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DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Science

Quarter 3
Lesson
8

Lesson Exemplar for Science
Quarter 3: Lesson 8 of 8 (Week 8)
SY 2025-2026

Development Team

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SCIENCE (EARTH AND SPACE) /QUARTER 3 / GRADE 8

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	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.
B. Performance Standards	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 those predictable interactions of the Sun-Earth-Moon system that result in tidal effects.
C. Learning Competency and Objectives	**Learning Competency** 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. Identify how oceanic crust and continental crust are associated with the Earth's lithospheric plates. Lesson Objective 1. Students will estimate the proportion in percentage of the Earth's surface covered by land as compared to water. Lesson Objective 2. Students will define the concept of Earth's crust and explain how critical it is to humankind. Lesson Objective 3. Students will differentiate between oceanic crust and continental crust. Lesson Objective 4: Student will demonstrate the ability to locate major lithospheric plates on a world map and describe the tectonic activity associated with each plate boundary. Lesson Objective 5: Student will analyze the evidence of plate movements through geological features such as mountain ranges, volcanoes, and earthquakes, linking them to specific plate interactions. Lesson Objective 6: Student will engage in hands-on activities, such as modeling plate boundaries and simulating plate movements, to deepen her understanding of the dynamic processes at work beneath the Earth's surface.

D. Content	**Topic: Crust** The outermost layer of the solid surface of the planet, known as the Earth's crust, is what gives the planet its thin, inflexible shell. Earth's surface is home to a vast range of landforms and landscapes, which are the result of the interaction of various minerals, rocks, and geological characteristics. Continental crust and oceanic crust are the two primary categories of crust. **Subtopic: Oceanic Crust and Continental Crust** *Continental Crust:* Made most of granitic rocks, this form of crust is thicker and less dense than other types. The Earth's continental crust, which is made up of plains, mountain ranges, and a variety of geological features, creates the continents and bigger landmasses. Because of its composition and thickness, it is less dense than oceanic crust. *Oceanic Crust:* Mostly composed of basaltic rocks, the oceanic crust is thinner and denser than the continental crust. Underwater volcanic activity, deep-sea trenches, and mid-ocean ridges are characteristics of this type of crust, which resides beneath the ocean basins. The processes of seafloor spreading and subduction constantly build and destroy oceanic crust. The crust of the Earth is a vital component of life on the planet because it serves a solid foundation for landforms, ecosystems, and human activities. Through tectonic processes like plate movements, which define the features of the Earth's surface and contribute to geological events like earthquakes and volcanic eruptions, it interacts with the underlying mantle. It is vital to understand the dynamics, composition, and structure of the Earth's crust to investigate the planet's geology, history, and the processes that shape its constantly evolving surface. *Lithosphere (Plates):* Large, solid regions of the lithosphere, the outermost layer of the Earth, are known as lithospheric plates, or tectonic plates, and they move and interact with one another on the surface of the planet. The topmost portion of the mantle and the crust, both oceanic and continental, make up these plates. Driven by convection currents in the mantle and the heat from within the Earth, the lithospheric plates float on top of the semi-fluid asthenosphere. The North American Plate, Pacific Plate, Eurasian Plate, African Plate, Antarctic Plate, South American Plate, Indo-Australian Plate, and smaller plates like the Philippine Sea Plate are among the major lithospheric plates. The regions where these plates merge and interact are commonly referred to as plate boundaries. These plates vary in size and shape. Several geological processes, including earthquakes, volcanic activity, the creation of terrain, and the shaping of the Earth's surface characteristics are caused by the movement of lithospheric plates. Plate boundaries mostly come in three varieties: *Divergent Boundaries:* *T*he movement of plates leading to seafloor spreading and the formation of new crust. Convergent Boundaries: Where plates meet, mountain ranges and volcanic arcs are created by subduction—the movement of one plate beneath another.

