

Our Home: Ecosystems

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Grade Level 4
Duration 3 class periods

National Standards

GEOGRAPHY

Element One: The World In Spatial Terms

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

3. How to analyze the spatial organization of people, places, and environments on Earth's surface

Element 3: Physical Systems

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

Element 6: The Uses of Geography

18. How to apply geography to interpret the present and plan for the future

AZ Standards

ELA

Reading

Craft and Structure

4.RI.4 Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

Integration of Knowledge and Ideas

4.RI.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.

Writing

Research to Build and Present Knowledge

4.W.4 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

Speaking and Listening

Presentation of Knowledge and Ideas

4.SL.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Arizona Social Science Standards

GEOGRAPHY

The use of geographic representations and tools help individuals understand their world.

4.G1.1 Use and construct maps and graphs to represent changes in the Americas over time.

Human-environment interactions are essential aspects of human life in all societies.

4.G2.1 Compare the diverse ways people or groups of people have impacted, modified, or adapted to the environment of the Americas.

Global interconnections and spatial patterns are a necessary part of geographic reasoning.

4.G4.1 Explain the positive and negative effects of increasing economic interdependence on distinct groups, countries, and new settlements.

SIOP Elements

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| 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 4 and 5

Basic

Listening and Reading

Standard 1 By the end of each language proficiency level, an English learner can construct meaning from oral presentations and literary and informational text through grade appropriate listening, reading, and viewing.

B-1: determine the central idea (in informational text) and theme (in literary text) and explain how they are supported by key details.

B-3 identify and describe similarities and differences within a text

Speaking and Writing

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-1: deliver short oral presentations that include some details to develop a topic.

B-3 compose informational text that includes details to develop a topic while using appropriate conventions.

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

Listening, Speaking, Reading, and Writing

Standard 6 By the end of each language proficiency level, an English learner can participate in grade-appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions.

B-1: participate in discussions about familiar topics and texts.

B-2: participate in written exchanges about familiar topics and texts.

B-5: contribute information and evidence to collaborative oral and written discussions.

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.

B-2: sort evidence into categories.

Overview

Most students are only aware of the ecosystem in which they live. However, as they grow up and travel, hopefully, they will learn that the world is not just what they find at home. By looking at various ecosystems such as forest, tundra, grasslands, desert, rainforest and ocean; students can appreciate how diverse the world is and why human actions can help this ecosystem or harm it.

Purpose

In this lesson, the student will investigate an ecosystem including its location, climate, native plants and animals, and any threats to its survival. This lesson contains adaptations for diverse learners (ELLs).

Key Vocabulary

ecosystem: everything that exists in a particular environment

habitat: the place where a plant or animal naturally lives

population: a group of people or animals of a particular kind that live in a place

adaptation: a change in a plant or animal that makes it better able to live in a particular place or situation

migration: to move from one area to another at different times of the year

Materials

- Our Home: Ecosystems PowerPoint
- Vocabulary Handout
- Continents of the World map
- Ecosystem Cube
- Notetaking Sheet for Ecosystem Research
- Big Book Ecosystem Labels
- Oral Presentation Notes worksheet
- Poster board or large paper
- Markers, colored pencils, rulers, glue
- Internet or library books
- Ecosystem Assignment Rubric

Objectives

The student will be able to:

Our Home: Ecosystems

1. Analyze the components of an ecosystem (animals and plants).
2. Identify locations of various ecosystems.
3. Describe the various types of ecosystems.
4. Create a Big Book describing an ecosystem.
5. Orally present the material in a Big Book.

