

Examining Cells

Print these for the lab [Sheet 1](#) | [Sheet 2](#) | [pdf sheet 1](#) | [pdf sheet 2](#)

In this lab, you will examine cells from a variety of organisms. The finished product for this lab will be a ¼ page sketch of each type of cell, accompanied by your written comments and observations. Use the attached data sheets to record your observations – use the space next to each sketch for comments and to answer the questions asked. Take your time, sketch in pencil, and note any visible structures and colors.



A. Onion Cells

Pull a thin outer layer of onion “skin” from the onion provided – it should resemble plastic wrap. Make sure the sample is THIN! Place the skin in a small drop of water on a clean glass slide, then add one tiny drop of METHYLENE BLUE stain. (**CAUTION: METHYLENE BLUE WILL STAIN HANDS, FLOORS, CLOTHING AND ANYTHING ELSE IT TOUCHES!**) Wait one minute, then add a cover slip.

At this point, the stain will be too dark for you to make good observations. Draw off the excess stain with the following procedure:

1. Place the torn edge of a piece of paper towel against one edge of the cover slip.
2. Add a drop of water to the OPPOSITE edge of the cover slip.
3. The paper towel will absorb the stain and pull the clean water through the sample. If this is done properly, you will see that certain portions of the onion absorbed the stain, while others did not.

Observe the stained onion cells. Draw a few cells on your sketch paper and estimate their size in microns, then **label** your drawing with the sample name, magnification, and any observations you have. Answer the following questions:

1. Are the onion cells regular in shape? Explain
2. What parts of the onion cells absorbed the stain?
3. What is the arrangement of the onion cells?
4. **Label** as many parts as you can identify.



B. Animal Cells

You will now observe some of your own cells. Place a drop of water on a clean slide. Use the large, flat end of the toothpick to scrape the inside lining of your cheek gently. Stir the end of the toothpick in water to mix the cells. Place one drop of METHYLENE BLUE into the water drop to stain the cells. Wait one minute, then add a cover slip. Remove the stain from the slide as you did for the onion. When you are finished with this slide, **WASH IT WITH SOAP** and rinse it clean.

Observe the stained cells (looks like a fried egg) – you will need to use high power! Have the teacher check to be sure you are looking at cells, then sketch them on your paper (determine size in microns) and **label** the sketch as you did with the onion cells. Answer the following questions:

1. How do the cheek cells differ from the onion cells?
2. What parts of the cheek cells absorbed the stain?
3. Describe the arrangement of the cheek cells. If they are arranged differently from the onion cells, why might that be?
4. **Label** as many parts as you can identify.



C . Cork Cells

Obtain a piece of “**cork dust**” and place it on a glass slide. Add a drop of water and a cover slip, then find a thin edge where the cells are only one layer thick. Sketch your observations, **label** the sketch (determine size in microns), and answer the following:

1. How are the cork cells different than the onion cells? Can you draw any conclusions?
2. (**Honors biology only**) Who was the first person to observe a cell?



D. Pond Water

Make a wet-mount slide of the pond water sample. You only need a tiny drop, but try to pick up a small green chunk in the drop. Use a cover slip; no stain is necessary. Observe the sample under low power; move the slide around until you find an interesting area, then switch to medium power. If you look around carefully, you should find some little critters swimming around in the algae “forest.”

1. Sketch some of the interesting cells you find (determine size in microns) then write a few observations and label the sketch.
2. (**Honors biology only**) Identify the organisms found in the pond water using any resources available.



E. Yeast Cells (**Honors biology**)

Make a wet-mount slide of growing yeast cells. You only need one drop from the yeast culture; do not dilute or stain this sample. Place a cover slip over the sample, then focus and move to a high power to view these tiny cells (very round shaped). See if you can find cells that are dividing to create new cells!

1. Within your lab group scan the slide for 5 minutes counting every yeast cell you see divide
2. On a separate sheet record the number of division counted in 5 minutes. Record your results on the board
3. Collect data from other lab groups and determine average amount of new cells per 5 minutes and every minute.