

GRADE 8 – QUARTER 1: LIFE SCIENCE

Content	Content Standards <i>The learners learn that:</i>	Learning Competencies <i>The learners...</i>
1. Organ systems working together 2. Heredity 3. Taxonomic classification 4. Photosynthesis, respiration and cycles in nature	1. Organ systems work together for the growth and survival of the organism. 2. Inherited traits passed from parents to offspring are governed by the rules on the patterns of inheritance. 3. Classification of living things shows life's diversity. 4. Photosynthesis and respiration are processes that show how living things obtain energy and nutrients from the environment.	1. using a labeled diagram, trace how food travels through the digestive tract and explain how different digestive processes work, including mechanical processing, secretion, digestion, absorption, and elimination; 2. use models, flow charts, diagrams, and simulations to explain how body systems work together, such as digestion and excretion; 3. describe how plant organs (leaf, stem, roots) work together as the transport system; 4. represent patterns of inheritance of a simple dominant/ recessive characteristic through generations of a family; 5. predict simple ratios of offspring genotypes and phenotypes in crosses involving dominant/recessive gene pairs; 6. describe the importance of the six-kingdom system and the three-domain system of classification of living things; 7. explain why humans are classified under Class Mammalia and the Order Primates; 8. using flow charts and labeled diagrams explain the role of plants and animals in the cycles of nature, such as the carbon, oxygen, and water cycles; 9. describe the process of photosynthesis and respiration, and identify its raw materials needed and products; 10. using information from secondary sources identify the different parts of the cell where photosynthesis and respiration occur; 11. plan a scientific investigation to verify the raw materials needed for photosynthesis.
Performance Standard <i>By the end of the Quarter, learners demonstrate the use of models, flow charts, and diagrams to illustrate how body systems work together for the growth and survival of an organism. They represent patterns of inheritance and predict simple ratios of offspring. They explain that the classification of living things shows the diversity and unity of living things. They describe the processes of respiration and photosynthesis and plan and record a scientific investigation to verify the raw materials needed. They use flow charts and diagrams to explain cycles in nature.</i>		
Suggested Performance Task Conduct a scientific investigation to verify the raw materials needed for photosynthesis.		

GRADE 8 – QUARTER 2: SCIENCE OF MATERIALS

Content	Content Standards <i>The learners learn that:</i>	Learning Competencies <i>The learners...</i>
1. Use of timelines and charts 2. The Atomic Model 3. Subatomic particles 4. Elements and compounds 5. The Periodic table	1. The use of timeline and charts can illustrate scientific knowledge of the structure of the atom has evolved over time. 2. The current structure of the atom includes subatomic particles, their symbol, mass, charge, and location. 3. Elements and compounds are identified as pure substances. 4. The periodic table is a useful tool to determine the chemical properties of elements.	1. develop a timeline for the historical background of the development of the current Atomic Model that identifies tiny particles as atoms; 2. draw the structure of an atom in terms of the nucleus and electron shells; 3. differentiate the subatomic particles protons, neutrons, and electrons in terms of their symbol, mass, charge, and location within an atom; 4. describe the properties of pure substances as: <ol style="list-style-type: none"> having fixed chemical composition, examples of which are elements and compounds, and that all the atoms of an element have a unique number of protons; 5. discuss the significant contributions of early scientists in the development of the periodic table; 6. identify the names and symbols of the first 20 or several common elements of the periodic table; 7. explain that the arrangement of elements in the periodic table as 7 periods and 18 groups is based on their atomic structure and chemical properties, such as reactivity; 8. explain that the electron structure of an atom determines its position on the periodic table; 9. calculate the number of protons, neutrons, and electrons in the atom of several elements, such as aluminum; and 10. explain that the elements within a group in the periodic table have the same number of valence electrons.
Performance Standard <i>By the end of the Quarter, learners demonstrate an understanding of the structure of the atom and how our understandings have changed over time. They draw models of the atom and use tables to represent the properties of subatomic particles. They demonstrate their knowledge and understanding of the periodic table by identifying the elements, their symbols, their valence electrons, and their positions within the groups and periods. They design and/or create timelines or documentaries as interesting learning tools.</i>		
Suggested Performance Task Design an illustrated timeline or create a documentary that describes and discusses the development of the models of atomic structure contributed by Dalton, Thomson, Rutherford, and Bohr.		