Procedures

SESSION ONE

1. Begin the lesson by having students individually write down their ideas in response to the following questions using these sentence starters:
 - o I would define an ecosystem as _____.
 - o _____ makes an ecosystem function.
 - o One component of an ecosystem is _____.
 - o An example of an ecosystem is _____.**(Integrating Processes: Speaking and Listening) (Scaffolding: Guided Practice)**
2. Have students in groups of four share what they already know about ecosystems **(Grouping Options: Small Groups) (Preparation: Linking to Background)**.
3. Then, after sharing, each group will decide on one collective response and proceed to the whiteboard to record their group's response: My team thinks an ecosystem is _____.
 - Group 1:
 - Group 2:
 - Group 3:
 - Group 4:**(Add group numbers as needed)**

Continue to do the rest of the sentence starters in the same manner. **(Assessment: Group)**
4. Then discuss what these group responses have in common and what is different **(Grouping Option: Whole Class)**
5. Distribute the Vocabulary Handout. Now project the Our Home: Ecosystems PowerPoint. Discuss the first 5 vocabulary words using the images. **(Scaffolding: Comprehensible Input)**
6. Show the following video on ecosystems (3.28 min) to have students create definitions for the next 5 vocabulary terms:
<https://www.youtube.com/watch?v=P1X-WpfUvm4> **Scaffolding: Comprehensible Input)**
7. Have students complete the Vocabulary Handout. **(Grouping Option: Whole Class)**.

SESSION TWO and THREE

Prior to this session, print, cut, and assemble the Ecosystem cubes (1 per group of 4).

1. Have students recall the definition of an ecosystem. **(Preparation: Linking to past learning)**.
2. Then list the 6 ecosystems on the whiteboard.
3. Explain that today they will be exploring one of these ecosystems.
4. Divide students into groups of four. Hand out an ecosystem die to each group. One member of the group will roll the die to determine the ecosystem they will investigate. **(Application: Hands-on, Promotes engagement)**
5. Distribute the Notetaking Sheet for Ecosystem Research and explain that the group will research the main characteristics of their ecosystem. Discuss the notetaking sheet. **Scaffolding: Comprehensible input)**
 - o Location(s) of this ecosystem
 - o Climate (temperature and rainfall)
 - o Plants and animals that live there
 - o Threats to this ecosystem (global warming, fires, volcanoes, man is taking over all of the land, etc.)
6. Reinforce that they will be using at least 2 sources (electronic and/or library books) to gather information. They need to keep track of the sources they are using. **(Integrating Processes: Reading, Writing)**
7. Distribute the Continents of the World map found at https://geoalliance.asu.edu/sites/default/files/maps/World_Continents.pdf to each group. Instruct groups that when they find the location(s) of their ecosystem, they should color in the map
8. Give groups time to research.
9. When groups have researched the group's ecosystem, have colored their map and are ready to proceed; tell them that they will be creating a Big Book and an oral presentation for their classmates based on their research. **(Application: Promotes Engagement)**
10. Distribute large paper or poster board and appropriate Big Book Ecosystem Label to each group. Remind students that their Big Book page should have all of the information they have learned about their ecosystem plus the world map showing the location of this ecosystem.
11. When the Big Book pages are complete, distribute the Oral Presentation Notes worksheet to each student, and have each group orally present to the class using their Big Book page. Listeners will complete the worksheet. Score student presentations and Big Book pages as they are presented. **(Assessment: Oral, Group, Written, Individual) (Integrating processes: Speaking, Listening)**

Assessment

ELA and Geography

The Ecosystems Assignment Rubric can be used to assess the Big Book page and the oral presentation. Mastery will be considered a 3 or higher on each category of the rubric.

The Oral Presentation Notes worksheet can be graded for accuracy and completeness. Mastery will be considered 80% or higher.

ELA

A vocabulary test can be given. Mastery will be considered 80% or higher.

Extensions

The students can develop a terrarium of an ecosystem of their choice to learn more about that ecosystem.

Sources

Continents of the World map
<http://geoalliance.asu.edu/azga/>

Possible Websites for Students to Conduct Research:
<http://eschooldtoday.com/science/ecosystems/what-is-an-ecosystem.html>

<https://www.coolkidfacts.com/ecosystem-facts-for-kids/>

<https://easyscienceforkids.com/all-about-ecosystems/>

<https://www.generationgenius.com/ecosystems-for-kids/>

<https://www.mensaforkids.org/teach/lesson-plans/ecosystems/> (Not for the students, but there is a map that may be helpful for the teacher.