SCIENCE

Structuring Competencies in a Definitive Budget of Work

Grade	**TEN**
Science Discipline/Component	**Earth and Space**
Grade Level Standard	**At the end of Grade 10, learners realize that volcanoes and earthquakes occur places in the world and that these are related to plate boundaries. They can de ways to ensure safety and reduce damage during earthquakes, tsunamis, and eruptions.** Learners can explain the factors affecting the balance and stability of an them practice appropriate positions and movements to achieve efficiency and safety sports and dancing. They can analyze situations in which energy is harnessed for hu whereby heat is released, affecting the physical and biological components of the en Learners will have completed the study of the entire organism with their deeper study excretory and reproductive systems. They can explain in greater detail how genetic i passed from parents to offspring, and how diversity of species increases the probabi adaptation and survival in changing environments. Learners can explain the importa controlling the conditions under which a chemical reaction occurs. They recognize th tissues of the human body are made up of water, a few kinds of ions, and biomolecu biomolecules may also be found in the food they eat.
Domain	Using maps, learners will discover that volcanoes, earthquake epicenters, and moun not randomly scattered in different places but are located in the same areas. This wil appreciation of plate tectonics—a theory that binds many geologic processes such a and earthquakes.
Performance Standard	The learners shall be able to: 1. demonstrate ways to ensure disaster preparedness during earthquakes, tsunamis eruptions 2. suggest ways by which he/she can contribute to government efforts in reducing da earthquakes, tsunamis, and volcanic eruptions
Content Standard	The learners demonstrate an understanding of the relationship among the locations earthquake epicenters, and mountain ranges

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CONTENT	LEARNING COMPETENCIES	CODE	NO. OF DAY/S TAUGHT
1. Plate Tectonics	**1. Describe the distribution of active volcanoes, earthquake epicenters, and major mountain belts;**	**S10ES – Ia-j-36.1**	
1.1 Distribution **1.1.1 volcanoes** **1.1.2 earthquake epicenters** **1.1.3 mountain ranges**	1.1. Describe the Earth's lithosphere	S10ES – Ia-j-36.1.1	1
	1.2. Differentiate oceanic and continental crust	S10ES – Ia-j-36.1.2	
	1.3. Infer that the Earth's lithosphere is divided into plates	S10ES – Ia-j-36.1.3	
	1.4. Identify the major lithospheric plates	S10ES – Ia-j-36.1.4	1
	1.5. Determine the scientific basis for dividing the lithospheric plates.	S10ES – Ia-j-36.1.5	1
	1.6. Recall the characteristics of seismic waves in terms of speed.	S10ES – Ia-j-36.1.6	1
	1.7. Locate the earthquake epicenter using the triangulation method	S10ES – Ia-j-36.1.7	2
	1.8. Plot the active volcanoes, earthquake	S10ES – Ia-j-36.1.8	1
	1.9. Describe the distribution of active volcanoes, earthquake epicenters and major mountain belts	S10ES – Ia-j-36.1.9	1
	1.10. Infer the relationship of tectonic plates, earthquake epicenters and active volcanoes.	S10ES – Ia-j-36.1.10	1

1.2 Plate boundaries	**2. Describe the different types of plate boundaries**	**S10ES –Ia-j-36.2**	
	2.1. Construct models of plate boundaries	S10ES –Ia-j-36.2.1	1
	2.2. Identify the types of plate boundaries	S10ES –Ia-j-36.2.2	1
	2.3. Identify the type of plate boundary associated with each major lithospheric plate	S10ES –Ia-j-36.2.3	1
	2.4. Describe the movement in each type of plate boundary	S10ES –Ia-j-36.2.4	1
	2.5. Relate each type of plate with the stress on rocks	S10ES –Ia-j-36.2.5	1
1.3 Processes and landforms along plate boundaries	**3. Explain the different processes that occur along the plate boundaries.**	**S10ES –Iaj-36.3**	
	3.1. Identify the different processes that occur along the plate boundaries	S10ES –Iaj-36.3.1	1
	3.2. Explain what happens when oceanic crust and continental crust collide	S10ES –Iaj-36.3.2	1
	3.3. Identify the landforms associated with oceanic and continental crust convergence	S10ES –Iaj-36.3.3	
	3.4. Explain what happens when two oceanic plates collide	S10ES –Iaj-36.3.4	1

