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DEPARTMENT OF EDUCATION

Learning Activity Sheet for Science

Quarter 1
Week
2

Learning Activity Sheet Science Grade 4
Quarter 1: Week 2

This material is intended exclusively for the use of teachers in the implementation of the MATATAG K to 10 Curriculum. It aims to assist in delivering the curriculum content, standards, and lesson competencies.

Every care has been taken to ensure the accuracy of the information provided in this material. For inquiries or feedback, please call the Office of the Director of the Department of Education – National Capital Region via telephone number (02) 85229412 or send an email to ncr@deped.gov.ph.

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Learning Area:	**Science 4**	**Quarter:**	**1**
Week:	**2**	**Day:**	**1**
Lesson Title/ Topic:	**Scientific Inventions**		
Name:		**Grade & Section:**	**4**

Activity 1: Combustibility and Flammability

Objective: To describe combustibility and flammability as chemical properties of materials.

Activity 1.1 Read the story below and answer the following questions.

The Great Science Adventure: Quest for the Flaming Dragon

Alex enjoyed exploring and discovering new things, especially about the properties of materials. One day, while playing in the forest, Alex stumbled upon an ancient map hidden inside a mysterious bottle. The map depicted a dangerous journey to find the legendary Flaming Dragon, rumored to possess the secret of ultimate knowledge about the properties of materials.

Alex, thrilled by the possibility of adventure, gathered supplies and set off on the quest with his trusty sidekick, a talking parrot named Sparky. Along the way, they encountered various obstacles and challenges, such as rivers and dark caves. But with courage and determination, they persevered.

As they ventured deeper into the unknown, Alex and Sparky came across a village with a strange phenomenon: spontaneous fires erupting from seemingly harmless objects. The villagers were terrified, and Alex knew that understanding the properties of materials was crucial to solving this mystery.

Using their knowledge, Alex and Sparky conducted experiments to test the flammability and the combustibility of various materials found in the village. They learned that some materials were highly flammable and could catch fire easily, while others were less prone to combustion.

Armed with this newfound knowledge, Alex and Sparky devised a plan to extinguish the fires and save the village. They asked the villagers for help and worked together to remove the highly flammable materials from their homes, replacing them with safer alternatives.

Finally, after many trials, Alex and Sparky reached the home of the Flaming Dragon. Instead of finding a fearsome creature, they discovered a wise old elder who revealed that the

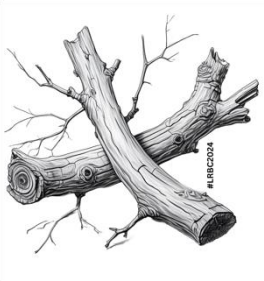
true secret of understanding materials lay in respecting their properties and using that knowledge responsibly.

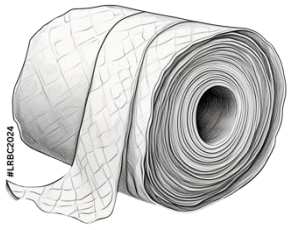
With this valuable lesson in mind, Alex returned home a hero, having not only saved the village but also gained a deeper understanding of the importance of knowing the properties of materials like flammability and combustibility. And so, the adventures of Alex and Sparky continued, fueled by curiosity and a thirst for knowledge.

Questions:

1. Was there really a dragon in the story? Explain.
   _____
   _____
   _____
2. What caused the fire?
   _____
   _____
   _____
3. What do you think were the things Alex and Sparky did to put off the fire?
   _____
   _____
   _____

Activity 1. 2 Write **C** if the materials is COMBUSTIBLE, and write **F** if the materials is FLAMMABLE

1. _____ paper 	6. _____ 70% ethyl alcohol 
2._____ dried twigs 	7. _____ dried leaves 

3. _____ kerosene 	8. _____ tissue paper 
4._____ cotton t-shirt 	9. _____ nail polish remover 
5._____ paint thinner 	10. _____ candle 

LEARNING ACTIVITY SHEET

Learning Area:	**Science 4**	**Quarter:**	**1**
Week:	**2**	**Day:**	**2**
Lesson Title/ Topic:	**Chemical Properties of Materials as They React with Other Materials**		
Name:		**Grade & Section:**	**4**

Activity 2: Chemical Properties of Materials as they React with Other Materials

Objective: To describe the chemical properties of materials as they react with other materials.

Activity 2.1 Read the story below and answer the following questions.

Rusty Adventure: The Mystery of the Missing Treasure

Sam loved nothing more than searching the shores for hidden treasures, and mysterious artifacts washed up by the waves. One sunny morning, while digging in the sand, Sam unearthed an ancient treasure map with faded markings and mysterious symbols.

