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DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Science

Quarter 4
Lesson
1

Lesson Exemplar for Science 4
Quarter 4: Lesson 1 (Week 1)
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SCIENCE (EARTH AND SPACE SCIENCE) / QUARTER 4 / GRADE 4

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	The learners learn that: 1. Soil and water resources are needed by plants and animals to live and grow. 2. Characteristics of the weather can be observed and measured. 3. The Sun is a ball of hot gases about 100 times the size of Earth, which radiates light energy needed by living things.
B. Performance Standards	By the end of the Quarter, learners use simple equipment to identify how types of soil hold water to support the growth of plants. They use instruments and secondary sources to measure and describe the characteristics of weather and use the information to make predictions about weather patterns in their local area. They demonstrate appreciation for the dangers of extreme weather events and use safe practice to protect themselves if they are caught in bad weather. Learners use personal observations and reliable secondary information sources to describe the Sun and explain its importance to life on Earth.
C. Learning Competencies and Objectives	***Learning Competencies*** 1. *participate in guided activities using simple equipment to compare different types of soil including sandy, clay, silt, and loam, including comparing the ability of the soils to hold water; and* 2. *participate in a guided investigation to identify the effect of different types of soil on the growth of plants.*
D. Content	Soil - What is Soil (Importance of Soil for Plant Growth) - Different Types and Characteristics of Soil - Soil absorption Capacity
E. Integration	• Creativity and innovation • Environmental awareness (Environmental Literacy) • Collaboration

II. LEARNING RESOURCES
Delos Reyes, R. L. (2022). Science Links. Quezon City: REX Publication. Campbell, C., & Tytler, R. (2007). Views of student learning. In V. Dawson & G. Venville (Eds.), The Art of Teaching Primary Science (pp. 23-41). Australia: Griffin Press.

III. TEACHING AND LEARNING PROCEDURE		**NOTES TO TEACHERS**
A. Activating Prior Knowledge	**DAY 1: SHORT REVIEW** **Earth Systems**: The students will identify the different systems of the earth, emphasizing the non-living systems of the planet.  Source: *https://www.google.com/search?q=free+picture+of+the+earth&sca_esv* **Instructions**: Present a picture of the planet earth or a globe to the class and then start a classroom discussion by asking the guide questions below. ***Guide Questions:*** 1. Can you describe the picture? 2. Can you identify the earth's system four spheres? 3. Can you describe lithosphere, hydrosphere, and atmosphere? What are their commonalities? 4. Can you give at least three non-living things that are found in our planet?	The teacher will show a picture of the earth (or provide a globe) in class. The teacher may ask the guide questions to students to activate their prior knowledge. At this point the teacher should emphasize the non-living components of the planet (lithosphere, hydrosphere, and atmosphere).

B. Establishing Lesson Purpose	**1. Lesson Purpose** Topic: **Soil** Provide the **TWLH Chart** to the class. Tell the class that they will need to complete the table at the end of the class. To complete it, ask the students to fill out the table, particularly the **"T"** column wherein they will write the things that they already know about soil, and the column **"W"** column wherein they need to write the things that they want to know about soil.	Fill the "what we think we know" and "what we want to know" in the TWLH chart as the students start to answer and raise questions.

*What we **THINK** we know* **"T"**	*What we **WANT** to know* **"W"**	*What we **LEARNED*** **"L"**	***HOW** we know* **"H"**

Show the picture of soil given below:

Source: https://www.google.com/search?q=free+picture+of+a+girl+holding+a+soil&sca_esv

After showing the picture, ask the following questions:

