



SWEducational

ACTIVITY PACKET

Environmental Engineering Edition

WHAT IS ENVIRONMENTAL ENGINEERING?

Environmental engineers use science and math to help solve problems that have to do with keeping the earth and its creatures safe and healthy. Some engineers describe it as “pollution management” because their job is to help keep the earth clean. Some projects that an environmental engineer might work on are recycling, air pollution, and clean water.

IMPORTANT TERMS

Environment: the area plants and animals lives in

- Example: the Earth is an environment, more specifically, the ocean or mountains
- Your garden or yard is the environment for bees.
- Why is it bad to hurt the environment? What can you do to help the environment?

Ecosystem: a group of living things in an environment

- Example: Plants and animals in a garden make up an ecosystem.
- In this activity, you are creating an ecosystem for bees!
- How might damaging an ecosystem hurt plants and animals?

Ecology: the study of ecosystems and the environment

- Example: A scientist studying the environment, movement, and impact of bees.
- You are becoming an ecologist by making a bee bath and watching how the bees interact with it!
- Why is it important to study ecology and be respectful of other animals and plants?

Pollinator: an animal that moves pollen from one flower to another

- Example: Bees move pollen from flower to flower to help grow more flowers.
- By creating a bee bath, you are allowing bees to pollinate faster and allow more plants to be created and grown.
- Without pollinators, what would happen to our plants? What would happen to the ecosystem?

ACTIVITY INSTRUCTIONS

This is the perfect addition to your garden or yard ecosystem! Let's make something to help our environment and give back to one of our key pollinators: bees. You'll even get to spend some time exploring the outdoors!

SUPPLIES

- Ceramic or glass bowl (not plastic; this could cause chemicals to seep into the water!)
- Shells, rocks, or anything else the bees could stand on
- Optional:
- Twigs (more climbing options for the bees)
- Flowers for decoration (choose flowers that have already fallen onto the ground)
- Cup of clean water



STEPS

1. Collect rocks, twigs, shells, flowers, and anything else you plan on putting into the bee bath. This is a great chance to get outside, explore your backyard, or even go on a nature walk!
2. Grab a ceramic bowl and fill up a cup with clean water

- Put your shells, rocks, and/or other standing platforms for the bees into the bowl. Fill the bowl with water, but be sure to still leave dry areas for the bees to stand on.



- Add the twigs and/or flowers you collected to the bowl.



- Place your new bee bath into a planter or near some planted flowers. If you need to, tilt the bowl slightly to make it easier for the bees to get in and out.



MAINTENANCE

Be sure to change the water every couple days to keep it fresh for our pollinators!

Project inspired by Garden Therapy: <https://gardentherapy.ca/bee-bath/>

OTHER LINKS AND VIDEOS

- What does an Environmental Engineer Do Video: <https://www.youtube.com/watch?v=k2epvAUEdCI>
- Crash Course Video on Environmental Engineering: <https://www.youtube.com/watch?v=uHUO6PrsOzg>
- Recycle City: Explore the city and make decisions to reduce waste and energy use
<https://www3.epa.gov/recyclecity/index.htm>
- More environmental engineering activities: <https://www.sciencebuddies.org/blog/environmental-education-stem-project-roundup>

CAL POLY ENGINEER SPOTLIGHTS



AVA

I love environmental engineering because it gives me a practical way to help protect the Earth. In order to live, we need clean land, clean water, and clean air. As an environmental engineer, I can help improve the quality of these three basic needs to improve our overall quality of life. A cool project I got to work on was figuring out how to turn algae (that green, sometimes icky stuff) into biofuel. Also, at my internship last summer, I got to visit streams and lakes to test water quality to ensure they were safe for native species or summertime swimmers!