GRADE 6 – QUARTER 1: MATERIALS

GRADE 6 FIRST QUARTER- Materials		
Content	**Content Standards** *Learners learn that:*	**Learning Competency** *The learners…*
1. Diagrams and flowcharts 2. Processes of changes of state 3. Physical and chemical change 4. Mixtures and separation techniques	1. Diagrams and flowcharts demonstrate processes involving heat energy and changes of state. 2. Changes in materials can be either reversible or irreversible. 3. Mixtures and the products of their separation techniques are very useful in our daily lives. 4. Scientific investigations need to satisfy the features of a fair test and use accurate and reliable measurements.	1. describe changes of state for solids, liquids, and gases as melting, evaporation, freezing, condensation using diagrams and flowcharts; 2. explain the role of heat energy in change of state processes; 3. explain why physical changes are reversible, and chemical changes are irreversible; 4. describe useful everyday examples of uniform and non-uniform mixtures, such as solutions and suspensions; 5. describe air as a mixture of oxygen, carbon dioxide, nitrogen, and water vapor; 6. demonstrate various techniques in separating mixtures, such as decantation, winnowing, scooping, picking, evaporation, filtering, sieving, and using magnets; 7. explain the benefits of each mixture separation technique in preparing useful products; 8. apply the features of a fair test: a. change one factor, b. measure one factor, and c. keep all other factors the same; and 9. recognize the features of a fair test and that scientific investigations also involve a) doing at least three trials, or use replication, and b) observing, measuring, and recording accurately.
Performance Standard *By the end of the Quarter, learners* demonstrate an understanding of the benefits of various separation techniques. They use diagrams and flowcharts to describe changes of state. They use the words reversible and irreversible to describe changes to materials. They demonstrate skills in the use of equipment. They recognize and apply their understanding of the features of a fair test.		
Suggested Performance Tasks A. Apply an appropriate separation technique to solve a local or household problem. B. Plan and conduct a simple scientific investigation involving a physical change, such as “Does sugar dissolve faster in hot or cold water?” Use your understanding of a fair test to answer the question.		

GRADE 6 – QUARTER 2: LIVING THINGS

Content	**Content Standards** *Learners learn that:*	**Learning Competency** *The learners…*
1. The circulatory system 2. Reproduction in plants 3. Vertebrates and invertebrates 4. Food webs 5. Interactions between living things 6. Biotic and abiotic factors in an ecosystem.	1. Animals have systems that help them grow, respond, and reproduce. 2. There are several modes of reproduction in plants. 3. To be valid and reliable, scientific investigations need to include fair tests and multiple trials. 4. Animals can be grouped as vertebrates or invertebrates based on their characteristics. 5. Producers, consumers, scavengers, and decomposers have important roles in food webs. 6. Interactions within an ecosystem can have important impacts on the living things within it.	1. identify from pictures and diagrams the parts of the circulatory system as heart, blood, and blood vessels, and describe how they work; 2. describe the different ways that plants reproduce, such as pollination, seed production, and plant propagation; 3. plan a simple scientific investigation that includes the features of a fair test, replication, and accurate measurement to determine which type of plant propagation, such as cutting, budding, layering, grafting, works best for garden plants; 4. describe the differences between animals with a backbone (vertebrates) and animals without backbones (invertebrates) by using common local examples of each group; 5. describe the roles of producers, consumers, scavengers, and decomposers in a food web; 6. use information from secondary sources to describe that living things interact with each other in the natural environment, such as through competition, or predation; 7. describe living things, such as animals and plants, as biotic factors and light, water, temperature, and soil type, as abiotic factors of an ecosystem; and 8. explain how interaction between living things and interactions between living and non-living things may bring good or harm to the living things involved.

Performance Standard

By the end of the Quarter, learners demonstrate an understanding of the different ways that plants reproduce. Plan a simple scientific investigation to determine which method works best in a given habitat. They describe and provide examples of vertebrates as animals with a backbone and invertebrates as animals that do not have a backbone. They design an example of a food web showing the role of consumers, producers, scavengers, and decomposers. They identify the technical terms biotic and abiotic as referring to living and non-living things.

Suggested Performance Tasks

A. Apply the features of a fair test to investigate how much water is needed to grow a common garden plant from a seed.
B. Select an appropriate medium to design an example of a food web in a local ecosystem.

