

Wonders of the World: Exploring Living Creatures

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Grade Level 7th grade
Duration 2-3 class periods

National Standards

GEOGRAPHY

Element 1: The World in Spatial Terms

1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

Element 3: Physical Systems

8. The characteristics and distribution of ecosystems and biomes on Earth's surface

NEXT GENERATION SCIENCE From Molecules to Organisms: Structures and Processes

MS-LS1-1 Conduct and investigation to provide evidence that living things are made of cells; either one cell or many different number and types of cells.

AZ Standards

ELA

Speaking and Listening Comprehension and Collaboration

7.SL.2 Analyze the central ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, and orally) and explain how the ideas clarify a topic, text, or issue under study.

Presentation of Knowledge and Ideas

7.SL.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

SCIENCE

Life Sciences

7.L1U1.8 **Obtain, evaluate, and communicate information** to provide evidence that all living things are made of cells, cells come from existing cells and cells are the basic structural and functional unit of all living things.

Arizona Social Studies Standards

GEOGRAPHY

7.G1.1 Use and construct maps and other geographic representations to explain the spatial patterns of cultural and environmental characteristics. Key tools and representations such as maps, globes, aerial and other photos, remotely sensed images, tables, graphs, and geospatial technology.

7.G1.2 Analyze various geographic representations and use geographic tools to explain relationships between the location of places and their environments.

7.G4.4 Explain an issue in terms of its scale (local, regional, state, national, or global)

SIOP Elements

Wonders of the World: Exploring Living Creatures

Preparation Adapting content Linking to background Linking to past learning Strategies used	Scaffolding Modeling Guided practice Independent practice Comprehensible input	Grouping Option Whole class Small groups Partners Independent
Integrating Processes Reading Writing Speaking Listening	Application Hands on Meaningful Linked to objectives Promotes engagement	Assessment Individual Group Written Oral

Arizona English Language Proficiency Standards

Grade 6-8

Basic

Standard 1: Construct meaning from oral presentations and literary and informational text through grade appropriate listening, reading, and viewing.

B-2: recount specific details and information in a variety of texts.

Standard 3 By the end of each language proficiency level, an English learner can speak and write about grade appropriate complex literary and informational texts and topics.

B-5: use examples of precise language and domain-specific vocabulary within informative texts.

Standard 7 By the end of each language proficiency level, an English learner can conduct research and evaluate and communicate findings to answer questions or solve problems.

B-1: gather information from multiple provided resources to answer questions.

Overview

There are many wonders in our world, and one of these wonders is life. Distinguishing the characteristics of living and non-living things is a primary lesson for science students. Identifying and analyzing the characteristics of living things and their classification is a foundational base for science.

Purpose

In this lesson, students will be able to research and categorize different types of micro and macro organisms by their characteristics and classification. This lesson contains strategies for diverse learners (ELLs).

Key Vocabulary

autotrophs: organisms that obtain their energy from solar energy

heterotrophs: organisms that obtain their energy from the environment

herbivore: an animal that feeds on plants

carnivore: an animal that feeds on flesh

omnivore: an animal that eats both plants and animals

unicellular: an organism made of one cell

multicellular: an organism made of many cells
organism: an individual animal, plant, or single-celled life form

micro-organism: an organism that is very small

macro-organism: an organism that is large enough to be seen with human eyes

parasite: an organism that lives on or in a host organism and gets its food from or at the expense of its host

poisonous: causing or capable of causing death or illness if taken into the body

native: from the area (original)

invasive: not native (original) to the area

flora: list of the plants of a particular region, habitat, or period

fauna: list of the animals of a particular region, habitat, or period

Materials

- Wonders of the World: Exploring Living Creatures Lesson PowerPoint
- Sample of "Stinknet" or Globe Chamomile (if possible)
- Stinknet Reading (adapted for language learners)
- Stinknet Reading (original article) "It may look like a wildflower, but 'stinknet' is a menace to native plants and people." By Debra Utacia Krol

Wonders of the World: Exploring Living Creatures

<https://www.azcentral.com/story/news/local/arizona-environment/2020/03/26/stinknet-globe-chamomile-crowds-out-native-arizona-plants-creates-wildfire-danger/2864576001/>

- 3-2-1 Strategy Practice on Stinknet/Globe Chamomile graphic organizer
- Vocabulary Cards
- Vocabulary Practice worksheet
- Wonders of the World Classification Worksheet
- Wonders of the World: Exploring Living Creatures Classification Activity PowerPoint with interactive map and electronic worksheet
- Computers/electronic devices with internet access
- Projection device
- Vocabulary Test

Objectives

The student will be able to:

1. Describe what are the characteristics of living things by providing evidence that all living things are made of cells.
2. Identify, analyze, and classify living organisms into groups with similar characteristics.

