

8

Lesson Exemplar for Science

Quarter 1

Lesson

2

Lesson Exemplar for Science Grade 8
Quarter 1: Lesson 2 of 5 (Week 2)
SY 2025-2026

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SCIENCE /QUARTER 1 / GRADE 8

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	The learners learn that: 1. Organ systems work together for the growth and survival of the organism.
B. Performance Standards	By the end of the Quarter, learners demonstrate the use of models, flow charts, and diagrams to illustrate how body systems work together for the growth and survival of an organism.
C. Learning Competencies and Objectives	<i>Learning Competency</i> 1. Describe the parts and functions of the plant transport system 2. Compare the human digestive system with that of the plant transport system 3. Perform an activity to observe plants transport systems in action <i>Learning Objectives:</i> Students should be able to: 1. Discuss the similarities and differences in parts and functions of organ systems and plant transport systems 2. Observe under the microscope the different parts of the plant transport system 3. Conduct an experiment to observe plant transport system in action
D. Content	Topic: Plant Transport System Sub-topic: Parts, Function, and Processes of Plants Transport Systems
E. Integration	Integrating the Sustainable Development Goal (SDG) 15: Life on Land, into a lesson on plant transport systems can emphasize the importance of preserving terrestrial ecosystems. By highlighting how plants utilize their transport systems to absorb nutrients, water, and distribute them throughout their structures, students can understand the vital role plants play in sustaining biodiversity and combating desertification.

II. LEARNING RESOURCES

Aberdeen City Council. (2021). Celery experiment - Xylem and phloem. Retrieved from https://www.aberdeencity.gov.uk/sites/default/files/2021-05/Celery%20experiment%20-%20Xylem%20and%20Phloem_0.pdf

Oxford University Press. (n.d.). Sample chapter from Oxford Progressive English for Hong Kong Student's Book 1. Retrieved from https://www.oupchina.com.hk/website/var/assets/bio-website/bio_sample_chapter_e_watermarked_sample.pdf

III. TEACHING AND LEARNING PROCEDURE

NOTES TO TEACHERS

A. Activating Prior Knowledge

Day 1

1. Short Review

Facilitate a game called *Charades* game on the parts and function of the digestive system.

1. Write down the names of different parts of the digestive system on separate pieces of paper or index cards. Fold them and place them in a bowl or hat.
2. Decide who will start as the "actor" for the first round.
3. The actor selects a paper from the bowl without revealing it to the other players.
4. Without speaking or making any sounds, the actor must use gestures and movements to convey the name of the chosen part of the digestive system.
5. The other players observe the actor's movements and attempt to guess the name of the part being acted out.
6. Players can ask questions related to the digestive system to gather clues.
7. Once a player thinks they know the answer, they can make a guess.
8. If the guess is correct, that player earns a point, and a new round begins with a new actor.
9. If the guess is incorrect, play continues with the same actor until someone guesses correctly.
10. Rotate the role of the actor, giving each player a chance to act out a part of the digestive system.

The teacher may modify or change the activity to suit the type of learners.

	11. Keep track of the points, and the player with the most points at the end of the game wins. 2. Feedback (Optional)	
B. Establishing Lesson Purpose	1. Lesson Purpose Activity 1. Bring the students to the school garden for class observation. Assign them to study and observe a specific plant. Let them collect samples of plant parts and complete <i>Activity #1: Plant parts and their Functions</i>. <i>Guide Questions:</i> 1. What are the different plant parts and their function? 2. How do the plants help them survive? 2. Unlocking Content Area Vocabulary Present the graphic organizer below and let the students complete it with words that they can associate with plant transport systems. Ask students to define the words they have listed in the graphic organizer.	See Learning Activity Sheet: <i>Activity #1: Plant parts and their Functions</i> Teachers may add more circles when needed. Teachers may allow students to research the clues using their textbooks or the internet to help them answer the activity

