

Observing Onion Cells

Materials

compound microscope	paper towel
medicine dropper	lens paper
cover slips	clear plastic ruler
forceps	scalpel
glass slides	iodine
onion	

Procedure

1. Obtain a 2 cm x 1 cm section of a scale from an onion (make sure the onion has first been peeled).
2. Hold the piece of onion so that the concave surface faces you. Then snap it backwards so that you can see the thin, transparent epithelial cells. Using a scalpel or forceps, remove a single layer of epithelium from the scale. Be sure that the layer is thin enough to be transparent to light before you continue. It should look like skin peeling after a sunburn. If it is not that thin, try again.
3. Prepare a wet mount of the section of onion tissue, being careful to not let the skin double over. (See *Nelson Biology*, page 38). If the section folds over, use a scalpel or forceps to unfold it.
4. Stain the slide with iodine. To do this, place a drop of iodine on one edge of the cover slip. Touch the opposite edge with the edge of a paper towel. This will draw the iodine stain onto the specimen.

* If the iodine stain does not work, try acetocarmine. Place a drop of the stain on a slide, then add the onion tissue. Let stand for two minutes then heat in a Bunsen burner flame for 3 or 4 seconds. Do not let the stain boil. Cool the slide for one minute. If the staining is too light, repeat the steps.
5. Focus the cells under low power. Select a group of cells and move the slide so that the cells are in the middle of the field of view. Now view the cells under medium power. Again, move the slide so that the group of cells is in the centre of the field of view. Switch to high power.
6. Draw a group of four cells as they appear under high power. Label nucleus, starch granule, cytosol, cell wall, and vacuole. You might have to refer to a textbook or your diagrams to help you identify some structures.
7. Estimate the width of a single onion cell in micrometers. Show your calculations.