Philippines (Q-Z) Content & Performance Standards

The presentations offered by The Educated Choices Program provide support for teaching and learning of the following standards:

Science, grades 6-10		Environment and Modern Agriculture	Healthful Eating
Grade 6	At the end of Grade 6, learners recognize that when mixed together, materials may not form new ones thus these materials may be recovered using different separation techniques. They can prepare useful mixtures such as food, drinks and herbal medicines. Learners understand how the different organ systems of the human body work together. They can classify plants based on reproductive structures, and animals based on the presence or lack of backbone. They can design and conduct an investigation on plant propagation. They can describe larger ecosystems such as rainforests, coral reefs, and mangrove swamps. Learners can infer that friction and gravity affect how people and objects move. They have found out that heat, light, sound, electricity, and motion studied earlier are forms of energy and these undergo transformation. Learners can describe what happens during earthquakes and volcanic eruptions and demonstrate what to do when they occur. They can infer that the weather follows a pattern in the course of a year. They have learned about the solar system, with emphasis on the motions of the Earth as prerequisite to the study of seasons in another grade level.	✔	✔

	Grade 6 – Matter FIRST QUARTER/FIRST GRADING PERIOD CONTENT STANDARDS/PERFORMANCE STANDARDS/LEARNING COMPETENCY Properties 1. Mixture and their characteristics 1.1 Homogeneous and heterogeneous mixtures The learners demonstrate understanding of… ● different types of mixtures and their characteristics The learners should be able to… ● prepare beneficial and useful mixtures such as drinks, food, and herbal medicines. The learners should be able to… ● describe the appearance and uses uniform and non-uniform mixtures; CONTENT CONTENT STANDARDS/PERFORMANCE STANDARDS/ LEARNING COMPETENCY Properties 1. Mixture and their characteristics 1.1 Homogeneous and Heterogeneous mixtures The learners demonstrate understanding of… ● different types of mixtures and their characteristics The learners should be able to… ● prepare beneficial and useful mixtures such as drinks, food, and herbal medicines.		

	The learners should be able to… ● describe the appearance and uses uniform and non-uniform mixtures CONTENT STANDARDS/PERFORMANCE STANDARDS/LEARNING COMPETENCY Separating Mixtures The learners demonstrate understanding of… ● different techniques to separate mixtures The learners should be able to… ● separate desired materials from common and local products. ● enumerate techniques in separating mixtures such as decantation, evaporation, filtering, sieving and using magnet Separating Mixtures The learners demonstrate understanding of… ● different techniques to separate mixtures The learners should be able to… ● separate desired materials from common and local products. ● enumerate techniques in separating mixtures such as decantation, evaporation, filtering, sieving and using magnet; and Grade 6 – Living Things and Their Environment SECOND QUARTER/SECOND GRADING PERIOD CONTENT STANDARDS/PERFORMANCE STANDARDS/LEARNING COMPETENCY I. Parts and Functions 1.Human Body Systems 1.1 Musculo-skeletal 1.2 Integumentary System 1.3 Digestive System		

	1.4 Respiratory System 1.5 Circulatory System 1.6 Nervous System The learners demonstrate understanding of… ● how the major organs of the human body work together to form organ systems The learners should be able to… ● make a chart showing healthful habits that promote proper functioning of the musculo-skeletal, integumentary, digestive, circulatory, excretory, respiratory, and nervous systems The learners should be able to… ● explain how the organs of each organ system work together; The learners demonstrate understanding of… ● how the major organs of the human body work together to form organ systems The learners should be able to… ● make a chart showing healthful habits that promote proper functioning of the musculo-skeletal, integumentary, digestive, circulatory, excretory, respiratory, and nervous systems The learners should be able to… ● explain how the organs of each organ system work together; The learners demonstrate understanding of… ● how the major organs of the human body work together to form organ systems The learners should be able to… ● make a chart showing healthful habits that promote proper functioning of the musculo-skeletal, integumentary, digestive, circulatory, excretory, respiratory, and nervous systems		

