

People and their Environment

Urban Ecology



Objectives:

Student will be able to:

- to explain why social science research is a component of urban ecology.
- create questions about the influence of humans on the area they are studying.

Author:

Ecology Explorers Education Team

Time:

20 minutes

Grades:

7-12

Standards:

AZ Science Strands

Personal and social Perspectives

Geography Standards

C1-GRHS-PO5

NGSS - Core Ideas

Biogeology; Group behavior; Information processing

Practices

Asking questions; Constructing explanations; obtaining, evaluating, and communicating information

Crosscutting Concepts

Patterns; Cause and effect; Quantity; Stability and change

Specific AZ, Common Core, and NGSS standards on page 2.

Background:

Ecology is a branch of biology that studies interactions among living things as well as interactions of living things and their physical environment. In an urban setting people are one of the living things interacting with the environment. People influence the environment and the environment influences people in various ways. Scientists from various disciplines are now coming together to share and collaborate research efforts to understand human actions and their influences on ecosystems, and the ecosystems influence on people. As part of ASU's Central Arizona—Phoenix Long-Term Ecological Research (CAP LTER) project, scientists are researching topics from people's landscape and watering practices to their attachment to their neighborhoods. Highlights of CAP LTER research can be found here: <https://caplter.asu.edu/research/research-highlights/>

Vocabulary:

ecology - branch of biology that studies interactions among living things as well as interactions of living things and their physical environment.

Advanced Preparation:

none

Materials:

- paper, white board, overhead transparencies for recording group answers
- "People and the Environment" handout

Recommended Procedure:

- 1) Provide students with the "People and the Environment" handout. Allow students plenty of time to respond to the questions individually.
- 2) Once students have had time to think on their own, have students share in small groups of three to four students. Each group member should share their responses with one another and record their responses on an overhead transparency or a large sheet of butcher paper. Have each group report their responses and have a class discussion based on the responses.
- 3) Share with students that the picture on the handout is of a neighborhood (Ahwatukee, Arizona) that is part of the CAP LTER research area. It is an interesting area to study because of the clear division between residential and desert land cover. How is this different than studying ecology in a more pristine environment? Students are now ready to start thinking about questions they have about human influences in the area they are studying.

Evaluation:

Participation in discussion and completion of "People and the Environment" handout.

Extensions:

Have students read and report on one of the CAP LTER scientist's posters at: <https://caplter.asu.edu/publications/cap-lter-symposia/>

Standards

Arizona Science Standards

Personal & Social Perspective: C1-GRHS-PO1

Arizona Social Studies Standards

Geography: C1-GRHS-PO5

NGSS Core Ideas

ESS2.A: Earth materials and systems

ESS2.E: Biogeology

ESS3.C: Human impacts on Earth systems

LS1.D: Information Processing

LS2.A: Interdependent relationships in ecosystems

LS2.C: Ecosystem dynamics, functioning, and resilience

LS2.D: Social interactions and group behavior

LS4.D: Biodiversity and humans

NGSS Practices

Asking questions

Constructing explanations

Obtaining, evaluating, and communicating information

NGSS Crosscutting Concepts

Patterns

Cause and effect

Scale, proportion and quantity

Stability and Change

AZCCRS/ELA Literacy

RST7: Integration of knowledge and Ideas

WHTS1: Write Arguments

Student Worksheet

People and the Environment



Name: _____

Look at this picture of a neighborhood in the Phoenix area and answer the questions below. This is a brainstorming activity, so write about whatever comes to your mind.



How does the environment influence people?

How do people influence the environment?