

SQUARE FOOT SCIENCE

Let's go outside and explore a tiny patch of nature to learn about the wonders of environmental science. Environmental science combines physical, biological, social, and information sciences to study the natural world and find solutions to environmental problems. Environmental scientists work to understand the complex systems of our world and the effects of human actions upon it.

Each branch of science, like specialties in all fields of study, has its own focus and terminology. Here are a few branches that study different aspects of the environment:

Biology is the study of living things found in the natural world, including plants, animals, algae, bacteria, and viruses.

Botany is the study of plants.

Geology is the study of the physical features and history of Earth. It answers questions about how Earth came to have its present shape and form by studying rocks, fossils, and landforms.

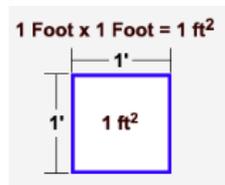
Zoology is the study of animals.

For this activity you will find a spot to measure a small square in your yard or neighborhood park, then look closely within that square area and examine everything you find there.

You will need:

- String
- Measuring tape
- Scissors
- Magnifying glass
- Camera
- Pencil, markers, and/or crayons
- Notepad/paper (using a clipboard gives you a firm surface to write and sketch on)
- Optional: small beaker, test tube, or empty pill bottle for taking samples; bug box for peacefully observing any bugs found (gently return the bug to where you found it!)

Pick a spot where you won't be disturbed or disturb others. Have an adult help you measure one square foot of string using the measuring tape. Measure carefully so the string is long enough to surround the **perimeter** of your square foot study area. so that will be a piece of string 4 feet (or 48 inches) long.



Perimeter is the total distance around the sides of a particular shape (in this case, a square).

$$1 \text{ foot} + 1 \text{ foot} + 1 \text{ foot} + 1 \text{ foot} = 4 \text{ feet}$$

Once you have your piece of string cut, you'll need to set up the perimeter of your square. You can do this by laying your string on the ground and then position it into a square, or you can construct a temporary fence for your square by using twigs, craft sticks, or anything else you have on hand. Place your twigs or craft sticks at the four corners of the square one foot apart, then tie your string to them, like corner fence posts.

Now it's time to get down on your belly and take a look at what's inside your square foot. Use your magnifying glass to get a closer look at what you find. If there is grass growing in your square, just push it aside to see what might be hiding down below.

What do you see? Are there bugs in the grass? Any pebbles or moss in the dirt? Do you see any seeds getting ready to sprout? Did you find leaves or flowers inside your square?

Take notes on your observations. Draw pictures and/or take photos of everything you find. Then draw pictures and/or take photos of the area surrounding your square, observe and make notes about the weather, time of day, season of the year, and anything else that can help you learn more about your one square foot.

Use online resources or identification guides to figure out the common and scientific names of any plants, leaves, rocks, or bugs that you find.

It might be fun to repeat this activity at a different place, time of day, or season. Compare what you find from one square to the next.

Keep your eyes open. You never know what you might find!

ADDITIONAL RESOURCES:

<https://www.pbs.org/video/botany-basics-iuu2bl/>

<https://www.natgeokids.com/uk/discover/animals/insects/15-facts-about-bugs/>

<https://www.soils4kids.org/about>

<https://kids.nationalgeographic.com/animals/invertebrates/earthworm/>