

Human-Caused or Natural?

Exploring Impactful Changes to Habitats

Author Melissa Mercado
Grade Level 5
Duration 2-4 class periods

National Standards

GEOGRAPHY

The World in Spatial Terms

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

Environment and Society

14. How human actions modify the physical environment.

AZ Standards

SCIENCE

Earth and Space Science

5.L4U3.11 Obtain, evaluate, and communicate evidence about how natural and human-caused changes to habitats or climate can impact populations.

Arizona Social Science Standards

Geography

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

5.G2.1 Describe how natural and human-caused changes to habitats or climate can impact our world.

SLOP Elements

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

Arizona English Language Proficiency Standards

Grade 4 and 5

Basic

Listening and Reading

Standard 2 By the end of each language proficiency level, an English learner can determine the meaning of words and phrases in oral presentations and literary and informational text.

B-1: determine the meaning of frequently occurring academic and content-specific words and phrases.

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.

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

Human-Caused or Natural?: Exploring Impactful Changes to Habitats

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-2: sort evidence into categories.

Overview

Every living thing has a home or habitat that helps it survive and thrive. There are a variety of habitats where specific animals and plants live. Every habitat contains specific climate requirements that can also influence what lives there. It is critical that we understand habitats and climates can be impacted by natural and human-caused changes.

Purpose

In this lesson, students will look at habitats and/or climates impacted by agriculture, pollution, and rising sea level and determine the cause—natural or human.

Key Vocabulary

habitat: a place where living and nonliving things live

environment: the place and things that surround living and nonliving things

survive: to live or exist

impact: a strong effect

climate: the average weather over long periods of time

Materials

- Image 1 Before
- Before Observation worksheets (3 choices)
- Image 2 After
- After Observation worksheets (3 choices)
- Vocabulary Cards
- Blank Map Grid
- Colored pencils or crayons
- Green and blue permanent markers
- Transparent sheets (transparency sheets, page protectors, clear laminated sheets, etc.)
- Activity Cards
- Vocabulary Test and Answer Key
- Rubric – Rubric: Identify and Explain

Objectives

The students will be able to:

- Explain what a habitat is.
- Identify at least three different habitats or climates.
- Describe how nature has impacted three or more habitats or climates.
- Discuss how human-caused actions have impacted three or more habitats or climates.

Procedures

Prerequisites: Students should have been introduced to maps and map parts, including TOADS <https://geoalliance.asu.edu/toads> and DOGSTAILS. <https://geoalliance.asu.edu/mapdogstails> Students should be familiar with kinds of natural disasters and their impacts, human land development, and the fundamentals to compare and contrast.

Prior to the Session: This lesson comes with differentiated worksheets. Pick the one(s) best suited to your students.

SESSION ONE and TWO

Engage:

1. Distribute Before Observation worksheets available for different levels of English proficiency. Project Image 1 Before. Ask the students to write 5 observations. **(Integrating Processes: Writing)**
2. Have students share their observations. **(Integrating Processes: Speaking)**
3. Distribute After Observation worksheets available for different levels of English proficiency. Project Image 2 After. Ask the students to write 5 observations. **(Integrating Processes: Writing)**
4. Have students share their observations. **(Integrating Processes: Speaking)**
5. Break the students into groups of 4. Have students go over the Vocabulary Cards in the small groups with time to discuss and quiz each other. Add these words to the class Word Wall.
6. Project Images 1 and 2 side by side to compare. Ask the students what questions they have after viewing the pictures. What are they wondering about? Encourage students to use

words just added to the word wall. **(Integrating Process: Speaking)**

Explore:

7. In the groups of 4 or working as individuals, distribute the Blank Map Grid and colored pencils. Have students name their landmass and write the name in the “Welcome to” area. Instruct students to complete the map by adding at least 5 natural features such as mountains, forest, lakes, rivers, grassland; and at least one climate such as arctic, temperate, tropics, etc. Model how to do several of these using the document camera or whiteboard. Emphasize this is their Before image. **(Scaffolding: Guided practice or Modeling)**
8. Review the elements of TOADS or DOGSTAILS and have students develop a legend for their map. **(Preparation: Linking to Past Learning)**
9. Have students share their maps. **(Integrating Processes: Speaking)**
10. Distribute a Transparent sheet and two permanent markers. Designate blue for Human Impacts and green for Nature Impacts. Have students add this to the legend.
11. Distribute 5-10 activity cards and one die for each map. The activity cards will indicate an impact that students will label on their map (on the clear cover). Each activity card will also have the students calculate the amount of land impacted.
12. Model one Activity Card by rolling a die.
 - a. First card reads: EX: A mine (coal, uranium, diamond, etc.) is dug.
 - b. Roll the die. EX: 6
 - c. Have students calculate the number of miles destroyed, polluted, used, etc. EX: Used 6 x 10 miles of a water source.
 - d. Model how to use the BLUE permanent marker on the transparency to color off 60 miles of a water source.
 - e. If the Activity Card specifies an environment that is not on the map (Example: arctic habitat) then the action does not apply to them. There is no action to take. It is like a “pass.” They escaped that disaster or situation.
13. Explain the Recording Sheet. Model how to fill in the sheet using the example you have just provided. EX: A mine, used 60 miles of water source, human caused
14. Provide time for students to engage in the activity. **(Application: Hands on & Promotes Engagement)**