	Transform Boundaries: Along faults like the San Andreas Fault in California, where plates move past each other horizontally, causing earthquakes. Understanding the dynamic processes that form the Earth's surface, influence natural disasters, and contribute to the distribution of continents, seas, and geological features worldwide requires an understanding of lithospheric plates and their movements. An essential concept in geology and Earth sciences is the theory of plate tectonics, which describes the movement and interactions of lithospheric plates.
E. Integration	Complementarity of structure and function. SDG #14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

II. LEARNING RESOURCES

R.M.Feather, S.L.Snyder, D.Zike. (2002). *Glencoe Science Earth Science*.
F.J.Borrero, F.S.Hess, J.Hsu, G.Kunzae, S.Leslei, S.Letro, M.Manga, L.Sharp, T.Snow, D.Zike. (2017). *Glencoe Earth Science: Geology,the Environment & the Universe.*
M.Marten, R.Macfarlane, K.Verlag. (2012). *Sea Change: Tidal Journey Around Britain.*
S.Earle. (2015). *Physical Geology*. Victoria, B.C.: BCcampus.
https://opentextbc.ca/geology/

III. TEACHING AND LEARNING PROCEDURE		NOTES TO TEACHERS
A. Activating Prior Knowledge	**DAY 1** **1. Short Review: Earth's surface** "Do you think there is more land or water in Earth's surface? Why?" *Essential Questions:* 1. What is the estimated percentage of land to water on the surface of the Earth? 2. What evidence do you have from space to support your hypothesis that Earth is mostly made of water rather than land? Show images and videos of Earth from space, highlighting the contrast between land and water.	The teacher expects student responses such as the Earth would more likely have water than land since it covers approximately 71% of the Earth's surface, while land is relatively smaller, comprising about 29% of the entire area. These aquatic areas exist because there

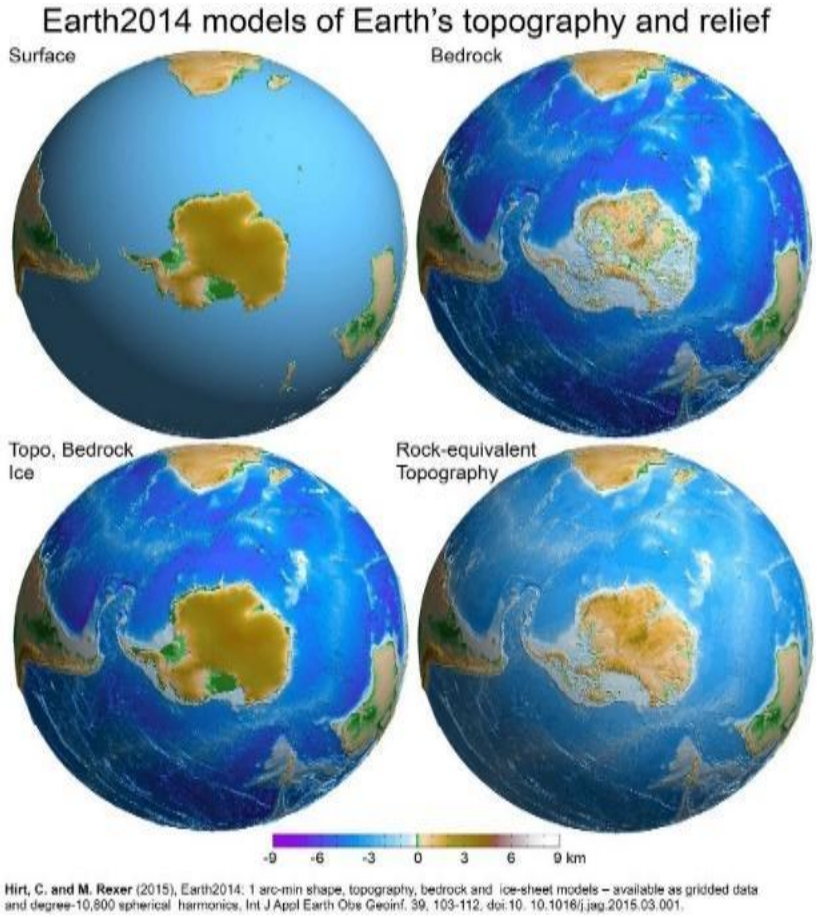


Image Source : asg.ed.tum.de

2. Feedback (Optional)

This optional sub-component involves giving qualitative feedback to performance or products done through homework or classroom activity from the previous day/week or lesson.

are natural processes that are continuously occurring in the progression of ages, such as the formation of the oceans, rivers, and lakes.

