

How Do Humans Change Ecosystems?



Think about: *What do you see in this image? Where did all that trash come from? How do you think that the trash will affect that lake ecosystem?*

List three questions you have about how humans change ecosystems.

1. Humans Can Change Ecosystems

Choose one of these human causes of ecosystem change: **agriculture**, an **oil spill**, a **wildlife refuge**, or a **dam**. Write about how you think that human activity affects ecosystems.



2. Human Development and Ecosystems

Imagine you have to build homes next to this river. If you need to change this river ecosystem, what are two ways humans can do that? Which way would you choose, and why?



3. Taking Resources from Ecosystems

Humans occasionally cause damage to coral reef ecosystems. Explain what actions humans do to damage those ecosystems and how they can be restored.



4. Introducing Species to Ecosystems

Choose **one** of the two invasive species below. Describe in your own words how it harms its new ecosystem.



Kudzu Vines



Zebra Mussels

In this Small Group Investigation, you will act like engineers to design a soilless farming system with a group. Then you will work with your group to build the system, observe the results, and think of ways to improve the design.

- 1) Define the problem your group is trying to solve. What are your criteria for a successful soilless farming system, and what are your constraints?



Asking Questions and
Defining Problems

Criteria:

Constraints:

- 2) Draw a diagram of your group's design. Label the materials, explain the purpose of each material, and describe how the seeds will get the energy and matter they need to grow.



Constructing Explanations
and Designing Solutions

- 4) After your seeds have had several weeks to grow, think about how successful your solution was. Did it successfully meet your criteria and constraints? If not, what went wrong?




Analyzing and Interpreting Data

- 5) What are some ways you can improve your design? For example, you can consider ways you can waste less water or grow more seeds.



Planning and Carrying Out Investigations

Find three changes people have made to the ecosystem in this image. Label them A, B, and C.

 Obtaining, Evaluating, and Communicating Information



For each change that you labeled, describe the change and explain how it affects the flow of matter in the ecosystem.

A)

B)

C)