1. Can you describe the given picture?
2. Have you ever wonder how soil is being formed?

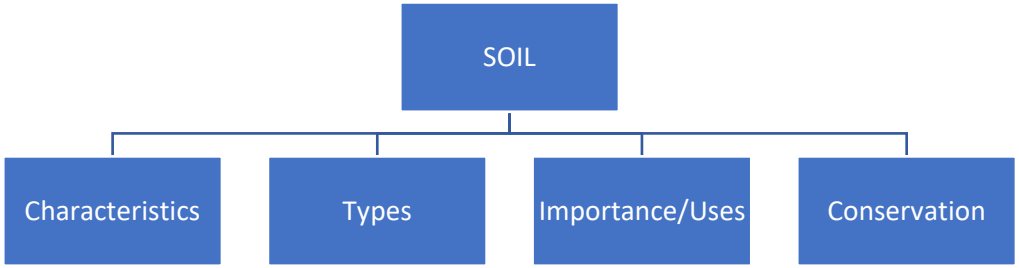
	• Begin the discussion with a short video or interactive presentation that highlights the composition, formation, types, and the importance of the soil. • Prompt a class discussion by asking students to share their personal observations about how soil is being formed. • Ask the students to describe the soil composition and compare different types of soil that they see in their surroundings. • Explain to the class that understanding the process of how soil forms, its compositions, and types can help them to appreciate more the uses and importance of the soil. • The teacher may introduce how to conserve the soil. **2. Unlocking Content Area Vocabulary** *Unscramble Word Game* 1. Introduce to the class the concept of unscramble word game. 2. Present to the class the given unscrambled words and ask the students to re-arrange the letters to create a word that corresponds to the meaning of the word given by the teacher. Meaning: It is the loose particles that make up the surface of the Earth. Unscrambled word #1: **IOSL** Answer: **SOIL** Meaning: It is the introduction of harmful materials into the environment. Unscrambled word #2: **TOLIOPNLU** Answer: **POLLUTION**	The teacher will post unscrambled word on the board. The teacher will give the meaning of the word then the students will arrange the letters to form the word.

C. Developing and Deepening Understanding	**SUB-TOPIC 1: WHAT IS SOIL? (IMPORTANCE OF SOIL FOR PLANT GROWTH)** **1. Explicitation** Have the student work in pairs (Think-Pair-Share). Let them visit the school garden. Allow them to observe the soil in the garden. Using the Venn Diagram found in Worksheet 1, let them describe two types of soil found in the garden. Have a short sharing of their observation in the class. The teacher may ask the following questions during the sharing: 1. *How will you describe the soil in our school garden?* 2. *What is its color? Are the particles big or small?* 3. *Can it hold much water?* **2. Worked Example** Soil is crucial in various aspects of the Philippines, influencing agriculture, economic activities, and environmental sustainability. Examples include the suitability of clayey soils in Central Luzon for rice farming, sandy loam soils in Mindanao for banana plantations, and volcanic ash soils in Bicol supporting coconut cultivation. Soil quality is vital for backyard vegetable gardens, rehabilitation of mined areas, urban development in Metro Manila, disaster risk reduction in the Cordillera, and construction of aquaculture ponds in regions like Visayas. These examples highlight the multifaceted importance of soil in shaping the country's livelihoods and ecosystems. **3. Lesson Activity** 1. Divide the class into five (5) groups. Each member of every group will decide on their specific role that they will play within their group (*Team Jobs*). Along with each role are color-coded visors with their corresponding	During the sharing, the discussion should give focus on some of the characteristics of soil such as color, texture, and ability to hold water. The characteristics of soil vary according to the place where it is found. The teacher should also emphasize that there are kinds of soil that can hold much water while others drains water easily. Both kinds of soil are not good for growing plants. The roles in the “Team Jobs” may be introduced earlier to facilitate classroom management during group activities. The roles may be

	meaning (Manager-Red; Speaker-Blue; Director-Green; Reports Coordinator-Yellow). 2. Provide each group with the copy of the activity titled "Identifying the effect of different types of soil on the growth of plants" 3. Remind the teammates of their roles. 4. Students perform the activity as directed and answer the questions provided in the worksheet. 5. Ask the students to present their output in class. **DAY 2: SUB-TOPIC 2: DIFFERENT TYPES AND CHARACTERISTICS OF SOIL** **1. Explicitation** • To enhance understanding, conduct a simple demonstration. Show how different types of soil respond to water by pouring water onto samples of sand, silt, and clay. Discuss the observed differences in water absorption, drainage, and texture. • Relate the discussion to students' everyday lives. Ask questions like, "Have you ever noticed different types of soil in your backyard or a park?" Encourage personal anecdotes and observations. This helps bridge the gap between theoretical knowledge and practical experiences. **2. Worked Example** In the Philippines, various soil types play distinct roles in agriculture and land use. Examples include clayey soils in Central Luzon, ideal for rice cultivation; sandy loam soils in Mindanao, suitable for banana plantations; volcanic ash soils in Bicol, conducive to coconut farming; and silty soils in Cagayan Valley, favorable for crops like corn and vegetables. Other notable soil types include limestone soil in Palawan, alluvial soil in the Ilocos Region, lateritic soil in Eastern Visayas, peat soil in Agusan Marsh, and lapilli soil in Camiguin. Recognizing and utilizing these soil characteristics	assigned to other team mates on the succeeding activities. During sharing, the teacher should emphasize that the types of soil include *sandy, clay, silt, and loam.* Discussion should emphasize that different types of soil have different capability of absorbing water that may be good or bad for growing plants. The following should be emphasized when discussing about the result of the activity: 1. Plants grow best in loam soil because it contains *humus.* This type of soil can hold enough water and it has minerals to sustain plant growth. 2. Water is needed for the growth of plants.