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	2. Animal 2.1 Vertebrates and Invertebrates The learners demonstrate understanding of… ● the different characteristics of vertebrates and invertebrates The learners should be able to… ● make an inventory of vertebrates and invertebrates that are commonly seen in the community ● practice ways of caring and protecting animals ● determine the distinguishing characteristics of vertebrates and invertebrates; 3.Plants 3.1Reproduction of Non-flowering plants The learners demonstrate understanding of… ● how non-flowering plants reproduce The learners should be able to… 1. make a multimedia presentation on how parts of the reproductive system of spore-bearing and cone-bearing plants ensure their survival 2. make a flier on how plants can be propagated vegetatively 3. distinguish how spore bearing and cone-bearing plants reproduce; II. Ecosystems 1.Interactions Among Living Things 2.Tropical rainforests 2.1Coral reefs 2.2 Mangrove swamps		

	The learners demonstrate understanding of… ● the interactions for survival among living and nonliving things that take place in tropical rainforests, coral reefs, and mangrove swamps The learners should be able to… ● form discussion groups to tackle issues involving protection and conservation of ecosystems that serve as nurseries, breeding places, and habitats for economically important plants and animals ● discuss the interactions among living things and nonliving things in tropical rainforests, coral reefs and mangrove swamps; ● explain the need to protect and conserve tropical rainforests, coral reefs and mangrove swamps. Grade 6 – Force, Motion and Energy THIRD QUARTER/THIRD GRADING PERIOD 1. Gravitation and Frictional Forces The learners demonstrate understanding of… ● gravity and friction affect movement of objects The learners should be able to… ● produce an advertisement ● demonstrates road safety The learners should be able to… ● infer how friction and gravity affect movements of different objects; 2.Energy 2.1 Energy transformation in simple machines The learners demonstrate understanding of… ● how energy is transformed in simple machines		

	The learners should be able to… ● create a marketing strategy for a new product on electrical or light efficiency ● demonstrate how sound, heat, light and electricity can be transformed; ● manipulate simple machines to describe their characteristics and uses; and ● demonstrate the practical and safe uses of simple machines. Grade 6 – Earth and Space FOURTH QUARTER/FOURTH GRADING PERIOD 1. - 2. Forces that affect changes on the earth's surface 1.1 Earthquakes 1.2 Volcanic Eruption The learners demonstrate understanding of… ● the effects of earthquakes and volcanic eruptions The learners should … ● design an emergency and preparedness plan and kit The learners should be able to… ● describe the changes on the Earth's surface as a result of earthquakes and volcanic forces that affect changes on the earth's surface ● enumerate what to do before, during and after earthquake and volcanic eruptions; ● Weather Patterns in the Philippines ● Weather patterns and Seasons in the Philippines. The learners demonstrate understanding of… ● describe the different seasons in the Philippines; ● discuss appropriate activities for specific seasons of the Philippines;		

	3.Motions of the Earth 3.1 Rotation and revolution The learners demonstrate understanding of… ● of the earth's rotation and revolution ● demonstrate rotation and revolution of the Earth using a globe to explain day and night and the sequence of seasons; 4.The Solar System 4.1 Planets The learners demonstrate understanding of… ● characteristics of planets in the solar system. ● compare the planets of the solar system; and ● The Solar System ● design an emergency and preparedness plan and kit ● compare the planets of the solar system; and ● construct a model of the solar system showing the relative sizes of the planets and their relative distances from the Sun.		
Grade 7	At the end of Grade 7: Learners can distinguish mixtures from substances through semi-guided investigations. They realize the importance of air testing when conducting investigations. After studying how organ systems work together in plants and animals in the lower grade levels, learners can use a microscope when observing very small organisms and structures. They recognize that living things are organized into different levels: Cells, tissues, organs, organ systems, and organisms. These organisms comprise populations and communities, which interact with non-living	✔	✔

	things in ecosystems. Learners can describe the motion of objects in terms of distance and speed, and represent this in tables, graphs, charts, and equations. They can describe how various forms of energy travel through different mediums. Learners describe what makes up the Philippines as a whole and the resources found in the archipelago. They can explain the occurrence of breezes, monsoons, and ITCZ, and how these weather systems affect people. They can explain why seasons change and demonstrate how eclipses occur. Grade 7 – Matter FIRST QUARTER/FIRST GRADING PERIOD Doing Scientific Investigations 1. Ways of acquiring knowledge and solving problems The learners demonstrate an understanding of: ● scientific ways of acquiring knowledge and solving problems The learners shall be able to: ● perform in groups in guided investigations involving community based problems using locally available materials The learners should be able to… ● describe the components of a scientific investigation; ● Diversify of Materials in the Environment 2.1 Solutions The learners demonstrate an understanding of: ● some important properties of solutions		

