

**K to 12 BASIC EDUCATION CURRICULUM
SENIOR HIGH SCHOOL – CORE SUBJECT**

Grade: 11/12

Core Subject Title: Earth Science

No. of Hours: 80 hours

Prerequisite:

Core Subject Description: This learning area is designed to provide a general background for the understanding of the Earth on a planetary scale. It presents the history of the Earth through geologic time. It discusses the Earth’s structure and composition, the processes that occur beneath and on the Earth’s surface, as well as issues, concerns, and problems pertaining to Earth’s resources.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
I. ORIGIN AND STRUCTURE OF THE EARTH 1. Universe and Solar System 2. Earth and Earth Systems	<i>The learners demonstrate an understanding of...</i> 1. the formation of the universe and the solar system 2. the subsystems (geosphere, hydrosphere, atmosphere, and biosphere) that make up the Earth	<i>The learners shall be able to...</i> make a concept map and use it to explain how the geosphere, hydrosphere, atmosphere, and biosphere are interconnected	<i>The learners...</i> 1. describe the historical development of theories that explain the origin of the Universe	S11/12ES-Ia-1
			2. compare the different hypotheses explaining the origin of the Solar System	S11/12ES-Ia-2
			3. describe the characteristics of Earth that are necessary to support life	S11/12ES-Ia-b-3
			4. explain that the Earth consists of four subsystems, across whose boundaries matter and energy flow	S11/12ES-Ib-4
II. EARTH MATERIALS AND PROCESSES 1. Minerals and Rocks 2. Mineral Resources 3. Energy Resources 4. Water Resources 5. Soil Resources 6. Human Activity and the Environment	1. the three main categories of rocks 2. the origin and environment of formation of common minerals and rocks 3. the various sources of energy (fossil fuels, geothermal, hydroelectric) 4. the amount of usable water resources on Earth 5. the distribution of arable land on Earth 6. waste generation and management	1. make a plan that the community may use to conserve and protect its resources for future generations 2. prepare a plan that the community may implement to minimize waste when people utilize materials and resources	<i>The learners...</i> 1. identify common rock-forming minerals using their physical and chemical properties	S11/12ES-Ib-5
			2. classify rocks into igneous, sedimentary, and metamorphic	S11/12ES-Ic-6
			3. identify the minerals important to society	S11/12ES-Ic-7
			4. describe how ore minerals are found, mined, and processed for human use	S11/12ES-Ic-d-8
			5. cite ways to prevent or lessen the environmental impact that result from the exploitation, extraction, and use of mineral resources	S11/12ES-Id-9

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			6. describe how fossil fuels are formed	S11/12ES-Id-10
			7. explain how heat from inside the Earth is tapped as a source of energy (geothermal) for human use	S11/12ES-Ie-11
			8. cite ways to address the different environmental concerns related to the use of fossil fuels, geothermal energy, and hydroelectric energy	S11/12ES-Ie-f-13
			9. recognize how water is distributed on Earth	S11/12ES-If-14
			10. identify the various water resources on Earth	S11/12ES-If-g-15
			11. explain how different activities affect the quality and availability of water for human use	S11/12ES-Ig-16
			12. suggest ways of conserving and protecting water resources	S11/12ES-Ig-16
			13. identify human activities, such as farming, construction of structures, and waste disposal, that affect the quality and quantity of soil	S11/12ES-Ih-17
			14. give ways of conserving and protecting the soil for future generations	S11/12ES-Ih-i-18
			15. describe how people generate different types of waste (solid, liquid, and gaseous) as they make use of various materials and resources in everyday life	S11/12ES-Ii-19
			16. explain how different types of waste affect people's health and the environment	S11/12ES-Ii-j-20
			17. cite ways of reducing the production of waste at home, in school, and around the community	S11/12ES-Ij-21

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III. EARTH PROCESSES 1. Exogenic Processes 2. Endogenic Processes 3. Deformation of the Crust 4. Plate Tectonics	1. geologic processes that occur on the surface of the Earth such as weathering, erosion, mass wasting, and sedimentation (include the role of ocean basins in the formation of sedimentary rocks) 2. geologic processes that occur within the Earth 3. folding and faulting of rocks 4. the internal structure of the Earth 5. continental drift 6. seafloor spreading	1. make a simple map showing places where erosion and landslides may pose risks in the community 2. using maps, diagrams, or models, predict what could happen in the future as the tectonic plates continue to move	1. describe how rocks undergo weathering	SS11/12ES-IIa-22
			2. explain how the products of weathering are carried away by erosion and deposited elsewhere	S11/12ES-IIa-b-23
			3. explain how rocks and soil move downslope due to direct action of gravity	S11/12ES-IIb-22
			4. explain why the Earth’s interior is hot	S11/12ES-IIb-c-23
			5. describe how magma is formed	S11/12ES-IIc-24
			6. describe what happens after magma is formed	S11/12ES-IIc-25
			7. describe the changes in mineral components and texture of rocks due to changes in pressure and temperature (metamorphism)	S11/12ES-IIc-d-26
			8. describe how rocks behave under different types of stress such as compression, pulling apart, and shearing	S11/12ES-IIId-27
			9. identify the layers of the Earth	S11/12ES-IIId-28
			10. differentiate the layers of the Earth from each other	S11/12ES-IIe-29
			11. describe the continental drift theory	S11/12ES-IIe-30
			12. discuss evidence that support continental drift	S11/12ES-IIe-31
			13. explain how seafloor spreads	S11/12ES-IIIf-32
			14. describe the structure and evolution of ocean basins	S11/12ES-IIIf-33
			15. explain how the movement of plates leads to the formation of folds, faults, trenches, volcanoes, rift valleys, and mountain ranges	S11/12ES-IIg-h-34

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IV. HISTORY OF THE EARTH Major Events in Earth's Past	1. relative and absolute dating 2. the major subdivisions of geologic time (including index fossils) 3. how the planet Earth evolved in the last 4.6 billion years	describe the possible events that occurred in a certain area based on the rock layers found therein	1. describe how layers of rocks (stratified rocks) are formed	S11/12ES-IIh-35
			2. describe the different methods (relative and absolute dating) of determining the age of stratified rocks	S11/12ES-IIh-i-36
			3. explain how relative and absolute dating were used to determine the subdivisions of geologic time	S11/12ES-IIi-37
			4. describe how index fossils (also known as guide fossils) are used to define and identify subdivisions of the geologic time scale	S11/12ES-IIi-j-38
			5. describe the history of the Earth through geologic time	S11/12ES-IIj-39

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Code Book Legend

Sample: S11/12ES-Ia-e-1

LEGEND		SAMPLE	
First Entry	Learning Area and Strand/ Subject or Specialization	Science	S11/12
	Grade Level	Grade 11/12	
Uppercase Letter/s	Domain/Content/ Component/ Topic	Earth Science	ES
			-
Roman Numeral <i>*Zero if no specific quarter</i>	Quarter	First Quarter	I
Lowercase Letter/s <i>*Put a hyphen (-) in between letters to indicate more than a specific week</i>	Week	Week one	a
			-
Arabic Number	Competency	State the different hypotheses explaining the origin of the universe	1