The teacher may access the suggested Video Clips:

- Planet Earth from Space: https://www.youtube.com/watch?v=JsruKhOuBqY
- Earth and Space: https://www.youtube.com/watch?v=ySwZK53_Eww
- The Earth's water: https://www.youtube.com/watch?v=TBN3JeTD5V8
- The beauty of Earth: https://www.youtube.com/watch?v=Cl_kXbhTi8k

B. Establishing Lesson Purpose	**1. Lesson Purpose** Through varied teaching styles and strategies and stimulating conversations, students will acquire a better understanding of Earth's geology and the importance of discovering information concerning its composition. **2. Unlocking Content Area Vocabulary:** **Activity 1.** Students search for key terms related to Earth's crust and Lithospheric plates within a grid of letters. The learner locates words like "continental," "oceanic," and "subduction" hidden horizontally, vertically, or diagonally. This engaging pen-and-paper game promotes vocabulary retention and reinforces understanding of geological concepts in a fun and interactive way. **Crust and Lithospheric Word Search** Words can be found in any direction (including diagonals) and can overlap each other. Use the word bank below. Z H P L A T F O R M Q N G Q Q C R K F O T N E G R E V N O C U T F H Y Q R V M K T Y P Z Z Y P D J K Y R H G M L O K B F R L Y P L A T E L I O D I V E R G E N T U M R O F S N A R T T C I N O T C E T G **Word Bank** 1. convergent 3. plate 5. divergent 2. transform 4. platform 6. tectonic Note: The word search is generated from this site: https://www.dictionary.com/e/word-search-maker/	See Learning Activity Sheet: *Activity # 1: Crust and Lithospheric Word Search* The teacher may opt to use the sample given or may customize.

C. Developing and Deepening Understanding	**SUB-TOPIC 1: MAGNIFICENT EARTH'S SURFACE** **1. Explicitation:** **Activity 2.** Expected Map labeling: Distribution of Water and Land on Earth  Image Source: bitlanders.com *Discussion Points:* • Ecosystem Health: interaction between land and water shapes ecosystems, influences biodiversity, and provides habitats for various species. • Water Cycle: water is essential for the water cycle, including precipitation, evaporation, and runoff, which sustains life on Earth. • Climate Regulation: influences regional climates, weather patterns, and temperature regulation. • Food Security: both land and water resources in supporting agriculture, fisheries, and food production for human populations. • Human Settlements: access to water bodies and fertile land has historically influenced the development of civilizations and urban areas.	See Learning Activity Sheet: *Activity #1: Crust and Lithospheric Word Search* Subtopic 1 can be taught in 2 sessions. The teacher emphasizes the importance of understanding the balance between land and water for ecosystems and human populations The teacher may use a developmental lesson approach in defining and explaining concepts of Earth's crust.

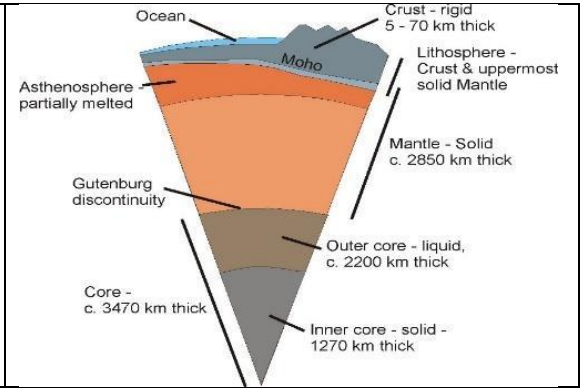
The Expected Water and Land Distribution Map
Image Source: slideplayer.com

Processing Questions:

1. Why do you think there is more water on Earth than on land?
2. Do you think that specific surface characteristics are necessary for life to exist on Earth?
3. What is the approximate percentage of land to water on the surface of the Earth?
4. What evidence do you have from space to support your theory that Earth is mostly made of water rather than land?