Excited by the possibility of finding hidden riches, Sam asked for the help of her best friend, Maya, and together they started on a quest to uncover the lost treasure. Following the map's clues, they journeyed deep into the heart of a dense jungle, where they stumbled upon an old, abandoned pirate ship half-buried in the overgrown plants.

As they explored the dilapidated vessel, Sam and Maya noticed something weird. The ship's once-shiny metal cannons and anchor were now covered in a reddish-brown substance. Maya recognized it immediately as rust, a form of corrosion that occurs when iron reacts with water and oxygen.

Intrigued by the discovery, Sam and Maya decided to explore further. They followed a winding path through the jungle until they stumbled upon a hidden cave entrance obscured by vines and moss. Inside, they found a chamber filled with ancient chests overflowing with gold coins and precious jewels.

But as they reached out to touch the treasure, they heard a rumbling sound, and the ground began to shake. To their horror, the cave walls started crumbling, and water began seeping in from unseen cracks in the ceiling. Sam and Maya realized that the corroded metal from the pirate ship had weakened the cave's structure, causing it to collapse.

Thinking quickly, Sam remembered reading about how corrosion could be prevented by coating metal with a protective layer, like paint or oil. With no time to spare, they grabbed a nearby bucket of oil and quickly coated the rusted metal supports holding up the cave's ceiling.

Though they may not have found the treasure they sought, Sam and Maya learned a valuable lesson about the destructive power of corrosion and the importance of protecting valuable metals from its effects. And as they returned home, they knew that the greatest treasure of all was the knowledge they had gained from their daring adventure.

Guide Questions:

1. What kind of treasure did Sam and Maya find?
   _____
2. How did corrosion affect the treasure they found?
   _____
   _____
   _____
3. How did they protect the dilapidated vessel from further corrosion?
   _____
   _____
   _____

Activity 2.2 Go to the school grounds and locate materials with rust. Suggest at least two ways to prevent further rusting in the table below.

Materials	Location	Suggestion/s
1.		
2.		
3.		
4.		
5.		

LEARNING ACTIVITY SHEET

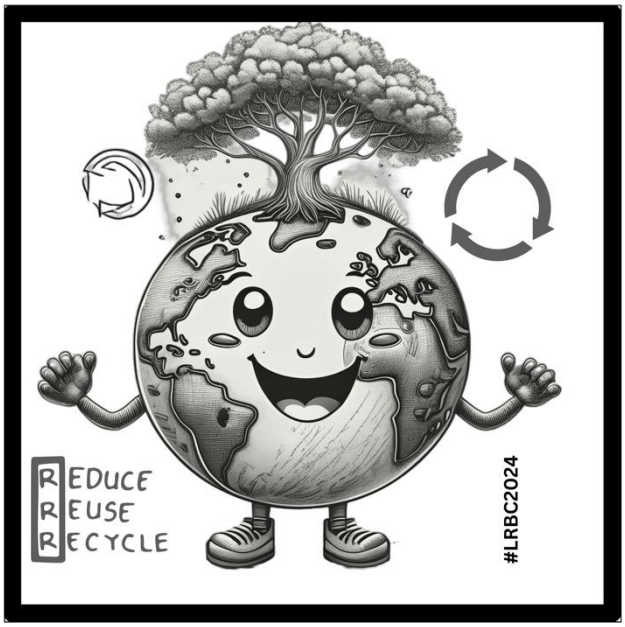
Learning Area:	**Science 4**	**Quarter:**	**1**
Week:	**2**	**Day:**	**3**
Lesson Title/ Topic:	**Biodegradable materials**		
Name:		**Grade & Section:**	**4**

Activity 3: Biodegradable Materials

Objective: To give examples of biodegradable materials at home and school

Activity 3.1 Read the story below and answer the following questions.

Exploring the Magic of Biodegradable Materials



In a world of environmental challenges, sustainable solutions have never been more critical. Among the innovations emerging to stop pollution and waste, biodegradable materials stand out as champions of eco-friendliness and sustainability.

Let us embark on a journey to explore the magic of biodegradability and its transformative impact on our planet. Biodegradable materials, often derived from renewable resources such as plant fibers or starches, paper, and cardboard, can decompose naturally. Biodegradable materials offer a promising alternative that minimizes harm to the environment.

Imagine a world where every discarded item, from food packaging to disposable utensils, could vanish without a trace, leaving no harmful residues or pollutants behind. This vision becomes a reality with the widespread adoption of biodegradable materials, which embrace the principles of nature's regenerative cycles.