	are crucial for sustainable and productive land management in various regions of the Philippines. **3. Lesson Activity** 1. Divide the class into five (5) groups. Each member of every group will decide on their specific role that they will play within their group (*Team Jobs*). Along with each role are color-coded visors with their corresponding meaning (Manager-Red; Speaker-Blue; Director-Green; Reports Coordinator-Yellow). 2. Ask the students to go over Worksheet number 2 titled "*Identifying Types of Soil*". 3. Remind the teammates of their role. 4. Students need to perform the activity as directed and answer the questions provided in the worksheet. 5. Allow the students to present their output to the class. 6. After the presentation of outputs and discussion, divide the class into groups with three members. Ask them to make a slogan, wherein it should convince other people to stop engaging in activities that can pollute our soil. They can write their slogan on one-eight illustration board, and they may use coloring materials to make their slogan more attractive. 7. Students' output will be graded using the scoring rubrics provided in this exemplar. **SUB-TOPIC 3: SOIL ABSORPTION** **1. Explicitation** 1. Start the lesson by playing the "Sponge Relay" game. Divide the class into small groups and assign each group a large sponge. And place a large tray or plastic sheet in front of each group to contain any mess. 2. Explain to the students that the sponge represents soil, and their goal is to understand how different types of soil absorb water.	In this part of the lesson explanations and scientific terms are provided to students to help them develop their ideas further. The teacher should already emphasize that aside from soil, plants also need water in order to grow. Like plants, animals also need water in order to survive and grow. Students apply what they have learned to new situations through performing a specific task. Students evaluate what they have learned and learning is assessed by the teacher through the use of a rubric. Students' performance tasks will be assessed by the teacher through the use of a rubric. Materials for "Sponge Relay" in the Elicitation part: 7. Large sponges (enough for each student or small group)

	3. Introduce the different soil samples (sand, clay, and loam) and briefly discuss their characteristics. 4. Place small containers or pots labeled with the type of soil on the trays or plastic sheets in front of each group. And instruct them to dip their sponge into the water and then squeeze it over each type of soil container, simulating the process of watering the soil. Encourage students to observe and discuss how the sponge (soil) absorbs or repels water for each soil type. 5. Ask guiding questions to prompt discussions, such as: *1. How does the sponge feel after absorbing water?* *2. Did all types of soil absorb the same amount of water?* *3. What do you think will happen when real plants are watered in these different soils?* 6. Facilitate a class discussion based on their observations, introducing key concepts related to soil absorption. And relate the activity to the importance of soil in supporting plant growth and the water-holding capacity of different types of soil. **2. Worked Example** Soil absorption in the Philippines is crucial for various applications, emphasizing its significance in sustainable land management. Examples include terraced farming in the Cordillera to prevent erosion, rainwater harvesting in Palawan to replenish groundwater, flooded rice paddy fields in Central Luzon supporting rice cultivation, and urban green spaces in Metro Manila aiding in flood control. Mangrove ecosystems in Bicol contribute to soil stabilization, while soil amendments in Mindanao plantations optimize water retention. Wastewater treatment in Cebu employs soil absorption for purification, and disaster resilience efforts in Leyte integrate soil absorption principles to minimize the impact of heavy rainfall. These examples showcase the diverse roles of soil absorption in shaping agriculture, water resource management, and disaster preparedness in the Philippine setting.	8. Watering cans or buckets filled with water 9. Different types of soil samples (sand, clay, and loam) 10. Small containers or pots for each soil type 11. Labels for each soil type 12. Large tray or plastic sheet for each group