	The learners demonstrate an understanding of: ● prepare different concentrations of mixtures according to uses and availability of materials ● investigate properties of unsaturated or saturated solutions; ● Diversity of Materials in the Environment ● express concentrations of solutions quantitatively by preparing different concentrations of mixtures according to uses and availability of materials; 2.2 Substances and Mixtures The learners demonstrate an understanding of: ● the properties of substances that distinguish them from mixtures The learners demonstrate an understanding of: ● investigate the properties of mixtures of varying concentrations using available materials in the community for specific purposes ● distinguish mixtures from substances based on a set of properties; 2.3 Elements and Compounds The learners demonstrate an understanding of: ● classifying substances as elements or compounds The learners demonstrate an understanding of: ● make a chart, poster,or multimedia presentation of common elements showing their names, symbols, and uses ● recognize that substances are classified into elements and compounds;		

	2.4 Acids and Bases The learners demonstrate an understanding of: ● the common properties of acidic and basic mixtures ● properly interpret product labels of acidic and basic mixture, and practice safe ways of handling acids and bases using protective clothing and safety gear ● investigate properties of acidic and basic mixtures using natural indicators; and 2.5 Metals and Non-metals The learners demonstrate an understanding of: ● properties of metals and nonmetals ● describe some properties of metals and non-metals such as luster, malleability, ductility, and conductivity. Grade 7 – Living Things and Their Environment SECOND QUARTER/SECOND GRADING PERIOD I.Parts and Functions 1. Microscopy The learners demonstrate an understanding of: ● the parts and functions of the compound microscope The learners should be able to: ● employ appropriate techniques using the compound microscope to gather data about very small objects The learners should be able to… ● identify parts of the microscope and their functions; ● focus specimens using the compound microscope;		

	2. Levels of Biological Organization The learners demonstrate an understanding of: ● the different levels of biological organization ● employ appropriate techniques using the compound microscope to gather data about very small objects ● describe the different levels of biological organization from cell to biosphere; 3. Animal and Plant Cells The learners demonstrate an understanding of: ● the difference between animal and plant cells ● differentiate plant and animal cells according to presence or absence of certain organelles; ● explain why the cell is considered the basic structural and functional unit of all organisms; 4. Fungi, Protists, and Bacteria The learners demonstrate an understanding of: ● organisms that can only be seen through the microscope, many of which consist of only one cell ● identify beneficial and harmful microorganisms; ● employ appropriate techniques using the compound microscope to gather data about very small objects II. Heredity: Inheritance and Variation 1. Asexual reproduction 2. Sexual reproduction The learners demonstrate an understanding of: ● reproduction being both asexual or sexual		

	7. differentiate asexual from sexual reproduction in terms of: 7. 1 number of individuals involved; 7. 2 similarities of offspring to parents; 8. describe the process of fertilization; I. Ecosystems 1. Components of an ecosystem 2. Ecological relationships 2.1 Symbiotic relationships 2.2 Non symbiotic relationships 3. Transfer of energy through trophic levels The learners demonstrate an understanding of: ● Organisms interacting with each other and with their environment to survive ● conduct a collaborative action to preserve the ecosystem in the locality ● differentiate biotic from abiotic components of an ecosystem; ● describe the different ecological relationships found in an ecosystem; II. Ecosystems 1. Components of an ecosystem 2. Ecological relationships 2.1 Symbiotic relationships 2.2 Non symbiotic relationships 3. Transfer of energy through trophic levels The learners demonstrate an understanding of: ● organisms ● interacting with each other and with their environment to survive		

	• conduct a collaborative action to preserve the ecosystem in the locality • describe the different ecological relationships found in an ecosystem; • predict the effect of changes in one population on other populations in the ecosystem; • predict the effect of changes in abiotic factors on the ecosystem. Grade 7 – Force, Motion and, Energy THIRD QUARTER/THIRD GRADING PERIOD I. Motion in One Dimension 1. Descriptors of Motion 1.1 Distance or Displacement 1.2 Speed or Velocity 1.3 Acceleration The learners demonstrate an understanding of: • motion in one dimension • conduct a forum on mitigation and disaster risk reduction • describe the motion of an object in terms of distance or displacement, speed or velocity, and acceleration; 2. Motion Detectors I. Motion in One Dimension 1. Descriptors of Motion 1.1 Distance or Displacement 1.2 Speed or Velocity 1.4 Acceleration 2. Motion Detectors		

