

Engage: Cells Under the Microscope

PROCESS AND PROCEDURES

Part A - Animal Cells

1. Put about half a drop of water and half a drop of methylene blue stain on your slide.
2. Gently scrape the inside of your cheek with the flat end of the toothpick.
3. Use that end of the toothpick to gently stir the stain and water together on your slide.
4. Gently lay a cover slip on top of the stain. Place the edge of a tissue or paper towel at the edge of the cover slip to soak up any excess stain/liquid.
5. Get the microscope in focus using the 4x objective.
6. Using the 10x objective, refocus (using the fine focus only) and find some cheek cells, center them in the field of view, and draw them in the area provided in the data section. Be sure to label the drawing (type of cell, magnification) and label the following structures in the drawing: nucleus, cytoplasm, cell membrane.
7. Switch to the high power (40x) objective and repeat step 6.

Part B - Plant Cells

1. Break a small piece off one layer of the onion. Using tweezers or your fingernails, peel off a thin layer of epidermis from the inner surface of the onion.
2. Using scissors, cut the thin layer so that it's small enough to fit under the cover slip if necessary..
3. Put a drop of iodine on the layer of onion epidermis.
4. Gently lay a coverslip on top of the section of onion skin
5. Get the microscope in focus using the 4x objective.
6. Using the 10x objective, refocus (using the fine focus only), find some onion cells, and draw them in the area provided in the data section. Be sure to label the drawing (type of cell, magnification) and label the following structures in the drawing: nucleus, cytoplasm, cell wall.
7. Switch to the high power (40x) objective and repeat step 6.

ANALYSIS

Write the following questions in your notebook and answer them using complete sentences.

1. What are the three parts of the Cell Theory?
2. Why do we need to use stain on microscope slides (What would be the consequence if you didn't)?
3. What structures were visible in the cheek cells?
4. Are cheek cells eukaryotic or prokaryotic? Are onion cells prokaryotic or eukaryotic? How do you know?

These questions are to be answered after completing the “Explore” section.

5. Name three structures that were not visible that you know should be found in both cheek cells and plant cells. Why weren't these structures visible under the microscope?
6. Name two structures found in plant cells which are not found in animal cells.