2. Work Example:
Activity 3.

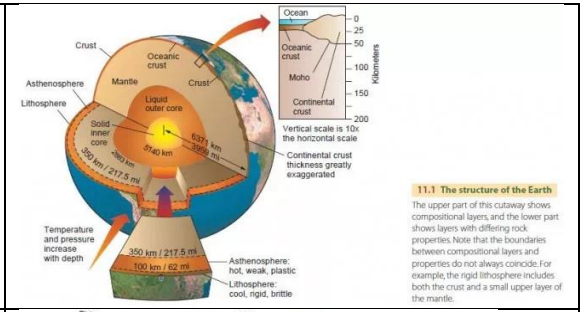
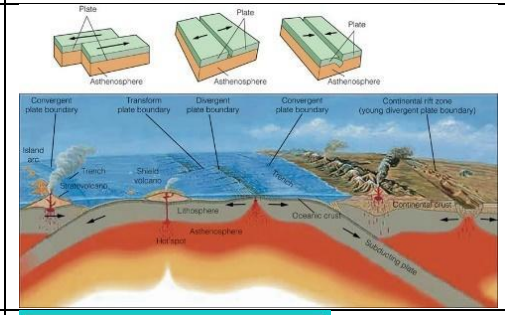
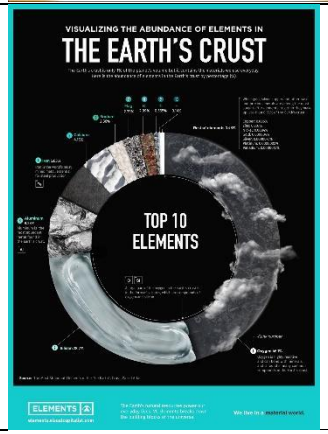
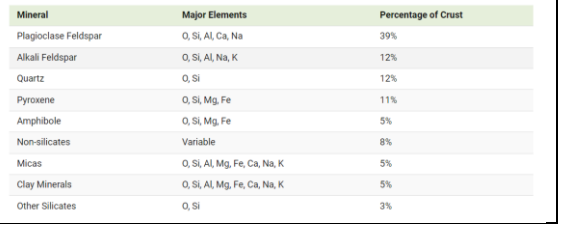
Suggested websites that can be used present concepts of Earth's Crust.

Earth Structure	https://www.gsi.ie/en-ie/education/our-planet-earth/Pages/The-Earth-structure.aspx	

See Learning Activity Sheet: *Activity #3: Earth Surface and Crust Exploration*

The teacher may access the video through this website, then download ahead of time to lessen time wasting.

- https://www.youtu

	https://geography.name/wp-content/uploads/2016/08/3425631246-640x362.webp	
Dynamic Earth: The Story of Plate Tectonics	https://www.fs.usda.gov/wildflowers/beauty/serpentines/images/geology/plate-tectonics-usgs.jpg	
Visualizing The Scale and Composition of The Earth's Crust	https://elements.visualcapitalist.com/wp-content/uploads/2021/12/elements-in-earths-crust-abundance.jpg	
	https://www.visualcapitalist.com/cp/visualizing-the-scale-and-composition-of-the-earths-crust/	

