8

DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Science

Quarter 1
Lesson
4

Lesson Exemplar for Science Grade 8
Quarter 1: Lesson 4 of 5 (Week 5)
SY 2025-2026

Development Team

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SCIENCE /QUARTER 1 / GRADE 8

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	The learners learn that: 1. Classification of living things shows life's diversity.
B. Performance Standards	By the end of the Quarter, learners will explain that the classification of living things shows the diversity and unity of living things.
C. Learning Competencies and Objectives	***Learning Competency*** 1. Describe the importance of the six-kingdom system and the three-domain system of classification of living things. ***Learning Objectives:*** Students should be able to: 1. Determine the scientific names of each organism. 2. Classify each organism, based on the hierarchical taxonomic system of classification. 3. Classify the selected organisms based on the six- kingdom classification system. 4. Acquaint students with the three-domain classification system of common organisms and enhance their understanding of biological diversity and classification principles.
D. Content	Topic: Classification Systems Sub-topic: Domains and Kingdoms
E. Integration	**SDG 15: Life on Land**: Taxonomic classification is crucial for understanding and preserving biodiversity. By organizing and categorizing species, the taxonomic system helps in monitoring changes in ecosystems, identifying threatened species, and guiding conservation efforts. **SDG 14: Life Below Water**: A taxonomic classification system is also relevant to the conservation and sustainable management of marine biodiversity. By categorizing marine organisms, scientists can assess the health of marine ecosystems, identify vulnerable species, and develop strategies for sustainable fisheries management and marine conservation. **SDG 3: Good Health and Well-being**: Taxonomic classification is important in various aspects of health, including identifying disease vectors, understanding the ecology of infectious diseases, and discovering new pharmaceutical compounds from natural sources.

II. LEARNING RESOURCES
Bailey, R. (2024, May 19). The 6 kingdoms of life. ThoughtCo. Retrieved from https://www.thoughtco.com/six-kingdoms-of-life-373414 Building the tree of life. (n.d.). Retrieved from https://www.etsu.edu/uschool/faculty/tadlockd/documents/bio_chpt18sec3show.pdf Libretexts. (2023, August 31). 1.3: Classification - The three-domain system. Biology LibreTexts. Retrieved from https://bio.libretexts.org/Bookshelves/Microbiology/Microbiology_(Kaiser)/Unit_1%3A_Introduction_to_Microbiology_and_Prokaryotic_Cell_Anatomy/1%3A_Fundamentals_of_Microbiology/1.3%3A_Classification_-_The_Three_Domain_System Practical Science 8. (2018). 4/F SEDCCO 1 Bldg. 120 Thailand corner Legazpi Streets: DIWA Learning Systems INC. Practical Science 9. (2018). 4/F SEDCCO 1 Bldg. 120 Thailand corner Legazpi Street: DIWA Learning System.

III. TEACHING AND LEARNING PROCEDURE		**NOTES TO TEACHERS**
A. Activating Prior Knowledge	**Day 1** **1. Short Review** **Activity 1.** **Word Discovery.** Rearrange each set of jumbled letters to form the correct term. Refer to the given clues. 1.Group of related species. S G N E U 2.One or more group (s) of natural population wherein individuals interbreed and are reproductively isolated from the other groups. S E P C E S I 3. Science that deals with naming, describing, identifying and classifying organisms A T O M X N O Y	The teacher can gamify this activity to enhance engagement, turning it into a lively five-minute game session. Answer 1. Genus 2. Species 3. Taxonomy 4. Kingdom 5. Systematics

	4.Level of classification consisting of smaller groups called phyla. I N K G O D M 5.Scientific study of the diversity of organisms and their evolutionary relationships. S T E M C A Y T S I S **2. Feedback (Optional)**	
B. Establishing Lesson Purpose	**1. Lesson Purpose** **Activity 2.** • *Guide Questions:* 1. Which organisms belong to the same order? 2. Which organisms are closely related? Explain. 3. Why are there more similarities between a cat and a dog than between a dog and a human? 4. Which organism is different among the rest? Why?	Have students engaged introductory activity by answering the questions provided in the attached Learning Activity Sheet: *"Activity #2: My Global Name."* They can work in teams and utilize their phones for reference during the activity. As students are answering the questions, circulate among the groups and facilitate brief discussions about the activity. *(35 minutes activity)* Following the completion of the activity, each group selects a representative to present their answers to the class.

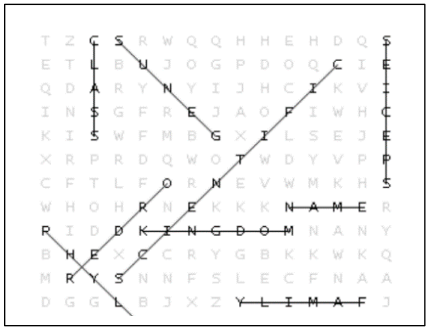
2. Unlocking Content Area Vocabulary
Activity 3.
Let the students answer the word puzzle.