SESSION THREE

Explain:

15. The teacher will provide time for a discussion of the activity by having small groups or the whole class:
 - a. Compare and contrast the before and after maps.
 - b. Identify any connections they made to the observations from the previous sessions or their background knowledge.
 - c. Discussion questions can include:
 - What impacts did they notice?
 - How did the original map change?
 - What changes were noticed?
 - What impacts changed your original map the most?
 - What impactful changes have they noticed in their own neighborhoods?
 - What do they see in their habitats?
 - What do they think the neighborhood land looked like before people started to live and develop it? **(Integrating Process: Speaking; Preparation: Linking to Background & Linking to Past Learning; Grouping Option: Whole class, Small groups)**

Elaborate:

16. Have students differentiate and identify the human and natural impacts given in this lesson. Have them add other impacts not given in the lesson and categorized them (floods, war, etc.).
17. Have students either in small groups orally or in writing answer the following questions.
 - What are the benefits for people when we change the environment? What do humans gain?
 - What are the disadvantages? What do humans, animals, and plants lose?
 - How do changes in the environment impact us? How would they affect my family? **(Application: Meaningful)**

SESSION FOUR

Evaluate:

18. Give the Vocabulary Test. **(Assessment: Individual)**
19. Have students complete one of the two options in small groups or individually.

Option 1: Students create a fictional place using the blank map grid. The students create a second map of the fictional place and explain how it has been impacted by 4 (natural and/or human-caused) changes. Students then present their before and after maps and identify the human and natural impacts on their resulting map.

Human-Caused or Natural?: Exploring Impactful Changes to Habitats

Option 2: Students present a real-world example they have researched and explain 2-4 changes that have impacted the area. Students identify the impacts as human or natural. Students identify how the people, animals, plants, and the natural environment of the area have been impacted. **(Grouping Option: Independent or Small Groups; Assessment: Group, Written, Oral, Individual)**

Assessment

ELA, Science, and Geography

The Before and After Observation worksheets can be graded for completeness. Mastery will be considered a score of 90% or higher.

The map activity and the Recording Sheet can be graded for completeness. Mastery will be considered a score of 90% or higher.

The Vocabulary Test can be used to measure language acquisition. Mastery will be considered a score of 80% or higher.

The final assessment (Option 1) can be graded using the Rubric: Identify and Explain sheet. Mastery is considered a 3 or higher on the rubric in each category.

The final assessment (Option 2) can be graded using Scoring Guide. Mastery is considered a score of 40 points or higher.

Extensions

- Explain how colonization and Westward Expansion had an impact on indigenous people and land.
- Explore how fires and deforestation have affected the Amazon Rainforest.

- Describe how supply and demand influence habitats and the environment.
- Explain the role of animals, vegetation, and the food chain in ecosystems.
- Assess how different companies such as oil, power plants and mining companies have impacted the environment.
- Examine how renewable resources can be helpful.
- Analyze the importance and effects of conservation.

Sources

Lesson Content Resources for Teachers:

Youtube Video: [“5 Human Impacts on the Environment: Crash Course Ecology #10” by CrashCourse](#)

Youtube Video: [“What Is a Habitat?” by Science Video for Kids](#)

Youtube Video: [“Natural Disasters compilation” by The Dr. Binocs Show, Best Learning Videos For Kids, and Peekaboo Kidz](#)

Image Sources:

<https://www.vintag.es/2017/08/before-urbanization-heres-what-new>

Photo found at

<https://www.vintag.es/2017/08/before-urbanization-heres-what-new-york.html>

Photo found at

<https://www.vintag.es/2017/08/before-urbanization-heres-what-new-york.html-york.html>

Vocabulary Card Images - Sources:

<https://www.sciencebuddies.org/teacher-resources/lesson-plans/animal-habitats>

<https://sosf.org/the-environment/>

<https://www.khanacademy.org/science/biology/ecology/biogeography/a/tolerance-ranges-of-species>

<https://www.express.co.uk/news/science/1177138/Asteroid-news-Earth-impact-survive-cockroaches-Lembit-Opik-Asgardia-asteroid-warning>

<https://www.noaa.gov/news/earth-just-had-its-2nd-hottest-february-on-record>