Procedures

SESSION ONE

1. Project the Wonders of the World: Exploring Living Creatures Lesson PowerPoint. At **slide one**, ask the students what they know about the Wonders of the World. Make a list on the whiteboard or using a document camera. **(Preparation: Linking to past learning)**
2. If no one has mentioned living things in nature, add that to the list and explain that for the next several days they will be learning about the wonder of living things.
3. Project **slide two and three** and introduce or review how scientists look at living things.
4. Project **slide four**, identify some of the wonderful organisms (animals and plants) that are found in the world.
 - North America-stinknet
 - South America-glass frog, coati or coatimundi, and arcella gandalfi amoeba
 - Europe-algae
 - Africa-gazelle and baobab tree
 - Asia-disease called amebiasis caused by parasites, bamboo, and lynx
 - Antarctica-single cell bacteria
 - Australia-red oleander

5. Project **slide five**. Focus on the map of the USA with the different colored states and point to Arizona. Ask what wonders exist in this location? Solicit student responses.
6. Project **slide six** and introduce the students to “Stinknet” by asking students if they have heard or know about “Stinknet,” an invasive plant in Arizona. Show a sample of “Stinknet” if possible. Tell students that another name for this plant is Globe Chamomile. Ask these questions:
 - What does the plant/flower look like?
 - Where is located?
 - In which state is it located?
 - In which country is it located?
 - On what continent is that country located?
7. Open the link on **slide six**, to access the reading on Stinknet (adapted for language learners) or use the full article found at <https://www.azcentral.com/story/news/local/arizona-environment/2020/03/26/stinknet-globe-chamomile-crowds-out-native-arizona-plants-creates-wildfire-danger/2864576001/> **(Preparation: Adapting content)**
8. Distribute the 3-2-1 Strategy Practice on Stinknet/Globe Chamomile graphic organizer.
9. Model the 3-2-1 Strategy using **slide seven**. This strategy consists of including: **ONE** photograph or drawing of the organism, **TWO** geographical areas where the organism is located. This can include continent/region, continent/country, and/or body of water/landform areas. **THREE** characteristics or adaptations of the organism that are unique for their survival.
10. Have students recall the information from the reading and complete the 3-2-1 graphic organizer. Project **slide eight** and share the correct answers. **(Scaffolding: Comprehensible input, Guided practice, Modeling)**
11. Have students conclude the lesson by restating what they learned today with a partner.

SESSION TWO and THREE

Note: for Wonders of the World: Exploring Living Creatures Classification Activity (#3+ below) there are two choices. If you have electronic devices for every student, you can do the activity on the devices and have students submit their work electronically. If you do not have enough devices for every student, you still need several devices for students to share because the map is interactive. These students can use paper worksheets for recording their work.

Wonders of the World: Exploring Living Creatures

Prior to this session, post the Wonders of the World Classification Worksheet PowerPoint in a place where students can access the interactive map included in the PPT.

