

Skills and Strategies

- Processing and Analyzing
- Evaluating

Safety**What You Need**

- Appendix A, Care and Use of the Microscope
- prepared microscope slides (different plant and animal cells)
- light microscope

Observing Eukaryotic Cells

Organisms with eukaryotic cells include single-celled organisms such as amoebas, paramecia, and euglena, as well as multicelled organisms such as plants and animals. In this investigation, you will use a light microscope to observe different features of these cells and review how to use a microscope at the same time.

Question

What are important features of plant and animal cells?

Procedure

1. Use Appendix A at the back of this textbook to review how to care for and use a microscope.
2. Obtain a microscope and a prepared microscope slide.
3. Use the checklist below, in this order, to help you set up the microscope and view the slides.
 - ✓ Plug in the microscope and turn on the light.
 - ✓ Turn the nosepiece until the low-power lens faces the stage.
 - ✓ Put the slide on the stage so that you will be able to see what is on the slide.
 - ✓ Secure the slide with the stage clips.
 - ✓ Looking from the side of the microscope, use the coarse-adjustment knob to bring the lens as close as it will go to the stage.
 - ✓ Look in the eyepiece. Slowly turn the coarse-adjustment knob to get the image in focus.
 - ✓ Make sure that the cells you want to observe are in the field of view (centre of the circle).
 - ✓ Turn the fine-adjustment knob to get the best possible focus.
 - ✓ Looking from the side of the microscope, turn the nosepiece until the medium-power lens faces the stage. Look through the eyepiece again. Focus using only the fine-adjustment knob.

- ✓ Looking from the side of the microscope, turn the nosepiece until the high-power lens faces the stage. Look through the eyepiece again. Focus using only the fine-adjustment knob.
- 4. Observe a plant cell under the microscope at high power. Sketch the cell. Identify and label the cell wall, the nucleus, and any other features that you recognize.
- 5. Using Care and Use of a Microscope in Appendix A as a reference, calculate the size of the cell you viewed.
- 6. Repeat steps 4 and 5 with at least one type of animal cell.

Process and Analyze

1. What features in each of the cell types were you able to see using the light microscope?
2. Compare the plant and animal cells that you viewed. How are they the same? How are they different?

Conclude and Evaluate

3. Find a group of students who viewed the same type of animal or plant cell as your group. How are your drawings similar to and different from theirs? How can you account for differences in your drawings?
4. Find a group that viewed a type of animal cell or plant cell that was different from the one that your group viewed. How are your drawings similar to and different from theirs? How can you account for differences in your drawings?

