

MicroDrawing

NGSS Alignment:

- [Science and Engineering Practices:](#)
 - Developing and Using Models
 - How does the art we're making relate to the work biologists do with microscopes?
- [Crosscutting Concepts:](#)
 - Scale, Proportion, and Quantity
 - Microscopes are an important tool for studying things at different scales
 - Systems and System Models
 - Microscopes allow us to view the smaller parts that make up systems; cells that make up tissue, DNA within cells, etc.
- [Disciplinary Core Ideas :](#)
 - Physical Science
 - 4-PS4-2, 5-PS1-1,
 - Life Science
 - MS-LS1-1, MS-LS1-3,

Recommended Procedure:

- Prep:
 - Cut paper into 1"x1" squares
 - Cut some pictures out of the wildlife magazines and tape them to the stage of the microscopes so that you can see them when you look through the eyepiece.
 - Print and cut the edges off of the Micro Gallery Frames, depending on how many you want to use.



Materials:

- Monocular Dissection Microscopes
- Pencils
- Pencil Sharpeners
- Sandpaper
- Paper
- Wildlife magazines
- Scissors
- Masking Tape
- Micro Gallery Frame(s)

Recommended Procedure (Cont.):

- During the lesson:
 - Use the Microscopy Intro Slides and/or the Microscopy Intro Handouts to introduce how and why to use microscopes.
 - Have the learners spend some time practicing focusing their microscopes until they can clearly see the picture taped to the stage.
 - Experiment with the adjustment knobs; which way do you turn them to move the focus down? Which way moves the focus up?
 - Once the learners have a handle on how to use their microscopes, it's time to make some art for the Micro Gallery!
 - You can start by having them place a piece of paper on the stage, look through the eye piece, and shade it in completely with their pencil. What do they notice?
 - Have them try drawing a spiral with their naked eye, then drawing one under the microscope; how are they different? (This is where the pencil sharpeners and sandpaper come in. Even a perfectly sharpened pencil can look dull under a microscope; they can use the sandpaper to sharpen their pencil to an even finer point to draw fine details under the microscope).
 - When you turn it over to them to freely make art, there are two ways to play:
 - Class Gallery! Have learners work independently on their Micro Art to contribute to a class gallery. If you have multiple classes using the same space, the next group can use the first group's art to practice focusing their microscopes
 - Group Galleries! Have learners work in small groups on a Group Gallery. Each group can curate their gallery according to a theme or an art style, or whatever they like. Afterward, have a gallery opening and let the groups peruse the galleries at different tables, using the microscopes to get a closer look (and extra practice)

Questions for Reflection:

- How is MicroDrawing different from the ways biologists use microscopes? How is it similar?
- What are some of the ways it feels different to draw under a microscope?
- What do you notice when you put a drawing under a microscope?