful changes in materials.
2. Suggest ways on how biodegradable wastes can be converted to fertilizer (School and Household setting).

Activity 3.1 Read the passage below and answer the questions below.

Solid-Waste Management Practices of Households in Manila, Philippines



The experiences and practices of household waste management of people in a *barangay* (village) in Manila, Philippines are documented. The data were gathered through an interview with household members using open-ended questions. Interviews were also conducted with garbage collectors as well as scavengers. Results showed that the households generated an average of 3.2 kg of solid waste per day. The types of wastes commonly generated are food/kitchen wastes, papers, plastic bottles, metals, and cans, boxes/cartons, glass bottles, cellophane/plastics, and yard/garden wastes. The respondents segregate their waste into plastic bottles, glass bottles, and other waste (mixed waste). No

respondents perform composting. Burning of waste is not done by the respondents. The households rely on garbage collection by the government. Collection is done twice daily, except Sundays, and household members bring their garbage when the garbage truck arrives. However, there are those who dump their garbage in the non-designated pick-up points, usually in a corner of the street. The dumped garbage becomes a breeding ground for disease-causing organisms. Some household respondents said that it is possible that the dumping in certain areas caused the dengue fever suffered by some of their family members. Mothers and household helpers are responsible for household waste management. Scavengers generally look for recyclable items in the dumped garbage. All of them said that it is their only source of income, which is generally not enough for their meals. They are also aware that their work affects their health. Most respondents said that garbage collection and disposal are the government's responsibility.

The results of the study showed that RA 9003, also known as the Ecological Solid Waste Management Act of 2000, is not fully implemented in Metro Manila.

Source: Bernardo, E. 2008. *Solid-Waste Management Practices of Households in Manila, Philippines*
<https://doi.org/10.1196/annals.1454.016> Citations: 16

Questions:

1. What are the potential health risks associated with improper waste disposal, such as dumping garbage in non-designated areas, as observed in the barangay in Manila?

2. How can the implementation of RA 9003, the Ecological Solid Waste Management Act of 2000, be improved to ensure better waste management practices in Metro Manila households?

Activity 3.2 Fast Talk

Give your answer as fast as you can.

1. Most “yucky” waste: _____

2. Attractive waste: _____

3. Recyclable waste: _____

4. Biodegradable or non-biodegradable? _____

Why?

Answer the following questions:

1. What is the so-called “yucky waste?” Why is it that it is undesirable?

2. What are attractive wastes? Why is it attractive to you?

3. Give examples of recyclable waste.

4. Why are they called recyclable?

5. Which one is easier to manage, biodegradable waste or non-biodegradable waste? Explain.

LEARNING ACTIVITY SHEET

Learning Area:	Science 4	Quarter:	1
Week:	5	Day:	4
Lesson Title/ Topic:	Gathering Scientific Information		
Name:		Grade & Section:	4

Activity 4: Collecting Scientific Information

Objectives: Describe immediate surroundings or community in terms of location, waste segregation practices, garbage collection, and barangay environmental advocacies.

Activity 4.1 Read the passage and answer the questions below.

The Highly Urbanized Region

According to the National Capital Region (NCR) Population Clock, the estimated population as of January 31, 2024, 8:00 AM is 13,978,060. The area, with this population, is a busy place with a high volume of vehicles, houses, buildings, and cemented grounds. The region is overfilled with households, buildings and concrete pavements with barely any open space for planting or vegetation.

Daily human activities generate waste. Approximately 13,978,060 individuals produce almost one (1) kilogram of waste materials while transport vehicles emit gaseous pollutants. With these occurrences, environmental issues and concerns arise.

Campaigns for environmental actions through advocacies are being conducted such as proper waste segregation, urban gardening, clean-up drive, estero-watch, and Pasig River rehabilitation to name a few. These practices will help reduce the effects of rapid urbanization and the amount of waste and improve air quality. Each barangay in the city within the National Capital Region is taking steps to address environmental issues and concerns.

Question:

Based on the general description of the National Capital Region, what similar issues does your place/location experience?

Activity 4.2 Discover My Community

A. Write Yes or No to describe the location of the community you live in or reside in.

Community Location	Yes/No
Near a busy road	
Near the estero	
Near the material recovery facility	
Within the heavily populated community	
Near a body of water (river, sea)	

B. Put a check mark (✓) in the row that corresponds to the schedule of garbage collection in your place.

Garbage Collection	
everyday	
Every other day	
Twice a week	
Weekly	
Others, please specify	

C. Put a check mark (✓) in the row that tells the place where you observe and practice waste segregation.

Waste Segregation	
House	
School	
Community	