

Wet Mount and Staining

Overview

Anytime you have a specimen that needs water to live, you'll need to prepare a wet mount slide. This is especially useful for looking at pond water (or scum), plants, protists (single-cell animals), mold, etc. If your critter is hard to see, you can use a dye to make it easier to view.

What to Learn

Some specimens need water to live, so you'll need to keep them moist with a wet mount slide. When you keep your specimen alive in their environment, you not only get to observe it, but also how it eats, lives, breathes, and interacts in its environment. If your critter is hard to see, you can use a dye such as iodine to stain the cell and bring out its structure, making it easier to view.

Materials

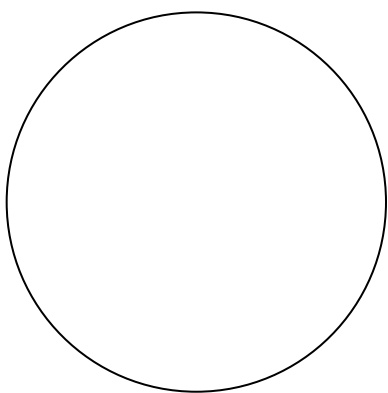
- 20mL sample of pond water
- microscope
- slides
- cover slips
- tweezers
- medicine dropper (disposable)
- a translucent specimen, such as a piece of onion and elodea leaf
- iodine (you can use regular, non-clear iodine from the drug store)
- Protoslo (optional)

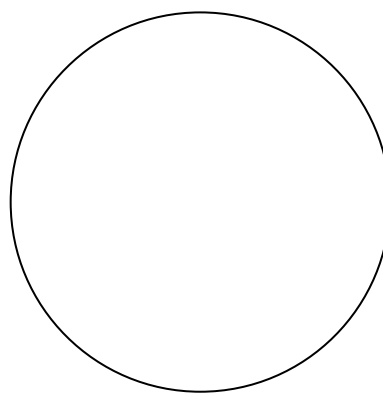
Experiment

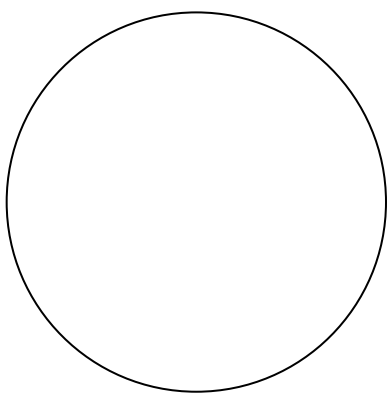
1. Place a slide on the table.
2. Fill the eyedropper with pond water and place a drop on the slide.
3. Place the edge of the cover slip on the pond water drop, holding the other edge up at an angle. Slowly lower the end down so that the drop spreads out. You want a very thin film to lay on the slide without any air bubbles or excess water squirting out. If you go have bubbles, *gently* press down on the cover slip to squish them out or start over.
4. Take time practicing this – you want the water only under the coverslip. Dab away excess water that's not under the slide with a paper towel.
5. Lower the stage to the lowest setting and rotate the nose piece to the lowest magnification power.
6. Place the slide on the stage in your clips.
7. Focus by looking through the eyepiece and slowly turning the coarse adjustment knob. When you're close to focus, switch to the fine adjustment knob until it pops into sharp view.
8. Adjust the light level to get the greatest contrast so you can see better.
9. Move the slide around (this is where a mechanical stage is wonderful to have) until you spot something interesting. Place it in the center of your field of view, and switch magnification power to find a great view (not too close, not too far away). Adjust your focus as needed.
10. Sketch what you see (don't forget the title and mag power!)

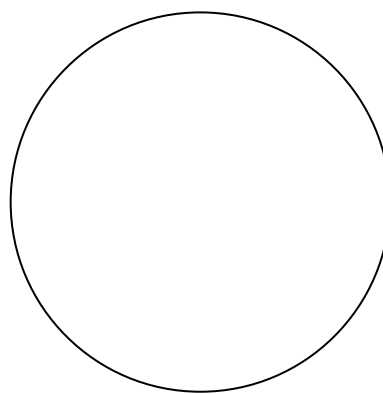
11. When you're done, lower the stage all the way and insert a new slide... and repeat. Find at least six *more* things to look at. We're not only learning how to look and draw, but hammering a habit of how to handle the scope properly, so do as many as you can find.
12. NOTE: If the critters you're looking at move too fast, add a drop of *Protoslo* to the edge of your slide to slow them down (by numbing them). The Protoslo will work its way under the cover slip.
13. Fill a container with water and add a small piece of elodea leaf and onion. You'll want the onion to be a thin slice, no more than a quarter of an inch thick.
14. Put a fresh slide on the table. Using tweezers, pull off a thin layer of onion (use a layer from the middle, not the top) and place it on your slide. Gently stretch out the wrinkles (use a toothpick or tweezers) and add a small drop of water and cover with a cover slip. Take a peek at what your specimen looks like on low power – do you notice it's hard to see much? Draw what you see in your data table.
15. Now increase the power and look again. Draw a new sketch in data table.
16. Now we're going to highlight the cell structure using iodine. Lugol's is also iodine, but the regular brown stuff from the drug store works, too. Grab a bottle of the one you're going to use.
17. To stain the specimen, we're going to add the stain to one side of the cover slip and wick away the water from the other side. Use a folded piece of tissue paper and touch it lightly to one side of the cover slip as you add a single drop of stain to the other side. When the stain has flowed through the entire specimen, take a peek and draw what you see in a fresh circle.
18. Do the same thing with the elodea leaf. And anything else plant-based from your backyard. Or refrigerator. Draw what you see and don't forget to label it with a title and power of magnification!

