
The Microscopic World

In this lesson, students will be able to:

- Explore seeds, soil, plants, and more with field microscopes
- Take photos or videos with cell phones and collect in a shared drive
- Expand on lessons related to soil texture, botany, identification, and more

Materials Needed:

Flowers, leaves, seeds, or other living plant material

Soil

Field microscopes

Cell phones

Shared cloud drive (Google, OneDrive, etc.)

Time to Complete:

Activity = 1 to 2 hours

Introduction

Field microscopes are small handheld mobile microscopes that have limited magnification (100-250x) but do not require the use of slides. Many come with built in LED lights, UV lights, and rough and fine magnification adjustments. If the field microscope comes with a phone camera clip this can be useful in capturing images or videos. The cell phone's autofocus feature will enhance the images even more.

Note: New iPhones have multiple cameras. This can be challenging when using the phone camera clip as the iPhone will attempt to switch camera lenses to avoid any blocked camera lenses.

This activity can be used to enhance any lesson related to botany, biology, soil science, or any scientific exploration where a closer look at the item will increase learning and exploration.

Activity

This activity allows students to freely explore the world around them in microscopic views.

Directions: Allow students to collect several samples such as flowers, leaves, seeds, etc., that they will be viewing with the field microscope.

Tips:

- The microscopes work best if the base sets flat on the surface of the table/desk.
- The LED light should be on
- The slide holder should be flipped up if not using the slide
- Tear off small pieces of the plant part that the student will be observing so that it fits under the lens without impeding the lens during focus
- Recording images works best if two students work together, one to hold the microscope and phone, the other to capture the images on the screen
- Have students share the images to a shared cloud drive so they can be viewed on a larger computer screen or projector

Let students explore! They might find insects, pollen, fun textures or colors, or just really cool images.

Reflection

What did you already know when we started this activity?

What did you learn from this activity?

What surprised you the most about this activity?