GRADE 6 – QUARTER 3: FORCE, MOTION, AND ENERGY

Content	Content Standards *The learners learn that:*	Learning Competencies *The learners…*
1. Simple machines 2. Properties of water and sound waves 3. Longitudinal and Transverse waves	1. Simple machines allow people to change the direction and size of forces. 2. Waves transfer energy between source and receiver. 3. Science processes and concepts help solve everyday problems.	1. observe and describe examples and uses of simple machines found at home, at school, and in the community; 2. demonstrate through guided investigation the advantages and limitations of simple machines such as inclined planes, wedges, levers, and pulleys; 3. carry out fair tests to show how levers can be used to change the magnitude and direction of a force; 4. identify that waves carry energy from a source to a receiver; 5. carry out investigations with water waves in a ripple tank, a big tub of water or improvised ripple tank and observe and describe the features of the waves including their: a. shape, such as crests and troughs; b. size, such as width and height; and c. patterns of movement, such as how they bend, or reflect off walls; 6. research using secondary sources to identify how the properties of waves are described using scientific terms such as amplitude, frequency, wavelength, and velocity; 7. identify differences and similarities between longitudinal waves and transverse waves; 8. demonstrate using simple models how longitudinal waves and transverse waves carry energy; 9. identify some examples of longitudinal waves, and transverse waves; and 10. describe and explain how sound changes when the source or the receiver are moving.

Performance Standard

By the end of the Quarter, learners demonstrate objective inquiry by carrying out investigations to critically observe patterns and systems scientifically. They support their observations and conclusions using secondary sources to explain occurrences and concepts using technical scientific language. They use critical thinking skills and creativity to make models and other devices to communicate their understanding to other people.

Suggested Performance Tasks

A. Develop an information poster that aims at showing learners who are interested in music-related subjects to consider the benefits of studying science. The poster should use words, pictures or drawings and labelled diagrams to explain how musical instruments utilize the properties of sound waves. The poster may suggest ways that learners could use scientific processes to develop their musical techniques.

B. Design and propose or improve the design of a simple machine that can be used at home, in school, or in the community. Include the following details:
   1. Name and purpose of the simple machine;
   2. Description of how the simple machine works and its intended function;
   3. Materials needed for constructing the simple machine;
   4. Sketch or diagram illustrating the design and functionality of the proposed simple machine; and
   5. Explain how the proposed simple machine can be useful in the chosen setting (home, school, or community) and its potential benefits.

C. Utilize the concept of motion and gravity to write a creative story, poem, or any written art.

GRADE 6 – QUARTER 4: EARTH AND SPACE

Content	**Content Standards** *The learners learn that:*	**Learning Competencies** *The learners…*
1. Volcanic activity and safety 2. Seasons in the Philippines 3. Motions of the Earth 4. Constellations 5. Understanding stability and change	1. Volcanoes are vents from which molten rock from Earth's crust erupts onto the surface releasing pressure and gases. 2. The Philippine volcanoes can violently and unpredictably erupt lava, ash, and ballistic projectiles. 3. Weather and climate have predictable patterns throughout the year, which affect human activities. 4. The revolution and the rotation of the Earth demonstrate observable patterns. 5. Constellations are patterns of stars in the sky.	1. explain what volcanoes are and how they are formed; 2. use local information or other reliable sources to identify where the nearest active and inactive volcanoes are located and assess the risk of impacts from eruptions to their local community; 3. discuss the patterns of volcanic eruptions in the Philippines over the last 100 years with family and community members to assess and describe how predictable patterns of eruptions are; 4. identify and describe some of the materials formed during volcanic eruptions in the Philippines; 5. Interpret PHIVOLCS Volcano Monitoring (Alert Levels) to demonstrate what to do before, during, and after a volcanic eruption; 6. describe the different seasons in the Philippines and suggest activities that are appropriate for each season; 7. demonstrate the rotation of the Earth on its axis using a globe to explain day and night; 8. make a Sun-Earth-Moon system model to demonstrate and explain the observable effects of predictable patterns and events including: a. changes in seasons, b. changes observed in the patterns of visible star over a year, and c. solar and lunar eclipses; 9. explain why ancient human cultures relied on constellations to indicate directions and verify seasons; and 10. gather information from local indigenous community members or from reliable secondary sources to investigate ways that indigenous people of the Philippines represented and communicated understandings of: a. the predictability of solar and lunar eclipses, and b. patterns /interpretations in the night sky and their use for tracking time.

Performance Standard

By the end of the Quarter, learners appreciate that volcanoes can have unexpected and severe impacts on communities and that the uncertainty and impacts of unpredicted eruptions can be offset by understanding and following alerts from authorities. Learners appreciate weather patterns that produce seasons that are largely predictable, and they use models to scientifically understand and describe natural processes and timing that can be relied upon, such as the changes of season. Learners identify that scientific models are valuable in explaining other observations of patterns in nature, such as the apparent movement of celestial objects across the sky. They exhibit respect for cultures and interpretations of natural phenomena by indigenous people over generations and balance that with respect for explaining phenomena using scientific inquiry and objectivity.

Suggested Performance Tasks
A. Design and describe an evacuation plan for a house or school in the event of a nearby and intensifying volcanic eruption. Indicate planned actions to reach a safe place and outline the reasoning behind the planned actions.
B. Select a constellation that can be seen from the Philippines and describe its features. Explain its practical and cultural significance for Filipino people in the past and present.