	The learners demonstrate an understanding of: ● motion in one dimension ● conduct a forum on mitigation and disaster risk reduction ● describe the motion of an object in terms of distance or displacement, speed or velocity, and acceleration; ● differentiate quantities in terms of magnitude and direction; ● create and interpret visual representation of the motion of objects such as tape charts and motion graphs; II. Waves 1. Types of Waves 2. Characteristics of Waves 2.1 Amplitude 2.2 Wavelength The learners demonstrate an understanding of: ● waves as a carrier of energy ● infer that waves carry energy; ● Wave Velocity ● conduct a forum on mitigation and disaster risk reduction ● differentiate transverse from longitudinal waves, and mechanical from electromagnetic waves; ● relate the characteristics of waves; III. Sound 1. Characteristics of sound 1.1.Pitch 1.2 Loudness 1.3 Quality		

	The learners demonstrate an understanding of: ● the characteristics of sound ● describe the characteristics of sound using the concepts of wavelength, velocity, and amplitude; Grade 7 – Earth and Space FOURTH QUARTER/FOURTH GRADING PERIOD 1. The Philippine Environment 1.1 Location of the Philippines using a coordinate system 1.2. Location of the Philippines with respect to landmasses and bodies of water 1.3. Protection and conservation of natural resources The learners demonstrate an understanding of: ● the relation of geographical location of the Philippines to its environment ● analyze the advantage of the location of the Philippines in relation to the climate, weather, and seasons ● demonstrate how places on Earth may be located using a coordinate system; S7ES-IVa-1 EASE 1. Module 14. Ordinary globe/terrestrial globe Students will be able to… ● describe the location of the Philippines with respect to the continents and oceans of the world;		

	• recognize that soil, water, rocks, coal, and other fossil fuels are Earth materials that people use as resources; • describe ways of using Earth's resources sustainably; interactions in the Atmosphere 2.1. Greenhouse effect and global warming 2.3. Land and sea breezes 2.4. Monsoons 2.5. Intertropical convergence zone The learners demonstrate an understanding of: • the different phenomena that occur in the atmosphere • analyze the advantage of the location of the Philippines in relation to the climate, weather, and seasons • discuss how energy from the Sun interacts with the layers of the atmosphere; • explain how some human activities affect the atmosphere ; • account for the occurrence of land and sea breezes, monsoons, and intertropical convergence zone (ITCZ) • describe the effects of certain weather systems in the Philippines; S7ES-IVg8 MISOSA 5. Module 24. 3. Seasons in the Philippines 3.1. Relation of seasons to the position of the Sun in the sky 3.2. Causes of seasons in the Philippines The learners demonstrate an understanding of: • the relationship of the seasons and the position of the Sun in the sky		

	9. using models, relate: 9.1 the tilt of the Earth to the length of daytime; 9.2 the length of daytime to the amount of energy received; 9.3 the position of the Earth in its orbit to the height of the Sun in the sky; 9.4 the height of the Sun in the sky to the amount of energy received; 9.5 the latitude of an area to the amount of energy the area receives; 10. show what causes change in the seasons in the Philippines using models; Science and Technology I: 4. Eclipses 4.1. Solar Eclipse 4.2. Lunar Eclipse The learners demonstrate an understanding of: ● explain how solar and lunar eclipses occur; and 4. Eclipses 4.1. Solar Eclipse 4.2. Lunar Eclipse The learners demonstrate an understanding of: ● the occurrence of eclipses The learners shall be able to: ● analyze the advantage of the location of the Philippines in relation to the climate, weather, and seasons ● explain how solar and lunar eclipses occur; and ● collect, record, and report data on the beliefs and practices of the community in relation to eclipses.		