	3. Lesson Activity 1. Provide each group with the copy of the activity titled "*Comparing How Different Types of Soil Absorb Water*". 2. Again, remind the teammates of their role. 3. Ask the students to perform the activity as directed and answer the questions provided in the worksheet. 4. Ask the students to present their output to the class. 5. Let the students work in triads. Their task is to collect different types of soil (clay, loam, silt, sand, and gravel). They will display their collection using the following materials: ziplock plastic and a piece of 15x15 inches plywood. Students will be asked to discuss in class the five characteristics of each type of soil. 6. Students' output will be graded using the scoring rubrics provided in this exemplar. 7. Discuss the real-world implications of soil absorption, connecting it to agriculture, gardening, and water management. Encourage students to think about how understanding soil absorption can be beneficial in different contexts.	
D. Making Generalizations	**DAY 3:** **1. Learners' Takeaways** *Concept Map* 13. Ask the students to answer Worksheet 8. 14. Ask the students to outline in the concept map what they have learned in the lesson. Utilize the given concept map below:  	*Note: This may be done as individual or group work.* Allow the students to demonstrate their learning by coming up with a concept map. The teacher will provide the BIG WORDS while the rest of the concepts/ideas will be provided by the students. Students may also use connecting words as needed.

2. Reflection on Learning

1. Present the **TWLH Chart**.
2. Let the students reflect and check if their answers in the **"T"** column are correct. Ask them also if their answers in the **"W"** column were addressed during the lesson and the conduct of the various activities.
3. Lastly, ask the student to complete the **"L"** and **"H"** columns of the TWLH Chart.

What we **THINK** we know **"T"**	What we **WANT** to know **"W"**	What we **LEARNED** **"L"**	**HOW** we know **"H"**

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		**NOTES TO TEACHERS**
A. Evaluating Learning	**DAY 4:** **1. Formative Assessment** **Direction**: Read each question carefully. Write the letter of the correct answer in the space provided before each number. _____ 1. Which of the following is NOT a characteristic of soil? a. texture b. color c. weight d. ability to hold water _____ 2. Mang Tino plans to use soil in his garden that has humus. What kind of soil should he use? a. clay b. loam c. sand d. silt _____ 3. Which type of soil can hold a lot of water? a. clay b. loam c. sand d. silt	Assessment should be carried out throughout the lesson in the form of **discussions** and the written responses to the various activities. **Answer Key:** 1. c 2. b 3. a 4. d 5. d 6. a 7. c.

	_____ 4. Which of the following statements is NOT TRUE? a. The color of soil is due to the kinds of materials present in it. b. Black soil is rich in organic matter such as decaying plants and animals. c. Black soil is a very fertile soil. d. Red or brown soil contains iron and is as fertile as black soil. _____ 5. Soil is also used as construction materials. Which soil is best used as construction materials? a. loam and gravel c. silt and gravel b. sand and loam d. sand and gravel _____ 6. Which type of soil is used for making pots? a. clay b. loam c. sand d. silt _____ 7. Which of these materials is biodegradable? a. rubber b. metals c. tissue d. rubber _____ 8. Which of the following is considered a pollutant? a. waste from mines and factories b. insecticides c. fertilizers d. all of the above _____ 9. Which of the following practices does not show soil conservation? a. Observe proper waste disposal b. Use too much fertilizer and pesticide. c. Use organic fertilizers made from biodegradable materials. d. Protect the topmost layer of the soil by not digging unnecessarily. _____ 10. Soil is essential to… a. plants b. animals c. humans d. All of the above **Direction:** Answer the question below. *Soil pollution is a condition where soil contains materials that make the soil unfit for soil. As a Grade 4 student, how will you help prevent soil pollution?*	8. d. 9. b 10. d

	2. Homework (Optional) *Journal Writing* *Plants grow well when planted on rich soil. What would be the equivalent of rich soil in a person's growth and development. Write your reflection below.* _____ _____ _____ _____ _____		
A. Teacher's Remarks	*Note observations on any of the following areas:*	**Effective Practices**	**Problems Encountered**
	strategies explored		
	materials used		
	learner engagement/ interaction		
	others		
B. Teacher's Reflection	*Reflection guide or prompt can be on:* ▪ *principles behind the teaching* *What principles and beliefs informed my lesson?* *Why did I teach the lesson the way I did?*		

	▪ *students* *What roles did my students play in my lesson?* *What did my students learn? How did they learn?* ▪ *ways forward* *What could I have done differently?* *What can I explore in the next lesson?*	