Consider the journey of a biodegradable bag crafted from plant-based materials and designed to break down when its purpose is served. From its humble beginnings on a store shelf, where environmentally conscious consumers choose sustainable alternatives, to its eventual disposal in a composting facility, this bag embodies the beliefs of responsible consumption and waste management. As the bag completes its life cycle, it undergoes a transformation facilitated by the action of microorganisms in the compost pile. These tiny heroes, invisible to the naked eye, work tirelessly to break down the bag's fibers, returning them to the earth as nutrient-rich organic matter. In this process, the bag fulfills its role as a carrier of goods and nourishes the soil, supporting the growth of healthy plants and vegetation.

The story of biodegradability extends far beyond single-use items. From biodegradable plastics used in packaging to compostable textiles and bio-based fuels. Education, policy support, and investment in research and development are essential in advancing the adoption of biodegradable materials globally.

Guide Questions:

1. What are the biodegradable materials mentioned in the story?

_____
_____

2. What are some examples of renewable resources from which biodegradable materials can be derived?

_____
_____

3. Can you describe the journey of a biodegradable bag from its creation to its disposal in a composting facility? Explain.

_____
_____

4. What are some other applications of biodegradable materials beyond single-use items, as mentioned in the text?

_____
_____

5. How would you describe materials or wastes which cannot be decomposed or degraded by natural agents or processes?

_____
_____

Activity 3.2. List and describe 3 biodegradable and non-biodegradable materials found at home and in school in the table below.

Material Classification	At Home	Description	In School	Description
Biodegradable	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.
Non-Biodegradable	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.

Activity 3.3 Carefully observe the following materials. Describe the properties of materials that are degradable or biodegradable.

Material	Description/s
paper	
dried leaves	
fruit peelings	
animal manure	
wood	

LEARNING ACTIVITY SHEET

Learning Area:	**Science 4**	**Quarter:**	**1**
Week:	**2**	**Day:**	**4**
Lesson Title/ Topic:	**Chemical Properties of Materials**		
Name:		**Grade & Section:**	**4**

Activity 4: Chemical Properties of Materials

Objective: To describe the properties of materials, such as flammability, reactivity, or degradability

Activity 4.1 Read the story below and answer the following questions.

Title: Clara's Chemistry Adventure

Once upon a time in a neighborhood, there lived a curious young girl named Clara. Clara had always been fascinated by the world around her, especially the mysteries hidden within everyday objects. Armed with her curiosity, Clara embarked on a thrilling adventure to uncover the importance of understanding the chemical properties of common household materials. One sunny morning, as Clara roamed through her kitchen, she stumbled upon an array of household items – from colorful cleaning agents to sturdy plastic containers. Intrigued by the diverse array of materials, Clara decided to investigate their chemical properties to unlock the secrets they held.

Her first stop was the pantry, where she encountered a box of matches nestled among jars of spices and baking ingredients. Clara knew that matches could be burnt, but she wondered why some materials caught fire more easily than others. With her magnifying glass in hand, she carefully examined the matchsticks, noting their composition and texture. Through her research, Clara learned about the flammable properties of matchstick heads, which contain phosphorus and sulfur compounds that ignite when struck against a rough surface. Next, Clara ventured to the bathroom, where she encountered an assortment of cleaning products stored beneath the sink. She recalled her mother's warnings about mixing different cleaning agents and wondered why some substances could react violently when combined. With cautious curiosity, Clara conducted experiments using household acids and

bases, observing the chemical reactions that ensued. Through her investigations, Clara gained insight into the importance of understanding the reactivity of household materials to avoid accidents and ensure safe handling. As Clara continued her exploration, she turned her attention to the garden, where she discovered a compost bin teeming with organic waste and garden clippings. Intrigued by the concept of biodegradability, Clara sought to understand how organic materials could break down naturally over time. With the help of her magnifying glass, Clara examined the microbial activity within the compost pile, marveling at the tiny organisms responsible for decomposing organic matter. Through her observations, Clara learned about the environmental benefits of biodegradable materials and the importance of composting to reduce waste and enrich the soil. Though her adventure had been filled with surprises and discoveries, Clara realized that the greatest treasure of all was the knowledge she had gained along the way.

Guide Questions:

1. How did Clara's investigation into the chemical properties of household materials, such as matches, contribute to her understanding of their combustibility?

   _____

   _____

2. What precautions did Clara take when experimenting with different cleaning agents in the bathroom, and how did her observations help her grasp the importance of understanding reactivity?

   _____

   _____

3. Describe Clara's discovery in the garden regarding the process of biodegradability. How did her examination of microbial activity contribute to her understanding of this concept?

   _____

   _____

4. Reflecting on Clara's adventure, what lesson did she learn about the importance of understanding the chemical properties of common household materials?