Grade 8	At the end of Grade 8: 1. Learners can describe the factors that affect the motion of an object based on the Laws of Motion. They can differentiate the concept of work as used in science and in layman's language. They know the factors that affect the transfer of energy, such as temperature difference, and the type (solid, liquid, or gas) of the medium. 2. Learners can explain how active faults generate earthquakes and how tropical cyclones originate from warm ocean waters. They recognize other members of the solar system. 3. Learners can explain the behaviour of matter in terms of the particles it is made of. They recognize that ingredients in food and medical products are made up of these particles and are absorbed by the body in the form of ions. 4. Learners recognize reproduction as a process of cell division resulting in growth of organisms. They have delved deeper into the process of digestion as studied in the lower grades, giving emphasis on proper nutrition for overall wellness. They can participate in activities that protect and conserve economically important species used for food.	✔	✔

	Grade 8 – Force, Motion, and Energy FIRST QUARTER/FIRST GRADING PERIOD 1. Laws of Motion 1.1 Law of Inertia 1.2 Law of Acceleration 1.3 Law of Interaction The learners demonstrate an understanding of: ● Newton's three laws of motion and uniform circular motion ● develop a written plan and implement a "Newton's Olympics" The learners should be able to... ● investigate the relationship between the amount of force applied and the mass of the object to the amount of change in the object's motion; ● infer that when a body exerts a force on another, an equal amount of force is exerted back on it; ● demonstrate how a body responds to changes in motion; ● relate the laws of motion to bodies in uniform circular motion; ● infer that circular motion requires the application of constant force directed toward the center of the circle; 2. Work Power and Energy The learners demonstrate an understanding of: ● work using constant force, power, gravitational potential energy, kinetic energy, and elastic potential energy ● identify situations in which work is done and in which no work is done; ● develop a written plan and implement a "Newton's Olympics"		

	• describe how work is related to power and energy; • differentiate potential and kinetic energy; • relate speed and position of object to the amount of energy possessed by a body; 3. Sound The learners demonstrate an understanding of: • the propagation of sound through solid, liquid, and gas • develop a written plan and implement a “Newton’s Olympics” • infer how the movement of particles of an object affects the speed of sound through it; • investigates the effect of temperature to speed of sound through fair testing; 4. Light Some properties and characteristics of visible light discuss phenomena such as blue sky, rainbow, and red sunset using the concept of wavelength and frequency of visible light The learners demonstrate an understanding of: • the existence of the color components of visible light using a prism or diffraction grating; • some properties and characteristics of visible light • discuss phenomena such as blue sky, rainbow, and red sunset using the concept of wavelength and frequency of visible light • explain that red is the least bent and violet the most bent according to their wavelengths or frequencies; • Heat heat and temperature, and the effects of heat on the body • differentiate between heat and temperature at the molecular level;		

	Thermometer 6. Electricity current- voltage resistance relationship, electric power, electric energy, and home circuitry 16. infer the relationship between current and Charge; The learners demonstrate an understanding of: ● current- voltage resistance relationship, electric power, electric energy, and home circuitry ● discuss phenomena such as blue sky, rainbow, and red sunset using the concept of wavelength and frequency of visible light ● explain the advantages and disadvantages of series and parallel connections in homes; ● differentiate electrical power and electrical energy; and ● explain the functions of circuit breakers, fuses, earthing, double insulation, and other safety devices in the home. 3. Periodic Table (PT) of Elements 3.1 Development of the PT 3.2 Arrangement of elements 3.3 Reactive and nonreactive metals The learners demonstrate an understanding of: ● the periodic table of elements as an organizing tool to determine the chemical properties of elements ● trace the development of the periodic table from observations based on similarities in properties of elements; and ● use the periodic table to predict the chemical behavior of an element		

	Grade 8 – Living Things and Their Environment FOURTH QUARTER/ FOURTH GRADING PERIOD 1. Structures and Functions: Focus on the Digestive System 1.1 Organs of the digestive system and their interaction with organs of the respiratory, circulatory, and excretory systems 1.2 Changes in food The learners demonstrate an understanding of: 1. the digestive system and its interaction with the circulatory, respiratory, and excretory systems in providing the body with nutrients for energy The learners should be able to: ● present an analysis of the data gathered on diseases resulting from nutrient deficiency ● explain ingestion, absorption, assimilation, and excretion; chemical digestion 1.3 Diseases resulting from nutrient deficiency and ingestion of harmful substances 1.4 Prevention, detection, and treatment of diseases of the digestive system 2. diseases that result from nutrient deficiency and ingestion of harmful substances, and their prevention and treatment		