be.com/watch?v=DgYqzWQ5t10

- https://youtu.be/DgYqzWQ5t10

	3. Lesson Activity **Activity 4.** **Conclusion:** Conclude the activity by reviewing key concepts learned about the crust's role in landform formation. Ask students to reflect on how understanding the Earth's crust can help predict and explain the distribution of landforms around the world. Note: *At this point, 8th grade learners were able to investigate the distribution of water and land on Earth's surface and explore the formation and composition of the Earth's crust.* **DAY 2:** **SUB-TOPIC 2: EXPLORING THE INTRICACY OF THE LAYERS OF THE EARTH'S CRUST** **1. Explicitation** **Activity 5.** *Revealing the Secrets: Exploring the Earth's Crust* *Objective(s):* At the end of the activity, the students should be able to distinguish the types of Earth's crust and give their crucial role to planet Earth. *Materials:* tv, laptop with internet access, pen and paper or notebook *Instructions:* 1. Instruct the student to watch a video clip entitled "Layers of the Earth: Geology: The good and the Beautiful." 2. Ask students to identify concepts in "Layers of the Earth's Crust" shown in the video. 3. Encourage the students to make judgment: How significant layers of the Earth's crust are to geological processes. 4. Allow students to find a partner with different judgments, then explain why. **2. Worked Example** **Activity 6.** See Learning Activity Sheet: *Activity #5: Diagraming: Label the Earth's Crust*	See Learning Activity Sheet: *Activity #4: Exploring Earth's Crust*

	3. Lesson Activity **Activity 7.** *Evaluating Crust Layers* *Objective:* At the end of the activity, the students should be able to identify and describe the composition, characteristics, and significance of the Earth's crust layers, including continental and oceanic crust distinctions. *Materials:* assessment questions on layers of the crust, visuals or diagrams of Earth's layers. *Procedure:* 1. Written Assessment a. Provide students with an assessment sheet containing questions related to the Earth's crust layers, such as composition, thickness, types of crust, and interactions with other Earth layers. b. Encourage students to answer each question thoughtfully and accurately based on their knowledge of crust layers. 2. Diagram Labeling a. Include a section where students label a diagram of Earth's layers, focusing on correctly identifying and labeling the crust layer. b. Ask students to note key features of the crust layer, such as continental and oceanic crust distinctions. 3. Short Answer Responses: a. Include short answer questions that require students to explain the role of the Earth's crust in geological processes and its importance to the Earth's overall structure. b. Encourage students to elaborate on how the crust interacts with other layers and influences surface features. 4. Peer Review or Discussion: a. After completing the assessment, facilitate a peer review session where students can exchange papers and provide feedback on each other's responses. b. Encourage students to discuss their answers and the reasoning behind their responses, fostering collaborative learning and deeper understanding. **SUBTOPIC 3: INVESTIGATING EARTH'S LITHOSPHERE** **1.Explicitation** **Activity 8.** *Introduction to Tectonic Plates*	Access "Introduction to tectonic plates video in this website: https://youtu.be/7jbwX1Uvd18

Objective(s): At the end of the activity, the students should be able to identify and label different types of plate boundaries and predict geological events that occur at convergent, divergent, and transform boundaries.
Materials: tv, visuals of tectonic plate boundaries
Instructions:

1. Show a video of plate movements entitled Introduction to Tectonic Plates.
2. Ask the students to share their thoughts on what causes these movements.
3. Engage students in a brief discussion on the lithosphere and its importance in understanding the Earth's structure.
4. With five members, divide the students into small groups.
5. Provide each group with maps of plate boundaries.
6. Ask students to identify and label the types of plate boundaries as shown in the maps. (convergent, divergent, transform)
7. Ask students to discuss and predict what types of geological events are likely to occur at each type of boundary.
    - Geological events include earthquakes, volcanic activity, and mountain formation.
8. Present a comprehensive explanation of plate movements, focusing on the concepts of convergent, divergent, and transform boundaries.
    - Plate movements are due to the convection currents in the mantle and the forces acting on the Earth's crust
9. Elaborate on the subduction principle, highlighting how subduction zones form and their significance in plate tectonics.

