

Hands on Ecology Activity 3

Topic: Ecosystems

Learning Objective: Students will learn about abiotic and biotic parts of an ecosystem. Students will learn about compost and necessary steps to create and maintain a garden.

Alignment with NGSS Grades 3-5

Science and Engineering Practices

Planning and Carrying Out Investigations

- Evaluate appropriate methods and/or tools for collecting data.
- Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design.

Constructing Explanations and Designing Solutions

- Construct an explanation for observed relationships.
- Identify the evidence that supports particular points in an explanation.

Crosscutting Connections to Engineering, Technology and Applications of Science

Systems and System Models

- A system can be described in terms of its components and their interactions.

Materials:

- Gardening gloves
- Tools
- Abiotic & biotic info sheets

Detailed Description

- Activity
 - Checkin
 - Have students introduce themselves and answer question of the day
 - Students share their responses one at a time around the circle after a little think time.
 - If you could grow any three plants (including fruits or vegetables), what would you grow?
 - Abiotic/Biotic lesson
 - Take students outside. Have each student gather 2 items (size of fist or smaller). In groups of 3-4 students, have students sort their items in a way that makes sense to them (by color, size, texture, use, etc.). After groups have sorted and explained their sorting, explain that ecologists

sort things in the world based on whether they're abiotic or biotic. Have students reclassify their objects based on abiotic or biotic then return them.

- Abiotic: describes things that are not living nor will never be alive (rocks, water, etc.)
 - Biotic: describes things that are living or were once alive (dead leaves, sticks, flowers, paper, etc.)
 - Cultural: explain that sometimes, an item in the world doesn't seem to be purely abiotic or biotic, but a mix of those things or something constructed with biotic materials and manipulated so much that it seems not biotic anymore. Some scientists call this category "cultural."
- Compost study
 - Introduce students to compost.
 - Ask students what they notice and encourage them to pick up a handful of soil to observe what they see.
 - Garden maintenance, as needed
 - Clean beds of debris (add to compost)
 - Add compost to soil and turn
 - Harvest as needed

How will you conclude the lesson to enforce the learning objective:

Once we return to the classroom, have students share with a partner and then out with the class one thing they learned in ecology today.

What science process skills will this lesson exercise?

Sorting and classifying, Communicating

Safety precautions

Ensure students are mindful while using garden tools (if applicable).