	The learners should be able to: ● present an analysis of the data gathered on diseases resulting from nutrient deficiency ● explain how diseases of the digestive system are prevented, detected, and treated; ● identify healthful practices that affect the digestive system; 2. Heredity: Inheritance and Variation of Traits 2.1 Stages of mitosis 2.2 Stages of meiosis 2.3 Mendelian Genetics The learners demonstrate an understanding of: 1. how cells divide to produce new cells 2. meiosis as one of the processes producing genetic variations of the Mendelian Pattern of Inheritance 3. present an analysis of the data gathered on diseases resulting from nutrient deficiency report on the importance of variation in plant and animal breeding 4. compare mitosis and meiosis, and their role in the cell-division cycle; 5. explain the significance of meiosis in maintaining the chromosome number; 6. predict phenotypic expressions of traits following simple patterns of inheritance; 3. Biodiversity 3.1 Species diversity 3.2 Hierarchical taxonomic system of classification 3.3 Protection and conservation of endangered and economically important species		

	The learners demonstrate an understanding of: 1. the concept of a species 2. the species as being further classified into a hierarchical taxonomic system The learners should be able to: ● report (e.g., through a travelog) on the activities that communities engage in to protect and conserve endangered and economically important species ● explain the concept of a species; ● classify organisms using the hierarchical taxonomic system;. ● explain the advantage of high biodiversity in maintaining the stability of an ecosystem; 4. Ecosystems 4.1 Transfer of Energy in Trophic Levels 4.2 Cycling of materials in the ecosystem 4.2.1 Water cycle 4.2.2 Oxygen-carbon cycle 4.2.3 Nitrogen cycle 4.3 Impact of human activities in an ecosystem The learners demonstrate an understanding of: ● the one-way flow of energy and the cycling of materials in an ecosystem The learners should be able to: ● make a poster comparing food choices based on the trophic levels' ● describe the transfer of energy through the trophic levels; ● analyze the roles of organisms in the cycling of materials; ● explain how materials cycle in an ecosystem; and ● suggest ways to minimize human impact on the environment.		

Grade 9	At the end of Grade 9: Learners have gained a deeper understanding of the digestive, respiratory, and circulatory systems to promote overall health. They have become familiar with some technologies that introduce desired traits in economically important plants and animals. Learners can explain how new materials are formed when atoms are rearranged. They recognize that a wide variety of useful compounds may arise from such rearrangements. Learners can identify volcanoes and distinguish between active and inactive ones. They can explain how energy from volcanoes may be tapped for human use. They are familiar with climatic phenomena that occur on a global scale. They can explain why certain constellations can be seen only at certain times of the year. Learners can predict the outcomes of interactions among objects in real life applying the laws of conservation of energy and momentum. Grade 9 – Living Things and Their Environment FIRST QUARTER/ FIRST GRADING PERIOD 1. Respiratory and Circulatory Systems Working with the other Organ Systems The learners demonstrate an understanding of: 1. how the different structures of the circulatory and respiratory systems work together to transport oxygen-rich blood and nutrients to the different parts of the body	✔	✔

	2. the prevention, detection, and treatment of diseases affecting the circulatory and respiratory systems The learners should be able to: ● conduct an information dissemination activity on effective ways of taking care of the respiratory and circulatory systems based on data gathered from the school or local health workers ● explain how the respiratory and circulatory systems work together to transport nutrients, gasses, and other molecules to and from the different parts of the body; ● infer how one's lifestyle can affect the functioning of respiratory and circulatory systems; 2. Heredity: Inheritance and Variation 2.1 Location of genes on chromosomes 2.2 Non-Mendelian inheritance 2.2.1 Incomplete dominance 2.2.2 Sex-linked traits 2.2.3 Multiple alleles 2.3 Multiple genes The learners demonstrate an understanding of: 1. how genetic information is organized in genes on chromosomes 2. the different patterns of inheritance The learners should be able to: ● conduct an information dissemination activity on effective ways of taking care of the respiratory and circulatory systems based on data gathered from the school or local health workers ● describe the location of genes in chromosomes;		

	• explain the different patterns of non-Mendelian inheritance ; 3. Biodiversity and Evolution 3.1 Causes of Species Extinction 3.1.1 natural 3.1.2 anthropogenic The learners demonstrate an understanding of: • how changes in the environment may affect species extinction The learners should be able to: • make a multimedia presentation of a timeline of extinction of representative microorganisms, plants, and animals • relate species extinction to the failure of populations of organisms to adapt to abrupt changes in the environment; 4. Ecosystems 4.1 Flow of Energy and Matter in Ecosystems 4.1.1 Photosynthesis 4.1.2 Respiration The learners demonstrate an understanding of: 1. the structure and function of plant parts and organelles involved in photosynthesis 2. the structure and function of mitochondrion as the main organelle involved in respiration The learners should be able to: • design and conduct an investigation to provide evidence that plants can manufacture their own food		