DAY 3
2. Work Example
Activity 9.

Lithospheric Plates
Objective(s): Through a picture, the students should be able to discuss lithospheric plates and reinforce their understanding of the dynamics at work beneath the Earth's surface.
Materials: list of words related to lithospheric plates, markers, timer, white board
Instructions:

1. Divide the students into teams of five members.
2. Randomly select a team to start the game; each team will take turns drawing and guessing.

	3. A member of the first team selects a term related to lithospheric plates from the list. 4. Without using words or letters, the student draws a representation of the term on the whiteboard within a set time limit. 5. Team members attempt to guess the term based on the drawing. 6. After each term is guessed or the time runs out, take a moment to discuss the term drawn. Explain its significance in the context of lithospheric plates and plate tectonics 7. At the end of the game, facilitate a brief discussion on the terms covered and their relevance to the study of lithospheric plates. **3.Lesson Activity** **Activity 10.** *Lithospheric Plates: Plate Boundary Performance Tasks* *Objective(s):* Through varied presentations, students will demonstrate their understanding of lithospheric plates, plate movements, and boundary types by creating a performance task showcasing different forms of plate interactions. *Instructions:* 1. With 10 members in a team, students will create a skit, a play, or a video presentation illustrating various plate boundary interactions. 2. Incorporate scientific information about plate movements and boundary types into their performance. Clearly demonstrating the geological features and events associated with each type of plate boundary. With emphasis on the crucial role of lithospheric plates to planet earth. 3. Groups can use props, costumes, and visual aids to enhance their presentation 4. Each group will perform their skit, play, or video presentation in front of the class. 5. After the performances, they allow time for questions from classmates and feedback on the accuracy and effectiveness of the demonstrations.	
D. Making Generalizations	**1. Learners' Takeaways** • Make a comic strip to illustrate the importance of understanding the distribution of land and water on Earth, as well as the crust, the outermost layer of the Earth, and lithospheric movement. • List the things you already know, the things you don't comprehend, and the things you still wish to learn more about with a graphic organizer.	

<table>
<tr><th colspan="4">IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION</th><th>NOTES TO TEACHERS</th></tr>
<tr><td>A. Evaluating Learning</td><td colspan="3">1. Formative Assessment
Make a poster that illustrates how land and water are distributed over the surface of the Earth, emphasizing the functions of the various crust types.</td><td>The teacher may customize the scoring rubric depending on the theme of the poster.</td></tr>
<tr><td rowspan="5">A. Teacher's Remarks</td><td>Note observations on any of the following areas:</td><td>Effective Practices</td><td>Problems Encountered</td><td rowspan="5">This lesson design component prompts the teacher to record relevant observations and/or critical teaching events that he/she can reflect on to assess the achievement of objectives. The documenting of experiences is guided by possible areas for observation including teaching strategies employed, instructional materials used, learners' engagement in the tasks, and other notable instructional areas.

Notes here can also be on</td></tr>
<tr><td>strategies explored</td><td></td><td></td></tr>
<tr><td>materials used</td><td></td><td></td></tr>
<tr><td>learner engagement/ interaction</td><td></td><td></td></tr>
<tr><td>others</td><td></td><td></td></tr>
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				tasks that will be continued the next day or additional activities needed.
B. Teacher's Reflection	*Reflection guide or prompt can be on:* ▪ *<u>principles behind the teaching</u>* *What principles and beliefs informed my lesson?* *Why did I teach the lesson the way I did?* ▪ *<u>students</u>* *What roles did my students play in my lesson?* *What did my students learn? How did they learn?* ▪ *<u>ways forward</u>* *What could I have done differently?* *What can I explore in the next lesson?*			This lesson design component guides the teacher in reflecting on and for practice. Entries on this component will serve as inputs for the LAC sessions, which can center on sharing the best practices discussing problems encountered and actions to be taken; and identifying anticipated challenges and intended solutions. Guide questions or prompts may be provided here.