Word	Meaning
Domain	A domain in biological classification is the highest taxonomic rank, which groups organisms based on fundamental differences in their cellular and genetic structure.
Kingdom	A biological classification is one of the highest taxonomic ranks, just below the domain, used to group together all forms of life that share fundamental structural and functional characteristics.
Phylum	Phylum is a classification level beneath the kingdom and groups together organisms with similar body plans or structures, allowing scientists to further categorize and study different types of living things.
Class	Class is a classification level below phylum and groups together organisms that share even more specific characteristics. It consists of several orders.
Order	Order is a classification level beneath class and further organizes organisms based on even more specific similarities in their characteristics and behaviors. It allows scientists to group together organisms that are more closely related. It consists of several related families.
Family	Family is a taxonomic classification that groups together organisms with even more specific similarities, such as similar body structures and behaviors. It helps scientists categorize organisms into smaller, more closely related

See attached Learning Activity Sheet: *Activity #3: Where do you belong.*

Source:
https://puzzlemaker.discoveryeducation.com/

Answer
Top of Form



This activity will last for 10 minutes, and immediate assessment and evaluation of their answers will be conducted. This will be a springboard for the lesson discussion.

	groups for further study and understanding. Consist of several related genera (singular: Genus)
Genus	Genus consists of several related species
Species	A species is the most specific level of organism classification in biological taxonomy, representing a group of individuals that can interbreed and produce fertile offspring in natural conditions. Members of a species share common characteristics and genetic similarities.
Scientific Name	a unique, two-part name given to each species of organism. It consists of the genus name (the first part) the first letter is written in capital letter and the species name (the second part) this is written in lowercase letter, both written in Latin and italicized. This naming system, known as binomial nomenclature, allows scientists worldwide to communicate effectively about specific organisms.

- **Big Idea:**
  Classification systems are used to organize and categorize living organisms based on their characteristics, relationships, and evolutionary history.

  The most widely used classification system is the Linnaean system, which categorizes organisms into a hierarchical structure of seven levels: kingdom, phylum, class, order, family, genus, and species.

- You can show this video: YouTube. (2016, October 9). *How are organisms classified? | evolution | biology | Fuseschool*. YouTube. https://www.youtube.com/watch?v=lnvlMlopu2A

Use these definitions to start the discussion. Present the big idea.

Note: Teachers may allow students to research on the clues using their textbooks or the internet to help them answer the activity

C. Developing and Deepening Understanding	**Day 2** **1. Explicitation** **Activity 4.** *Matching type:* Match Column A with Column B. Write a letter of the correct answer on the space provided before the number. **A** _____1. A biological classification, just below the domain, used to group together all forms of life that share fundamental structural and functional characteristics. _____2. A classification level beneath kingdom and groups together organisms with similar body plans or structures, allowing scientists to further categorize and study different types of living things. _____3. A classification level below phylum and groups together organisms that share even more specific characteristics. It consist of several orders. _____4. Classification level beneath class and further organizes organisms based on even more specific similarities in their characteristics and behaviors. Consist of several related families. _____5. Consist of several related genera (singular: Genus) _____6. Consist of several related species _____7 The specific level of organism classification in biological taxonomy, representing a group of individuals that can interbreed and produce offspring in natural conditions. **B** A. Family B. Kingdom C. Order D. Class E. Species F. Genus G. Phylum  **Fig 1**. Six Kingdom Classification	Answers: 1.B 2.G 3.D 4.C 5.A 6.F 7.E The teacher can use a diagram to introduce the SIX-kingdom classification system and spark discussion among students. *Fig 1. Six Kingdom Classification* **Source:** https://www.thoughtco.com/six-kingdoms-of-life-373414