	<i>Some words to expect:</i> 1. Xylem: The tissue in vascular plants that conducts water and dissolved nutrients upward from the root and helps to form the woody element in the stem. 2. Phloem: The tissue in vascular plants that conducts sugars and other metabolic products downward from the leaves. 3. Transpiration: The process where plants absorb water through the roots and then give off water vapor through pores in their leaves. 4. Root pressure: The upward push of sap in the xylem of vascular plants, resulting from osmotic pressure in the roots. 5. Capillary action: The ability of a liquid to flow in narrow spaces without the assistance of, or even in opposition to, external forces like gravity. 6. Sieve tube: A series of elongated cells in phloem, through which food materials are transported in vascular plants. 7. Vascular bundle: A strand of conducting vessels in the stem or leaves of a plant, typically with phloem on the outside and xylem on the inside. 8. Translocation: The transport of soluble food material from one part of a plant to another. 9. Guard cell: One of two specialized cells that border a stoma and regulate gas exchange and water loss. 10. Stoma (plural: stomata): Tiny openings or pores in plant tissue that allow for gas exchange.	
C. Developing and Deepening Understanding	Day 2 1. Explicitation Activity 2. • Let students read the story in Activity #2: <i>A Tale of Two Systems: Humans vs Plants</i>. • Facilitate a classroom discussion about the story. <i>Guide questions:</i> 1. How are the organ systems of humans and plants similar in terms of food digestion? How are they different?	See Learning Activity Sheet: Activity #2: <i>A Tale of Two Systems: Humans vs Plants</i>

	2. Are there any similarities and differences between human organ systems working together and plant parts working together? 3. Why is it important to take care of plants? Day 3 2. Worked Example Activity 3. - Do <i>Activity #3: Observing Plant Transport System in a Microscope</i> as a class. - Facilitate a classroom discussion about the experiment. <i>Guide Questions:</i> - How will you describe the form and structure of the plant's transport system? - How do these structures aid in transporting materials in plants? Day 4 3. Lesson Activity Activity 4. - Facilitate a class discussion on the plant transport system. Direct students on the words that they have listed in the graphic organizer to check their understanding (See Unlocking Content Area Vocabulary) - Let students perform the experiment in <i>Activity #4: Plant transport system in action</i>. - Allow students to present their observations in class.	The teacher may opt to provide available slides showing the plant transport system. See Learning Activity Sheet: <i>Activity #3: Observing Plant Transport System in a Microscope</i> See Learning Activity Sheet: <i>Activity #4: Plant transport system in action</i>
D. Making Generalizations	1. Learners' Takeaways Let students accomplish the exit ticket to check their understanding and gather feedback on the lesson. 3-2-1 Exit Ticket on the Plant Transport System	The teacher may propose other activities for the learners to describe their understanding of a concept, idea, and skill covered in the previous topic.

	<table><tr><th>Items</th><th>Response</th></tr><tr><td>3 Things I learned</td><td></td></tr><tr><td>2 Things I like about the lesson</td><td></td></tr><tr><td>1 Question I have</td><td></td></tr></table>	Items	Response	3 Things I learned		2 Things I like about the lesson		1 Question I have		
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3 Things I learned										
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	2. Reflection on Learning In their notebook, the students will write a journal entry consisting of 3-4 sentences, answering ANY of the following questions. <i>a. What did I learn about this lesson that I did not know before?</i> <i>b. Which topic was easy for me?</i> <i>c. Which topic was challenging to learn?</i> <i>d. Do I understand it now?</i>	The teacher should allow the learners to document their ways on how they think about their learning (metacognition).								

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		NOTES TO TEACHERS
A. Evaluating Learning	1. Formative Assessment Let students answer the following multiple choice test questions: 1. What is the primary function of xylem in plants? A. Transporting sugars B. Transporting water and nutrients C. Providing structural support D. Facilitating gas exchange	Answer Key: 1. B 2. B 3. C 4. B 5. A 6. C 7. D 8. B

