

One Square Inch

LEARNING OBJECTIVES

Students will learn to:

- Use a scientific instrument
- Make and record observations with the instrument
- Learn more about the natural world

MATERIALS NEEDED

- A magnifying glass. You can buy a magnifying glass that magnifies 30 times for about \$8. For example, [here's one at Amazon](#).
- A notebook
- A stopwatch for timing, or a phone with a timer app.

EDUCATOR'S NOTE

Veteran middle school science teacher Eileen Bendixen writes:

"...students love this activity. What I like about it is that it gives students a chance to observe the natural world. In the years in which I taught life science I tried to bring in as many activities as I could to give my students ways to observe real organisms and if they were in their natural habitat even better.

I would recommend that before doing this activity the students create a frame out of oaktag by cutting a one inch square in the middle of their oaktag to make it easier to observe their section of ground."

You'll be amazed at all the life you can find in one square inch of space!

Activity

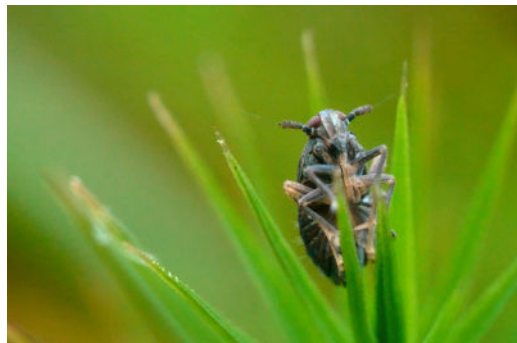
Go outside, preferably in a field, and pick a random patch of ground, about 1 square inch. Record the starting time and begin observing what you see under your magnifying glass.

First, you can record the inanimate things, such as grass, dirt, and seeds. Eventually, you should see small bugs, such as ants, or mealybugs, or soil mites. Describe each thing you see and the time that you see it. You should estimate the size of the bug and record its colorings, the number of legs it has, and other distinguishing features. If it is crawling and moving, record how long it takes to move out of your one-square-inch patch. This activity will take some patience. If you do not see any bugs in 10 minutes, move to another patch of ground.

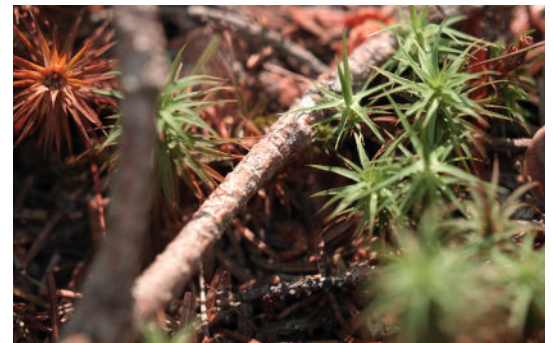
SEARCHING host Alan Lightman does just this in part 3, finding that concentrating on one small patch of ground, without distractions from the wider world, calms his mind and makes him feel restored.

Discussion

- What can you say about the ground beneath your feet?
- If you were the size of an ant, what would the world look like to you?
- Why do you think there is such a large variety of bugs?



Tiny bug mugging for the camera in part 3 of SEARCHING.



Micro forest as seen through a magnifying glass.

SEARCHING

OUR QUEST FOR MEANING
IN THE AGE OF SCIENCE