	• Big Idea: The six-kingdom classification system was proposed by American microbiologist and cell biologist Carl Woese in the 1970s. Woese's work focused on the study of ribosomal RNA (rRNA) sequences, which revealed significant differences between certain groups of bacteria. This led to the recognition of the Archaea domain and the proposal of the six-kingdom system, which provided a more accurate classification of living organisms based on genetic relationships. **2. Worked Example** • Present this video: YouTube. (2016b, December 13). *Basic taxonomy-6 kingdoms of Life-Classification*. YouTube. https://www.youtube.com/watch?v=XQccyAvSR0E • Let the students answer the Guide Questions: *Guide Questions:* 1. What are the six kingdoms in the classification system proposed by Carl Woese? 2. How does the inclusion of the Archaea domain change our understanding of microbial diversity? 3.What are the distinguishing characteristics of each kingdom in the six-kingdom classification system? 4. Why is it important to classify organisms into different kingdoms? **3. Lesson Activity** **Activity 5.** • Guide Question: 1.What is the mode of nutrition among organisms that belong to Kingdom Plantae? 2. How do structures of fungi differ from those of plants? 3. What is the common cell type among organisms that belong to the kingdom Archaebacteria? 4. What is the importance of classifying and naming organisms?	See attached Learning Activity Sheet: *Activity #5 & 6: You Belong with ME* *Answers:* 1.Halobacterium sp./Archaeabacteria 2.E. coli/ Eubacteria 3. Microporus xanthopus/Fungi 4.Amoeba proteus/ Protist 5.Aedis aegypti/ Animalia 6.Rhizopus stolonifera/ Fungi 7.Vanda sanderiana/Plantae 8.Nephrolepis exaltata/ Plantae 9.Amphiprioninae/ Animalia 10. Paramecium caudatum/ Protist 11.Thermus aquaticus/ Archaeabacteria 12. Staphylococcus aureus/ Eubacteria

	Day 3 **1. Explicitation** **(5 Min. Review on the 6 KINGDOM classification)** **Activity 6.**  • Present this video to the class: YouTube. (n.d.). YouTube. https://www.youtube.com/watch?app=desktop&v=EWjYS-DNI • *Guide Questions:* 1. Identify the three domains used in classification. How do they differ from each other? 2. What is the importance of the three-domain system in studying the evolutionary relationships between organisms? 3. What are the applications of the three-domain system beyond taxonomy. How does understanding microbial diversity impact fields such as medicine, biotechnology, and environmental science?	See attached Learning Activity Sheet: *Activity #5 & 6: You Belong with ME* Display this diagram on the board or let them answer in their Learning Activity Sheets and allow the students to categorize organisms based on their kingdom. 1. Oryza sativa/ Plantae 2. Lactobacillus casei/ Eubacteria 3. Paramecium/ Protist 4. Canis familiaris/ Animalia 5. Leveillula Taurica/ Fungi 6. Thermophiles/ Archaebacteria

2. Worked Example

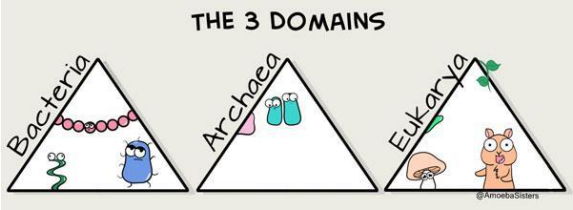


Fig. 2 The Three Domain System

Image source: https://plantlet.org/classification-of-life-the-three-domain-system/

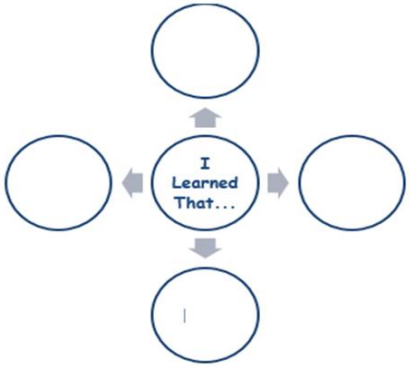
- **Big Idea:**
  The three-domain classification system was proposed by American microbiologist and molecular biologist Carl Woese in the late 20th century. The three-domain system is a biological classification system that categorizes all living organisms into three major domains based on molecular data, primarily ribosomal RNA (rRNA) sequences.

  1. *Bacteria* are a diverse group of single-celled microorganisms with prokaryotic cells. They are found in various habitats and play crucial roles in nutrient cycling, decomposition, and symbiotic relationships with other organisms.
  2. *Eukarya* consists of organisms with eukaryotic cells, which contain membrane-bound organelles and a true nucleus. This domain includes protists, fungi, plants, and animals, encompassing a wide range of multicellular and unicellular organisms.
  3. *Archaea* comprise single-celled microorganisms that are genetically and biochemically distinct from bacteria and eukaryotes. They are known for their ability to survive in extreme environments such as high temperatures, acidity, and salinity.

Activity 7.