1. Begin this session by distributing the Vocabulary Practice worksheet and projecting the Vocabulary Cards. Discuss each of the terms that will be used in the following activities. Have students illustrate each term on the worksheet. **(Scaffolding: Comprehensible input; Application: Promotes engagement)**
2. Place printed copies of the Vocabulary Cards on a Word Wall or hand to students who may need additional help with learning these terms.
3. Project **slides nine through eleven** of the Wonders of the World: Exploring Living Creatures Classification Activity PowerPoint. The teacher will read the directions to complete Wonders of the World Classification activity. Be sure students understand that they only do 1-2 images on the map and that they will share their findings. Point out that **stinknet** has been done for them.
4. In classrooms where every student has a device, have students access the Wonders of the World Classification Activity PowerPoint and use the electronic version of the worksheet using the Wonders of the World Classification Activity slides. In classrooms without one-to-one devices, distribute paper copies of the Wonders of the World Classification Worksheet and as many electronic devices as you have. Have students work in groups. **(Application: Promotes engagement; Grouping Options: Small groups, Independent)**
5. Give each student time to investigate and generate the information needed to complete the worksheet. **(Integrating Processes: Reading, Writing)**
6. Ask students to share out the information obtained from their investigation. Instruct students to complete their worksheets with this new information. **(Integrating Processes: Listening, Writing, Speaking)**
7. Have students work independently or in groups and investigate one organism of their choice. The last spot on the worksheet will accommodate their investigation. **(Application: Promotes engagement, Linked to objectives, Meaningful)**
8. Project **slides twelve through fourteen** if you wish the students to grade their work themselves.

Assessment

ELA, Science, and Social Science

The Wonders of the World Classification Worksheet can be graded for completeness and accuracy. A score of 90% or higher will be considered mastery. **(Assessment: Individual, Written)**

The Vocabulary Test can measure language acquisition. A score of 80% or higher will be considered mastery. **(Assessment: Individual, Written)**

Extensions

Student could create a list of online resources for gathering information about one of the organisms on the world map that interests them.

Provide a photograph of a biome (with plants/animals) and list at least 6 organisms to answer the questions of:

- How do the organisms all fit in the biome?
- What are some characteristics or adaptations of the organism that help them survive in that biome?

The following website has virtual 360 views of different biomes with detailed photographs, audio files, and explanations.

<https://askabiologist.asu.edu/explore/Virtual-360-Biomes>

Sources

Maps from the Arizona Geography Alliance, World Map:

http://geoalliance.asu.edu/sites/default/files/maps/World_Continents.pdf

Arizona Biomes:

https://geoalliance.asu.edu/sites/default/files/maps/AZ_biomes_web.pdf

USA:

<https://geoalliance.asu.edu/sites/default/files/maps/US-w-names-COLOR.pdf>

Ameba: <https://www.cdc.gov/parasites/amebiasis/>

Ameoba *Arcella gandalfi*:

<http://onebugaday.blogspot.com/2017/02/a-new-amoeba-arcella-gandalfi.html>

Baobob Tree: <https://youtu.be/ebOLqfeFhg0>

Bamboo: <http://www.cits.net/china-travel-guide/bamboo-a-noble-plant-in-chinese-culture.html>

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<https://www.guaduibamboo.com/blog/bamboo-stem-anatomy>
<https://www.guaduibamboo.com/blog/bamboo-stem-anatomy>

Antarctic Bacteria:

<https://www.dailymotion.com/video/xxlwil>

Coati:

<https://kids.nationalgeographic.com/animals/mammals/facts/coati#/coati-map.png>

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Frog:

<https://kids.nationalgeographic.com/animals/amphibians/facts/reticulatedglassfrog#/reticulated-glass-frog-profile.jpg>

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Gazelle: <https://www.awf.org/wildlife-conservation/thomsons-gazelle>

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Lynx: <https://www.rgo.ru/en/projects/protection-endangered-species-lynx/about-lynx>

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Microalgae: <https://phycom.eu/>, "microscopic-view-of-microalgae" by t2ll2t is licensed with CC BY-NC 2.0. To view a copy of this license, visit <https://creativecommons.org/licenses/by-nc/2.0/>

Microalgae:

<https://docs.google.com/document/d/1Vz2oEWfMgoGkiWwkQLvpz8UzSAKo2PVZoz4R9QXe4Xk/edit?usp=sharing>

Oleander:

<https://www.australiangeographic.com.au/topics/science-environment/2012/07/australias-most-poisonous-plants/>
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Owl:

Denison Pequotsepos Nature Center, 109 Pequotsepost Rd Mystic, CT 06355, <https://youtu.be/gJ4pl8z4h1Y>

Stinknet:

<https://www.azcentral.com/story/news/local/arizona-environment/2020/03/26/stinknet-globe-chamomile-crowds-out-native-arizona-plants-creates-wildfire-danger/2864576001/>

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