

Influences of Human Activity

Strand	Living Systems
Topic	Investigating ecosystems
Primary SOL	4.5 The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem. Key concepts include f) influences of human activity on ecosystems.
Related SOL	4.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which m) current applications are used to reinforce science concepts.

Background Information

Humans can have a major impact on ecosystems. As humans move into areas that are habitats for animals, animals either need to adapt to the changes in their environment or move to different locations. Often this can cause populations of animals to struggle to survive within a specific habitat.

Humans also impact the environment by pollution. Pollutants are any materials that are foreign to the air, water, or soil. Humans can use pesticides on their crops that may run off and pollute the waterways. Humans can also litter, polluting the environment. Smog and acid rain are two more examples of pollution.

Materials

- Pictures of human influences on the environment: pollution, building in rain forests, destroying wetlands, etc.
- Access to books, the Internet, etc., for research
- Science journals or loose leaf paper or copies of the attached Action Plan data sheet
- Presentation materials such as computers and presentation software or poster board

Vocabulary

habitat, ecosystem, pollution

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Introduction

1. Ask students what they know about pollution. As students give you examples of the different types of pollution, list them on the board under the three categories of air pollution, water pollution, and soil pollution without listing these headings. If an example of pollution fits under more than one, list it in more than one category.
2. As students finish their discussion, ask students what the categories you have created have in common. Help students to realize the different effects on air, water, or soil. Ask

students if they can think of any other ways that humans can influence the environment instead of pollution (building houses in natural habitats, etc.).

Procedure

1. Show students the pictures of human influence on the environment.
2. Group students into groups of three to four students and ask each group to pick one picture. Have each group conduct research about what they see in their selected picture and conduct research about possible ways to change what they see in their picture.
3. Have students come up with an action plan for how humans can prevent or limit their influence on the environment based on what they see in the picture. Their plan should include a presentation to convince a specific audience to follow their action plan.
4. Have students design their plan in their science journals, on loose leaf paper, or by using the attached Action Plan data sheet.
5. After they have come up with their plan, let students partner with a student from another group. Ask them to share their plan and ask for feedback from their partners on a way to improve their plan.
6. Have each student return to their initial group and share their feedback to make any changes to their group's plan.
7. Allow students time to create their presentations using computer and presentation software or poster board.

Conclusion

1. If possible, have the students share their presentations with the outside audiences which could help initiate a change based on what students found through their research. If not, have them share with the class.
2. Create a class list of the proposed actions.

Assessment

- **Questions**
 - What types of influences can humans have on the environment?
 - What can humans do to reduce their impact on the environment?
- **Journal/writing prompts**
 - Imagine you are on an island that only recently became inhabited. You notice that fewer frogs are appearing in the river. Explain three reasons this might be.
- **Other**
 - View the Action Plan data sheet for thoughtful plans.
 - Use a rubric to evaluate the presentations.

Extensions and Connections (for all students)

- Have students write a letter to the editor of the local paper talking about the importance of their action plans.
- Let students make a bulletin board with their presentations.

Strategies for Differentiation

- Assign student roles for group work, such as writer, illustrator, organizer, etc.

- Allow students to come up with their own human impact that is not part of the pictures you have provided.

Action Plan

Preventing Human Influence on the Environment

Names: _____ Date: _____

Source of Influence from the Picture: _____

Audience to Convince: _____

Action Plan

Humans need to:

The changes humans will need to follow:

Presentation format: _____