	3.5. Identify the landforms associated with oceanic plate convergence	S10ES –Iaj-36.3.5	1
	3.6. Explain what happens when two continental plate boundaries collide	S10ES –Iaj-36.3.6	1
	3.7. Identify the landforms associated with continental plate convergence	S10ES –Iaj-36.3.7	
	3.8. Explain the processes that occur along divergent boundaries	S10ES –Iaj-36.3.8	1
	3.9. Identify the landforms associated with divergent plate boundaries	S10ES –Iaj-36.3.9	
	3.10. Explain the processes that occur along transform fault boundaries	S10ES –Iaj-36.3.10	1
	3.11. Identify the landforms associated with transform plate boundaries	S10ES –Iaj-36.3.11	
	3.12. Explain the different geologic processes along plate boundaries	S10ES –Iaj-36.3.12	1
	Suggested Performance Task: Prepare an emergency kit and plan for the family during disasters such as earthquakes, volcanic eruptions and tsunamis.		1
	Summative Assessment for Competencies S10 ES - I a-j - 36.1-36.3		1
1.4 Internal structure of the Earth	**4. Describe the internal structure of the Earth;**	**S10ES –Ia-j-36.4**	
	4.1 Recall the types of seismic waves	S10ES –Ia-j-36.4.1	

	4.2. Characterize, P, S and surface waves	S10ES –Ia-j-36.4.2	1
	4.3. Differentiate P-waves from S-waves in terms of their behavior in earth's interior	S10ES –Ia-j-36.4.3	1
	4.4. Explain the importance of seismic waves in the study of the earth's interior	S10ES –Ia-j-36.4.4	1
	4.5. Describe the properties and composition of crust, mantle and core	S10ES –Ia-j-36.4.5	1
	4.6. Explain how plasticity of the earth's mantle influences the movement of the lithospheric plates	S10ES –Ia-j-36.4.6	1
	4.7. Cite proofs that the Earth's core is made up of nickel and iron	S10ES –Ia-j-36.4.7	1
	Summative Assessment for Competencies S10 ES - I a-j - 36.4		1
1.5 Mechanism (possible causes of movement)	**5. Describe the possible causes of plate movement;**	**S10ES –Iaj-36.5**	
	5.1. Describe and reconstruct Pangaea	S10ES –Iaj-36.5.1	2
	5.2. State Wegener's continental drift theory	S10ES –Iaj-36.5.2	
	5.3. Describe and simulate seafloor spreading	S10ES –Iaj-36.5.3	1
	5.4. Relate the mportance of seafloor spreading theory to continental drift theory	S10ES –Iaj-36.5.4	1

	5.5. State the plate tectonic theory	S10ES –laj-36.5.5	1
	5.6. Explain that plate tectonic theory as a unifying theory	S10ES –laj-36.5.6	
	5.7. Explain the convection current within the mantle that could possibly affect plate movement	S10ES –laj-36.5.7	1
1.6 Evidence of plate movement	**6. Enumerate the lines of evidence that support plate movement.**	**S10ES –la-j-36.6**	
	6.1. Trace the existence of fossils of plants and animals as evidences found in the present continents that supprots the fitting of drifted continents	S10ES –la-j-36.6.1	1
	6.2. Cite other proofs of continental drift theory	S10ES –la-j-36.6.2	1
	6.3. Explain how magnetic stripping on the seafloor provides evidence for seafloor spreading.	S10ES –la-j-36.6.3	1
	6.4. Describe how plates move with regard to each other	S10ES –la-j-36.6.4	
	6.5 Explain the cause of movement of tectonic plates	S10ES –la-j-36.6.5	1
	6.6. Cite other proofs of plate movement	S10ES –la-j-36.6.6	1
	6.7. Describe how evidences of plate movement were collected	S10ES –la-j-36.6.7	

	Suggested Performance Task: Present a schematic plan for the community on how to mitigate or reduce the effects of disaster-related events such as earthquakes, tsunamis, and volcanic eruptions		2
	Summative Assessment for Competencies S10ES - Ia-j-36.5-36.6		1
	Quarterly Summative Test		1
		SUBTOTAL	**45**
3.2 Electric Motor vs. Electric Generator	**8. Explain the operation of a simple electric motor and generator.**	**S10FE-IIj- 54**	
	8.1. Differentiate electric motor from electric generator.	S10FE-IIj-54.1	1
	8.2. Explain the working principle of simple electric motor.	S10FE-IIj-54.2	1
	8.2. Explain how electromagnetic induction is applied to electric generator.	S10FE-IIj-54.3	1
	Suggested Performance Task: Audio-Visual Presentation using Devices that apply Electromagnetic concepts		1
	In this suggested performance task, learners will present an audio-visual presentation on electromagnetic phenomena using devices that utilize electromagnetic concepts.		
	Second Quarter Summative Test		**2**
		TOTAL	**96**

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