- *Guide Questions:*
  1.Compare and contrast the three-domain system of living organism, in terms of
    1.1 cellular structures
    1.2. habitat
    1.3 Organization

See attached Learning Activity Sheet: *Activity #7: Match up Madness*

	2. What are the ecological roles and significance of organisms within each of the three domains in the three-domain system? **3. Lesson Activity** **Activity 8.** • *Guide questions:* 1.What are the fundamental distinctions among bacteria, archaea and eukarya? 2. Why is it significant to classify organisms using the three-domain system?	See attached Learning Activity Sheet: *Activity #8: Classify Me* The teacher can arrange printed resources for this task. The teacher can organize the students into teams to promote interaction. Let the students present their answers to the class.
D. Making Generalizations	**Day 4** **1. Learners' Takeaways** **Activity 9.** **Concept Map.** Let the students supply this concept map to assess learners' learning.  **2. Reflection on Learning** **Activity 10.** **Journal.** In their notebook, the students will write a journal entry consisting of 3-4 sentences. • *Answering ANY of the following questions.* a. What did I learn about this lesson that I did not know before? b. Which topic was easy for me? c. Which topic was challenging to learn? *d.* Do I understand it now?	The teacher may propose other activities for the learners to describe their understanding of a concept, idea, and skill covered in the previous topic. 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** **Activity 11.** **Assessment.** Choose the letter of the correct answer. 1. Which of the following is a correct hierarchy of taxonomic classification, from broadest to most specific? a. Class, Order, Genus, Family, Species b. Kingdom, Phylum, Class, Order, Family, Genus, Species c. Domain, Phylum, Class, Order, Family, Genus, Species d. Kingdom, Class, Order, Phylum, Family, Genus, Species 2. Which taxonomic rank is the most inclusive and encompasses all other ranks? a. Species b. Genus c. Kingdom d. Class 3. In the Scientific name *Homo sapiens*, what does "sapiens" refer to? a. Genus b. Species c. Family d. Order 4. The taxonomic rank "Domain" is used to classify organisms based on: a. Anatomical similarities b. Genetic differences c. Habitat d. Feeding habit 5. Which kingdom in the six-kingdom classification system consists of organisms that are multicellular, photosynthetic and have cell walls made of cellulose a. Animalia	Answers: 1. C 2. C 3. B 4. B 5. C 6. A 7. C 8. C 9. A 10. B

b. Fungi
c. Plantae
d. Protista

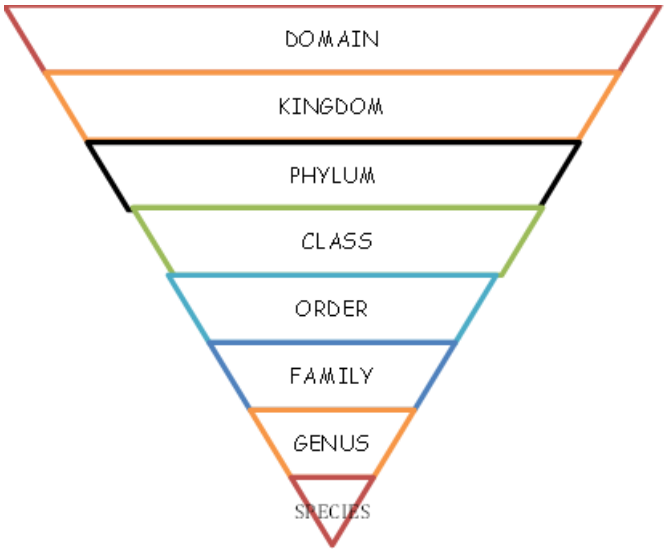
6. The Kingdom Animalia is characterized by organisms that:
a. Are multicellular and heterotrophic
b. Obtain energy through photosynthesis
c. Have cell walls made of chitin
d. Lack of true nucleus

7. Which Kingdom in the six-kingdom classification system includes organisms that are eukaryotic, mostly multicellular and obtain energy through ingestion?
a. Plantae
b. Fungi
c. Animalia
d. Protista

8. The kingdom Fungi is characterized by organisms that:
a. Are Photosynthetic and unicellular
b. Obtain energy through ingestion and are multicellular
c. Obtain energy through absorption and have cell walls made of chitin
d. Lack of true nucleus and prokaryotic.

9. Which of the following three domains includes organisms that are known for their ability to thrive in extreme environments such as hot springs and deep-sea vents?
a. Archaea
b. Bacteria
c. Eukarya

10. Which domain in the three-domain system includes organisms that are characterized by their diverse metabolic capabilities, including photosynthesis, decomposition and nitrogen fixation?
a. Archaea
b. Bacteria
c. Eukarya

<table>
<tr><td></td><td colspan="3">Test II: Label the diagram below highlighting the Human Taxonomic Rank
 

2. Homework (Optional)</td><td>The teacher may give homework for extended deliberate practice.</td></tr>
<tr><td rowspan="3">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="3">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’</td></tr>
<tr><td>strategies explored</td><td></td><td></td></tr>
<tr><td>materials used</td><td></td><td></td></tr>
</table>

	learner engagement/ interaction			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.
	Others			
B. Teacher's Reflection	*Reflection guide or prompt can be on:* ▪ *principles behind 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?*			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.