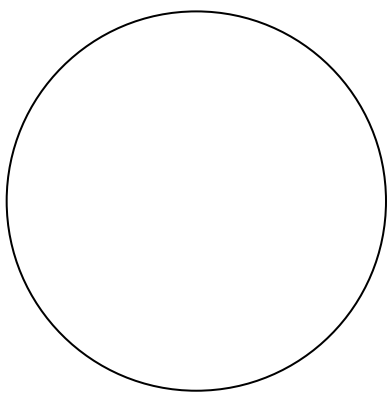
Wet Mount Microscope Lab Data

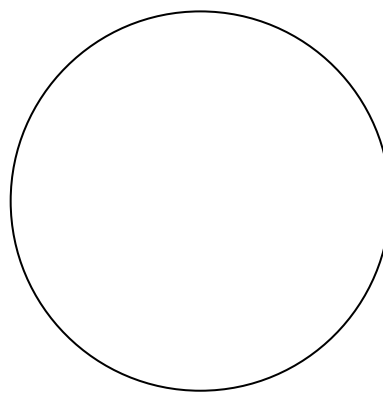




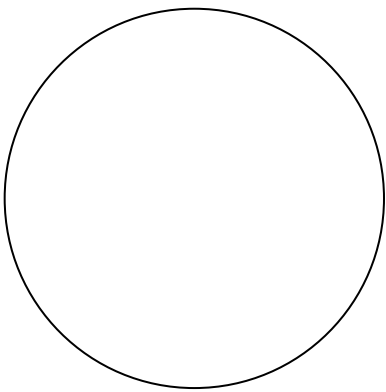


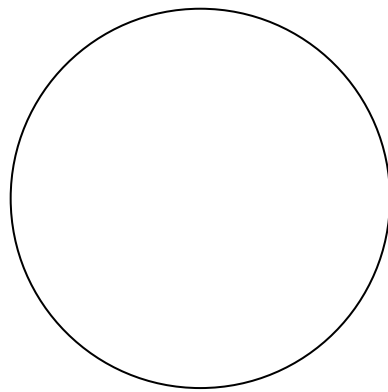


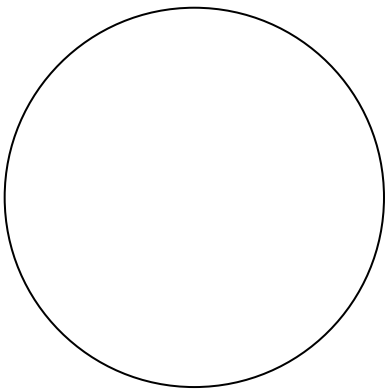


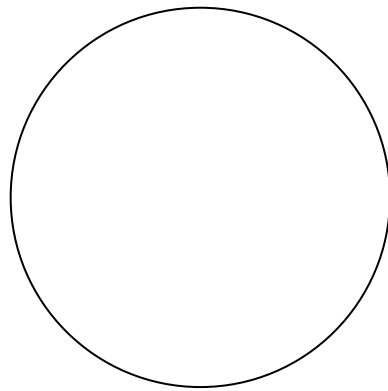


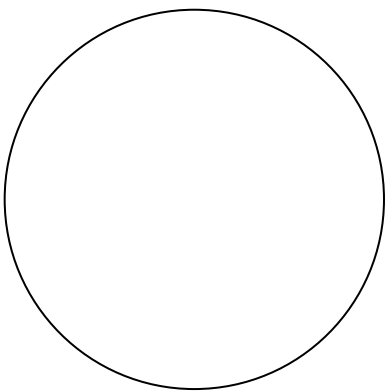
Wet Mount Microscope Lab Data

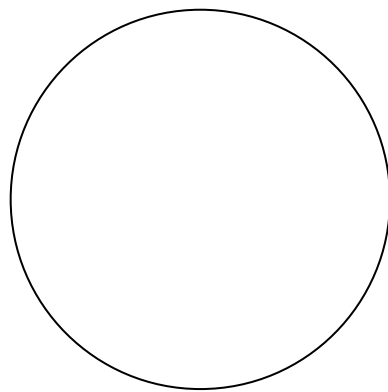












Reading

A wet mount is used for living things, like the stuff found in pond scum. By keeping the organisms wet (and in their environment), you can watch how they move, eat, breathe, and interact. When specimens are hard to see (even after adjusting your diaphragm) you can use staining (like Lugol's stain or dark iodine) to add contrast and bring it into view. Protoslo can be used when specimens move too fast to view.

If your critter is hard to see, you can use a dye to bring out the cell structure and make it easier to view. There are lots of different types of stains, depending on what you're looking at.

The procedure is simple, although kids will probably stain not only their specimens, but the table and their fingers, too. Protect your surfaces with a plastic tablecloth and use gloves if you want to.

Exercises

1. Why do we use a wet mount slide?
2. Give one example of a specimen that would use a wet mount slide?
3. How do you prepare a wet mount slide?
4. Why do we stain specimens?
5. Give one example of a specimen that would use a stain.
6. What type of stain can we use (give at least one example).

Answers to Exercises: Wet Mount and Staining

1. Why do we use a wet mount slide? (to observe specimens that need water to live)
2. Give one example of a specimen that would use a wet mount slide? (pond scum)
3. How do you prepare a wet mount slide? (Put a drop of water on the slide. Put one end of the cover slip on the drop of water and slowly lower the other end. Gently press out any air bubbles and dab away any excess water that spilled out of the cover slip.)
4. Why do we stain specimens? (To view specimens that are too difficult to see because they are see through)
5. Give one example of a specimen that would use a stain. (An onion peel)
6. What type of stain can we use (give at least one example). (Iodine)