	2. Which of the following is responsible for transporting sugars in plants? A. Xylem B. Phloem C. Stomata D. Guard cells 3. What is transpiration? A. The process of photosynthesis B. The process of water absorption by roots C. The process of water loss through leaves D. The process of nutrient absorption by roots 4. What is root pressure responsible for? A. Pulling water from the soil into the roots B. Pushing water from the roots to the leaves C. Regulating gas exchange in the roots D. Breaking down nutrients in the roots 5. What is capillary action? A. The movement of water through narrow tubes B. The movement of nutrients from roots to leaves C. The movement of sugars from leaves to roots D. The movement of gases through stomata 6. Which of the following is NOT a function of phloem? A. Transporting sugars B. Transporting amino acids C. Providing structural support D. Transporting hormones 7. What is a sieve tube in plants? A. A type of leaf structure B. A type of root structure C. A type of xylem vessel D. A type of phloem vessel	9. C 10. B 11. D 12. B 13. A 14. B 15. C 16. B 17. A 18. A 19. C 20. A
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	8. What is the primary role of vascular bundles in plants? A. To provide structural support B. To transport water and nutrients C. To produce sugar through photosynthesis D. To regulate gas exchange 9. What is translocation in plants? A. The process of water absorption by roots B. The process of nutrient absorption by roots C. The transport of sugars and other nutrients throughout the plant D. The movement of gases through stomata 10. What is the role of guard cells in plants? A. Absorbing water from the soil B. Regulating the opening and closing of stomata C. Transporting sugars in the plant D. Providing structural support to leaves 11. Which of the following is NOT a part of the plant transport system? A. Xylem B. Phloem C. Stomata D. Chloroplasts 12. What is the main function of stomata in plants? A. Absorbing sunlight for photosynthesis B. Exchanging gases with the environment C. Transporting water from roots to leaves D. Providing structural support to leaves 13. What is the movement of water from roots to leaves called? A. Transpiration B. Translocation C. Root pressure D. Capillary action	
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	14. Which of the following statements about xylem is true? A. Xylem transports sugars from leaves to roots. B. Xylem vessels are made of dead cells. C. Xylem is responsible for opening and closing stomata. D. Xylem transports amino acids in plants. 15. What is the function of phloem in plants? A. Transporting water and minerals B. Providing structural support C. Transporting sugars and other organic nutrients D. Regulating gas exchange 16. How do guard cells regulate the opening and closing of stomata? A. By absorbing water and swelling B. By changing shape due to changes in turgor pressure C. By secreting hormones that stimulate opening D. By responding to changes in light intensity 17. What is the role of root hairs in the plant transport system? A. Absorbing water and nutrients from the soil B. Transporting sugars from leaves to roots C. Providing structural support to the roots D. Regulating gas exchange at the roots 18. What is the function of a vascular bundle in a plant? A. To transport water and nutrients B. To absorb sunlight for photosynthesis C. To store excess sugars D. To protect the plant from pathogens 19. Which of the following is NOT a factor that affects the rate of transpiration? A. Light intensity B. Humidity C. Soil pH D. Temperature	
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	20. What is the term for the upward movement of water in plants against gravity? A. Transpiration pull B. Capillary action C. Root pressure D. Translocation 2. Homework (Optional)			The teacher may give homework for extended deliberate practice.
B. Teacher's Remarks	<i>Note observations on any of the following areas:</i>	Effective Practices	Problems Encountered	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 tasks that will be continued the next day or additional activities needed.
	strategies explored			
	materials used			
	learner engagement/interaction			
	others			
C. Teacher's Reflection	<i>Reflection guide or prompt can be on:</i> <i>principles behind teaching</i> <i>What principles and beliefs informed my lesson?</i> <i>Why did I teach the lesson the way I did?</i>			This lesson design component guides the teacher in reflecting on and for practice. Entries on this component will serve as

	▪ <u>students</u> <i>What roles did my students play in my lesson?</i> <i>What did my students learn? How did they learn?</i> ▪ <u>ways forward</u> <i>What could I have done differently?</i> <i>What can I explore in the next lesson?</i>	inputs for the LAC sessions, which can center on sharing best practices discussing problems encountered and actions to be taken; and identify anticipated challenges and intended solutions. Guide questions or prompts may be provided here.
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