	• differentiate basic features and importance of photosynthesis and respiration. 1. Chemical Bonding 1.1 Ionic and Covalent Bonding 1.2 Metallic Bonding The learners demonstrate an understanding of… 1. how atoms combine with other atoms by transferring or by sharing electrons 2. forces that hold metals together The learners shall be able to: • analyze the percentage composition of different brands of two food products and decide on the products' appropriate percentage composition • explain the formation of ionic and covalent bonds; 1. Chemical Bonding 1.1 Ionic and Covalent Bonding 1.2 Metallic Bonding The learners demonstrate an understanding of… 1. how atoms combine with other atoms by transferring or by sharing electrons 2. forces that hold metals together The learners shall be able to: • analyze the percentage composition of different brands of two food products and decide on the products' appropriate percentage		

	composition ● recognize different types of compounds (ionic or covalent) based on their properties such as melting point, hardness, polarity, and electrical and thermal conductivity; ● recognize different types of compounds (ionic or covalent) based on their properties such as melting point, hardness, polarity, and electrical and thermal conductivity; ● explain properties of metals in terms of their structure; ● explain how ions are formed; 2. The Variety of Carbon Compounds 2.1 Carbon Atoms 2.2 Organic Compounds The learners demonstrate an understanding of… ● the type of bonds that carbon forms that result in the diversity of carbon compounds The learners shall be able to: ● analyze the percentage composition of different brands of two food products and decide on the products' appropriate percentage composition ● explain how the structure of the carbon atom affects the type of bonds it forms; ● recognize the general classes and uses of organic compounds;		

	3. Mole Concept 3.1 Mass 3.2 Moles 3.3 Percentage Composition of a Compound the unit, mole, that quantitatively measures the number of very small particles of matter The learners shall be able to: ● use the mole concept to express mass of substances; and ● determine the percentage composition of a compound given its chemical formula and vice versa. Grade 9 – Earth and Space THIRD QUARTER/THIRD GRADING PERIOD 1.Volcanoes 1.1 Type of volcanoes 1.2 Volcanic Eruption 1.3 Energy from volcanoes The learners demonstrate an understanding of: ● volcanoes found in the Philippines The learners shall be able to: ● participate in activities that reduce risks and lessen effects of climate change		

	The learners should be able to… 1. describe the different types of volcanoes; 2. differentiate between active and inactive volcanoes; Active and Inactive Volcanoes. 3. explain what happens when volcanoes erupt; 4. illustrate how energy from volcanoes may be tapped for human use; 2.Climate 2.1 Factors that affect climate 2.2 Global climate phenomenon The learners demonstrate an understanding of: ● factors that affect climate, and the effects of changing climate and how to adapt accordingly The learners shall be able to: ● participate in activities that reduce risks and lessen effects of climate change ● explain how different factors affect the climate of an area; ● describe certain climatic phenomena that occur on a global level		
Grade 10	At the end of Grade 10: Learners realize that volcanoes and earthquakes occur in the same places in the world and that these are related to plate boundaries. They can demonstrate ways to ensure safety and reduce damage during earthquakes, tsunamis, and volcanic eruptions. Learners can explain the factors affecting the balance and stability of an object to help them practice appropriate positions and movements to	✔	✔

	achieve efficiency and safety such as in sports and dancing. They can analyze situations in which energy is harnessed for human use whereby heat is released, affecting the physical and biological components of the environment. Learners will have completed the study of the entire organism with their deeper study of the excretory and reproductive systems. They can explain in greater detail how genetic information is passed from parents to offspring, and how diversity of species increases the probability of adaptation and survival in changing environments. Learners can explain the importance of controlling the conditions under which a chemical reaction occurs. They recognize that cells and tissues of the human body are made up of water, a few kinds of ions, and biomolecules. These biomolecules may also be found in the food they eat. 1. Plate Tectonics 1.1 Distribution 1.1.1 volcanoes 1.1.2 earthquake epicenters 1.1.3 mountain ranges 1.2 Plate boundaries 1.3 Processes and landforms along plate boundaries 1.4 Internal structure of the Earth 1.5 Mechanism (possible causes of movement) 1.6 Evidence of plate movement		

