Community Adaptations

Summary

This is a lesson on how communities have adapted to the environment. Students will understand that people need to make unlivable areas livable by diverting resources.

Essential Questions

- Why do humans modify ecosystems?
- What can we do to protect our ecosystems?
- Why should we protect our ecosystems?

Main Core Tie

Social Studies - 3rd Grade

Standard 1 Objective 2

Time Frame

5 class periods of 30 minutes each

Life Skills

Thinking & Reasoning, Social & Civic Responsibility, Systems Thinking

Materials

- glass bowl
- sand
- length of PVC pipe
- pitcher of water
- lego house (or similar)
- pictures of diverse ecosystems that have been modified by unnatural human constructions (for example, Las Vegas, New Orleans, Mesa, Salt Lake City)
- maps of the world or a globe
- non-fiction books on alternative resources, inhospitable regions, how people survive and adapt to difficult regions in the world

Background for Teachers

The teacher should have a familiarity with Google Earth and a basic understanding of irrigation . It will also be helpful to have a basic knowledge of how humans have influenced global ecosystems to sustain life and what the consequences have been. Examples include: diversion of Colorado River water, levees in New Orleans (and why they were necessary), re-sanding of beaches on East Coast, dam building and the consequences -- Lake Powell, for example.

Student Prior Knowledge

People usually settle where there are resources, but there are places where natural resources are slim. Humans have the ability to alter physical features - making roads, building dams and constructing buildings.

Intended Learning Outcomes

Students will be able to answer the following questions: Why do humans modify ecosystems so we can live there? What we can do to protect our ecosystems? Why should we protect our ecosystems?

Instructional Procedures

Vocabulary: natural resources, economic development, community development, recreation, natural resource extraction, agriculture, irrigation

Day one - Teacher fill bowl 1/2 with sand and then place the lego house on top of sand. Teacher has student hold PVC pipe end over bowl. Teacher pours water through the pipe onto the sand and asks "Why would we pour water into a sandy desert?" Students can pair share possible answers and share with class. Teacher should observe that the water has settled to the bottom of the bowl, noting that sand cannot hold water effectively and so pumping water into a desert isn't efficient.

Teacher asks, "Is a desert a place where natural human settlements are desirable?" Let the students ponder their answers and note that people DO live in deserts. Divide students into groups and ask,as a pre-assessment, "What do humans do to make it possible to live in a desert?" Have the groups list 4-5 things that humans do to modify deserts to make them livable. Teacher compiles the lists, writing them on the board or a large piece of paper and briefly discusses each modification - focus on how much each modification impacts the environment.

Next, the teacher uses the list and has the students rank which situations most affect or change the environment. The teacher writes the top 5 down, and then leads a discussion on what could be done differently to lessen the impact on the resources. For example, if homes in the desert have lawns with Kentucky Blue Grass (which is meant to be grown where there is a lot of water), those lawns could either be xeriscaped or planted with water-wise grass and plants. This discussion is exactly what the students will need to have in their groups to accomplish their final assessment, so model the thought process out loud. End of day one.

Day Two - Look at a globe or map of the world and ask the students to brainstorm where the last place is you would think humans would live (Antarctica, the Sahara Desert, Greenland, sub-Saharan Africa, etc.) and then use Google Earth to look at those areas to see those places and see what traces of human habitations exist. Discuss what these humans have done to make these places livable, but don't get too involved because the students will need to discover specific adaptations as their final assessment.

Divide the students into groups or let them work individually and assign a region of the world that seems inhospitable.Regions are plains, tropic, tundra, grassland, mountain, forests and wetlands. Have them use books, encyclopedias, and whatever sources you have available to help them research the environments, focusing on specific ways humans have changed the environment to make it more livable.(see booklist tab on 3rd grade resources)

It may take a couple of days to do a thorough job of researching the environment and creating their project.

Provide each group with a rubric discussing what they need to find out about human interaction on an environment.

One of the requirements is that the group or individual will teach their findings to the class in a creative and engaging manner of their choosing. Some possible project ideas include making a diorama, poster, encyclopedia entry, dictionary or glossary, 3-D lego (or similar) creation, a book or magazine entry including illustrations, picture book, etc.

You can provide suggestions but the ultimate decision is for the group or individual. The teacher should provide an example of how humans have changed the desert because the desert will not be one of the environments the students explore. Explain that the students cannot COPY the example, but show how the example meets the requirements of the rubric.

Last day - students present their information and grade each other using the rubric.

Strategies for Diverse Learners

Students can work individually or in small groups for final assessment; peer interaction for pre-assessment. Students can present final work in any format appropriate (diorama, poster, written,

Power Point, etc.)

Extensions

Students could explore ways for humans to lessen their impact on an environment in the future. They could also create a glossary with images and definitions of their own final project.

Assessment Plan

Students will create a diorama, poster, newspaper article, web page, encyclopedia article, creation out of legos or similar materials, 3-D display, book or magazine article or related object to teach their peers about their assigned environment and how humans have impacted the environment.

Rubrics

Modified Ecosystems

Authors

Katharina Hartshorn
Laura Zimmerman