GRADE 8 – QUARTER 3: EARTH AND SPACE SCIENCE

Content	Content Standards <i>The learners learn that:</i>	Learning Competencies <i>The learners...</i>
1. Distribution of the continents 2. Crustal features and interactions 3. Typhoons 4. Tides	1. The distribution of continents and oceans on Earth is related to the presence of the oceanic crust and continental crust. 2. Volcanic terrain is built by the slow accumulation of erupted lava. 3. The earth's surface is made of separate and movable plates. 4. Bodies of water and landforms affect typhoons. 5. The interaction between the Sun, Earth, and Moon causes tides.	1. identify what proportion of the Earth's surface is covered with water as opposed to land; 2. gather information from secondary sources to name and describe the upper crustal layers of the solid earth; 3. describe the different types of volcanoes found around the world according to their: <ol style="list-style-type: none"> activity type of eruption location in the crust; 4. relate the shape of a volcano's cone to its composition; 5. relate the location and distribution of active volcanoes, earthquake epicenters, and major mountain belts to the distribution of oceanic crust and continental crust; 6. identify how oceanic crust and continental crust is associated with the Earth's lithospheric plates; 7. gather information from secondary sources to explain: <ol style="list-style-type: none"> how typhoons develop, and why the Philippines is prone to typhoons; 8. use a map and a record of tracking data to trace the path of typhoons that enter the Philippine Area of Responsibility (PAR); 9. discuss how bodies of water and landforms affect typhoons; 10. gather information from the Department of Science and Technology (DOST) and other reliable websites to identify how authorities support communities affected by typhoons; 11. relate the relative movements of the Earth, Moon, and Sun with the occurrence of tides; and 12. draw on information from secondary sources to identify situations where tidal difference could be exploited to generate renewable energy.
Performance Standard <i>By the end of the Quarter, learners demonstrate an appreciation of the large-scale features of the 'blue planet' Earth and relate those features to the geological characteristics of the upper crustal layers of the Earth. They identify and describe the nature and impact of volcanic activity in building new crust and identify that these crust forming processes account for patterns and changes in the distribution of volcanoes, earthquakes, and mountain chains that have occurred over time. Learners draw on their understanding of the relationships between landforms and oceans to explain the formation and impacts of typhoons. They also identify that predictable interactions of the Sun-Earth-Moon system result in tidal effects.</i>		
Suggested Performance Task Design and construct a model house to withstand a simulation of wind speed in a typhoon, test the model, and redesign if needed.		

GRADE 8 – QUARTER 4: FORCE, MOTION, AND ENERGY

Content	Content Standards <i>The learners learn that:</i>	Learning Competencies <i>The learners...</i>
1. Acceleration 2. Distance-time and Velocity-time graphs 3. Kinetic and Potential energy 4. Work and energy 5. Renewable energy 6. Properties of light	1. Forces cause objects to accelerate. 2. An object is accelerating if the magnitude and/or direction of its velocity changes. 3. Kinetic energy is the energy of movement, and potential energy is stored energy. 4. As an object falls from a height its energy is conserved because its potential energy is transformed to kinetic energy. 5. The resources of the Philippines provide many benefits to its people and their activities.	1. identify that forces cause objects to accelerate, and that acceleration of an object is its rate of change of velocity; 2. observe and describe examples of accelerating objects at school and in the local community, including objects that show uniform circular motion; 3. construct and annotate distance-time graphs and velocity-time graphs to represent uniform and non-uniform acceleration; 4. describe kinetic energy as the movement of objects or particles, and potential energy as energy stored due to the position of objects or particles; 5. identify examples of everyday situations that demonstrate: <ol style="list-style-type: none"> kinetic energy being transformed to potential energy, and potential energy being transformed to kinetic energy; 6. recognize that work is done when a force causes the displacement of an object; 7. recognize that power is the rate of doing work; 8. explain that the mechanical energy of an object is the sum of the kinetic energy and the potential energy available to do work; 9. describe conservation of energy in everyday situations involving gravity, such as when objects fall; 10. gather information from secondary sources to explain how potential energy stored in lakes and dams in the Philippines is used to produce kinetic energy to generate electricity for use in homes, communities, and industry; and 11. carry out guided investigations to describe and illustrate the reflection of light using plane and curved mirrors and the refraction of light using transparent blocks, lenses, and prisms with examples from everyday applications.
Performance Standard <i>By the end of the Quarter, learners demonstrate understanding of the technical meaning of acceleration and apply their understanding to everyday situations involving motion. They represent and interpret acceleration in distance-time and velocity-time graphs to make predictions about the movement of objects. Learners link motion to kinetic energy and potential energy and explain transformations between them using everyday examples. Learners relate understanding of kinetic energy and potential energy to an appreciation of the hydro-electric resources of the Philippines for the generation of electricity for use in homes, communities, and industries. They use scientific investigations to explore the properties of light and apply their learning to solving problems in everyday situations.</i>		
Suggested Performance Tasks Make a working model of a party light that uses batteries as the power source. Describe the scientific ideas that you have utilized to change the properties of light.		