

A STEM in the Park

Take Home Activity

STEM

in the **PARK**™

Science, Technology, Engineering, and Mathematics



Make Your Own

Microscope At Home

What You Need

- a wide-mouthed clear jar, glass or plastic, with a lid
- a small piece of plastic (attached)
- tape
- water
- cardboard
- foil
- samples such as salt, sugar, or small insects like gnats

What To Do

1. Poke a pinhole in the middle of the lid (**have an adult help you!**).
2. Tape the small piece of plastic over the pinhole on the **inside** of the lid. **Be sure not to put tape over the pinhole!** Tape only the sides of the plastic.
3. Cut a square piece of cardboard small enough to fit in the mouth of the jar and cover it in foil. This will act as a mirror to direct light to your sample!

Continued on back

4. Using another piece of cardboard, prop up the foil-covered square so it sits at about a 45 degree angle.
5. Turn the jar **upside-down** and place it on top of the foil-covered cardboard square.
6. Place your sample on the bottom of the upside-down jar.
7. Using a medicine dropper or toothpick, place one drop of water on the plastic on the inside of the lid. Make sure it is **directly on top of the pinhole on the plastic!**
8. Place the lid on the bottom of the upside-down jar, on top of the sample.
9. Close one eye and view the sample through the water droplet and pinhole.
10. Move the lid up and down to focus!

Why it works:

Microscopes bend light through a series of mirrors and lenses to make an image appear larger than it really is. With this microscope, the water droplet acts as a convex lens, bending the light that is passing through it and making the sample look bigger!

Experiment from Mr. Wizard: <https://www.youtube.com/watch?v=APLGSA1A87o>

This activity is brought to you by Instrumentation Center at the University of Toledo

