

The Ecology Center

TIP:

It may be helpful to have some materials already collected and brought in, for example, a pinecone or piece of decaying wood to illustrate natural bug shelters.

LESSON

BUILDING AN INSECT HOTEL

DESCRIPTION

Students learn about biodiversity, shelter, and make an insect hotel.

BACKGROUND INFORMATION

Biodiversity is short for “biological diversity.” It is a term describing all the varieties of life on earth and the relationships between them, including ecosystems, species, plant life, genetic diversity and cultural diversity. Biodiversity is what gives humans, plants, and animals the ability to withstand disease and to adapt to our changing environments. Biodiversity in farming includes all the different breeds of animals and varieties of plants raised by people to produce food. This genetic diversity is the result of natural selection, intentional cultivation, and innovation by farmers, shepherds, fishers, and cooks over millennia. Agro-biodiversity includes insects, birds, edible wild plants, and even microbes that break down nutrients to create healthy soil.

To illustrate biodiversity in a garden, students will build a safe shelter for beneficial bugs. The best bug hotels have lots of small spaces in different shapes and sizes and made from different materials. Ideally some should be nice and dry inside, and others a bit dampish. Bug hotels are generally made from reclaimed materials, or natural objects.

A simple bug hotel can be made from a collection of hollow stems packed into a plastic bottle with the end cut off. Several hotels could be placed in different positions such as on the ground amongst vegetation, fixed on top of a post, next to a wall, half way up a hedge, in a tree, under a bird table. These are likely to attract different mini-beasts to live in them. Sections of bamboo stuffed with dried plants and natural materials invite insects to nest, eat and reproduce. You will attract bees, beetles, butterflies, and moths, among other things.

Grander bug hotels can be made by piling up a variety of materials into a tower, or making a wooden frame with a series of compartments and packing these with different fillings.

OBJECTIVES

- Kids learn and understand the importance of biodiversity in the garden and other land biomes.
- Students will be asked to describe the things animals need to survive and the ways in which animals depend on other animals and plants.

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STANDARDS

LS4.D Biodiversity and humans

All organisms obtain living and nonliving resources from their environment

(EEI) 3.3.c, 3.3.d. Living Things in Changing Environments

Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial. Students know when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.

MATERIALS

- Journals
- Sticks
- Bamboo
- Leaves
- Feathers
- Mulch
- Cardboard
- Bottles
- Cloth scraps

TIME

45 MINUTES

PREP

- Go over with students what land biome they live in here in California and other biomes that exist in other areas of the world.
- Discuss the animals or insects that live in the California biome close to home.
- Ask students to think of some animals that they are familiar with, such as their pets or animals that live outdoors near their homes. Ask them to state the things these animals need to survive, such as water, food, a place to make their home, and enough room to run and roam.
- Assign each student the role of a local plant or animal (more than one student can play the same role). Ask everyone to stand on one side of the classroom. Then ask one "plant" or "animal" to step out of the picture. For example, you could say, "Will all the oak trees please sit down?" The children taking their seats would represent the dying out oak trees in your area.
- Ask students if any other species depend on the oak tree (or whatever local species you have asked to sit down). Give them hints if they are unsure (e.g., the squirrel eats acorns). If any species depends on the species you have asked to sit down, those students will have to sit as well. Continue until there are no (or very few) students left standing.
- Discuss the implications of the simulation with the class. What happens to the plants and animals in an area when one type of plant or animal dies out? Make sure students understand that all plants and animals in an area (an ecosystem) depend on one another. Can they think of other examples of interdependence, such as in their families, with their friends, or at school?

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- Ask students to brainstorm the reasons why they think some species might be in trouble, in addition to the ecosystem-related reasons they have discussed. Can they think of any ways in which human activities might affect the lives of animals? Show them pictures of construction, recreation, and other human activities, and discuss how the activities in each picture might affect the ecosystem.
- Have students draw pictures of healthy ecosystems in which many plant and animal species coexist. They can get ideas from pictures of natural areas near their homes or other print materials you have available. Ask them to describe, either in writing or out loud, what would happen if the trees or another species were to die off.

ACTIVITY

1. To aid in the garden's biodiversity and ecosystem, students will construct an insect hotel.
2. Gather the large containers or naturally found objects students have brought in or found. Examples include dried gourds, plastic bottles, wooden pallets, cinderblocks, etc.
3. In the spaces between, use smaller objects to make compartments with varied textures and materials.
4. Hang, hide, or place your bug hotels in various places around the garden.

DISCUSSION

1. What do insects eat?
2. Where do they live?
3. How do they depend on the plants and other animals around them?
4. What would happen to these insects if their shelter no longer existed?