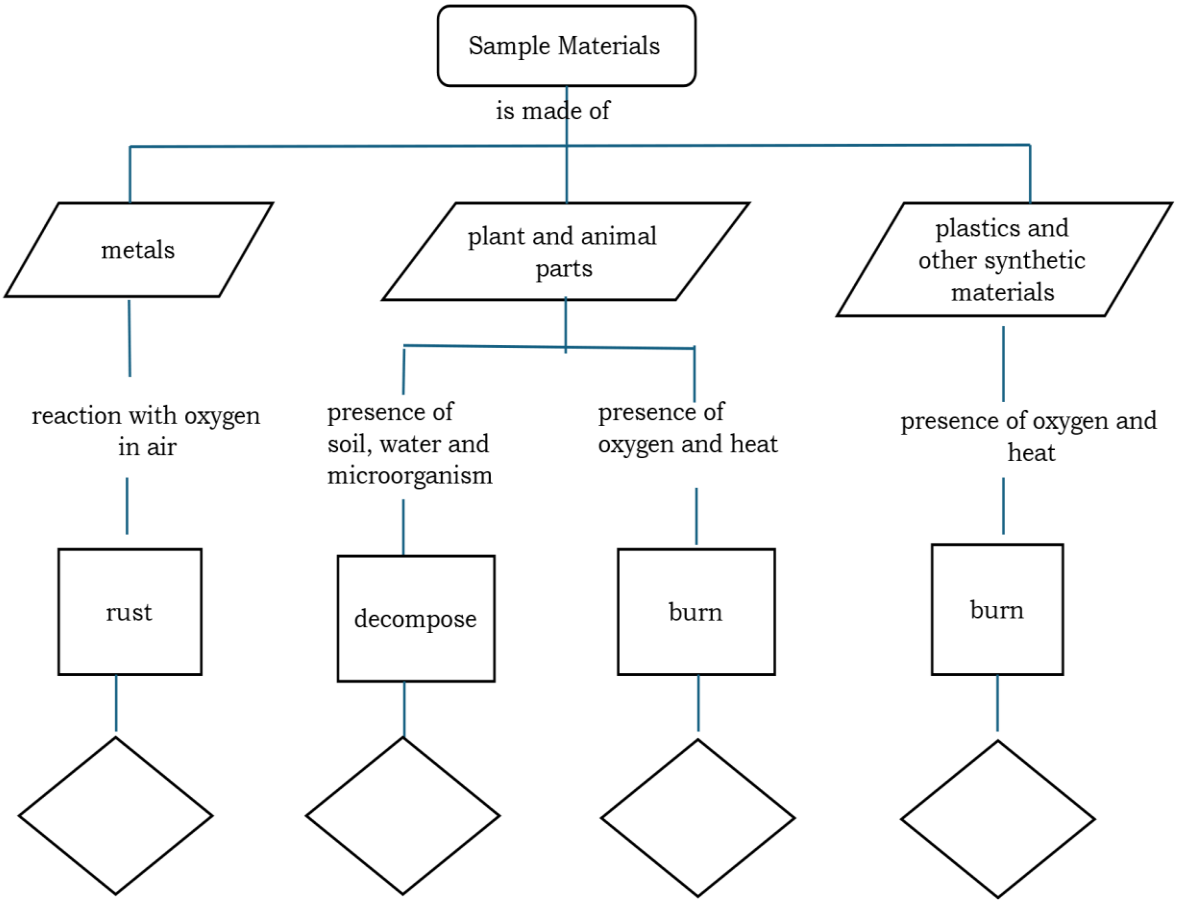
   _____

   _____

Activity 4.2 Carefully examine the materials given below. Identify whether they are combustible, flammable, biodegradable and can react with other materials by putting a checkmark (√) on the proper column.

Materials	Degradable	Reactive	Combustible or Flammable
plastic cup			
pieces of paper			
dried leaves			
metal			
alcohol			
rugs			
cellophanes			
candy wrappers			
plastic straw			
dried branches of trees			

Activity 4. 3 Predict the chemical properties of the sample materials based on the description in the flowchart. Use the sample materials you bring. Write your answer in the diamond shape.



4.4 Reflection: Read the statements carefully and rate the knowledge and skills you acquired after completing the tasks by checking the appropriate columns. Compute your total score column and reflect on what you will do next based on your score.

Knowledge and Skills	I am just starting to learn this. I do not really understand it yet.	I am starting to get it but will still need someone to coach me through.	I can do most of it by myself, but I sometimes make mistakes.	I understand it well, and I could thoroughly teach it to someone else
1. I can describe the chemical properties of combustible materials.				
2. I can describe the chemical properties of flammable materials.				
3. I can describe the chemical properties of materials that react with other materials.				
4. I can describe the chemical properties of degradable materials.				
5. I can describe the chemical properties of non-degradable materials.				