	The learners demonstrate an understanding of: ● the relationship among the locations of volcanoes, earthquake epicenters, and mountain ranges The learners shall be able to: 1. demonstrate ways to ensure disaster preparedness during earthquakes, tsunamis, and volcanic eruptions 2. suggest ways by which he/she can contribute to government efforts in reducing damage due to earthquakes, tsunamis, and volcanic eruptions 3. explain the different processes that occur along the plate boundaries; The learners should be able to… 1. describe the distribution of active volcanoes, earthquake epicenters, and major mountain belts; 2. describe the internal structure of the Earth; 3. describe the possible causes of plate movement; and 4. enumerate the lines of evidence that support plate movement Grade 10 – Living Things and Their Environment THIRD QUARTER/THIRD GRADING PERIOD 1. Coordinated Functions of the Reproductive, Endocrine, and Nervous Systems The learners demonstrate an understanding of: 1. organisms as having feedback mechanisms, which		

	The learners should be able to… 1. describe the parts of the reproductive system and their functions; are coordinated by the nervous and endocrine systems 2. how these feedback mechanisms help the organism maintain homeostasis to reproduce and survive 3. explain the role of hormones involved in the female and male reproductive systems; 1. Coordinated Functions of the Reproductive, Endocrine, and Nervous Systems The learners demonstrate an understanding of: 1. organisms as having feedback mechanisms, which are coordinated by the nervous and endocrine systems 2. how these feedback mechanisms help the organism maintain homeostasis to reproduce and survive 3. explain the role of hormones involved in the female and male reproductive systems; 4. describe the feedback mechanisms involved in regulating processes in the female reproductive system (e.g., menstrual cycle); 5. describe how the nervous system coordinates and regulates these feedback mechanisms to maintain homeostasis; 2. Heredity: Inheritance and Variation		

	The learners demonstrate an understanding of: 1. the information stored in DNA as being used to make proteins 2. how changes in a DNA molecule may cause changes in its product 3. mutations that occur in sex cells as being heritable 4. explain how protein is made using information from DNA; 5. explain how mutations may cause changes in the structure and function of a protein; 3. Biodiversity and Evolution The learners demonstrate an understanding of: ● how evolution through natural selection can result in biodiversity The learners shall be able to: ● write an essay on the importance of adaptation as a mechanism for the survival of a species ● explain how fossil records, comparative anatomy, and genetic information provide evidence for evolution; ● explain the occurrence of evolution; 4. Ecosystems 4.1 Flow of Energy and Matter in Ecosystems 4.2 Biodiversity and Stability 4.3 Population Growth and The learners demonstrate an understanding of: 1. the influence of biodiversity on the stability of ecosystems 2. an ecosystem as being capable of supporting a limited number of organisms		

	The learners shall be able to: ● write an essay on the importance of adaptation as a mechanism for the survival of a species ● explain how species diversity increases the probability of adaptation and survival of organisms in changing environments; ● explain the relationship between population growth and carrying capacity; ● suggest ways to minimize human impact on the environment. Grade 10 – Matter FOURTH QUARTER/FOURTH GRADING PERIOD 1. Gas Laws 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relationship 1.3 Ideal gas law The learners demonstrate an understanding of… ● how gasses behave based on the motion and relative distances between gas particles The learners should be able to… 1. investigate the relationship between: 1.1 volume and pressure at constant temperature of a gas; 1.2 volume and temperature at constant pressure of a gas; 1.3 explains these relationships using the kinetic molecular theory; 2. Biomolecules 2.1 Elements present in biomolecules 2.2 Carbohydrates, lipids, proteins, and nucleic acids		

	2.2.1 Food Labels The learners demonstrate an understanding of… ● the structure of biomolecules, which are made up mostly of a limited number of elements, such as carbon, hydrogen, oxygen, and nitrogen ● recognize the major categories of biomolecules such as carbohydrates, lipids, proteins, and nucleic acids; chemical reactions The learners demonstrate an understanding of… ● the chemical reactions associated with biological and industrial processes affecting life and the environment The learners shall be able to: ● use any form of media ● present chemical reactions involved in biological and industrial processes affecting life and the environment ● apply the principles of conservation of mass to chemical reactions; ● explain how the factors affecting rates of chemical reactions are applied in food preservation and materials production, control of fire, pollution, and corrosion.		