

SCOPE, SEQUENCE, and COORDINATION

A National Curriculum Project for High School Science Education

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Student Materials

Learning Sequence Item:

1055

Prokaryotes and Eukaryotes

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Contents

Lab Activities

1. The Pros
2. Another Look at Cells

Readings

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Science as Inquiry

The Pros**A look inside blue-green algae****Overview:**

In this activity you will examine some examples of blue-green algae and observe their cellular structure.

Procedure:

Place a drop of a culture on a clean microscope slide. Cover the drop with a coverslip and examine the culture under the microscope using low power. Now remove the slide from the microscope and carefully place a drop of methyl green on the slide near one edge of the coverslip. Hold a piece of paper towel or other absorbent material on the other side of the coverslip to allow the dye to stain the drop of culture.

Again examine the culture using low power, and then use high power. Record your observations using diagrams if necessary. Repeat the process for the various algae.

Questions:

1. When the dye was added to the cells, how did it affect their color? How can you explain this result?
2. What did you observe in these cells? Use diagrams if necessary.
3. What major functions do these types of cells perform?

Science as Inquiry

Another Look at Cells**Is bigger better?****Overview:**

In the previous activity you looked at organisms (called *prokaryotes*) that have a simple structure and consist of only one cell. In this activity you will observe some examples of other living things that have a different cell structure and consist of one or more cells.

Procedure:

As in Activity 1, place a drop of a culture on a clean microscope slide. Cover the drop with a coverslip and examine the culture under the microscope using low power. Now remove the slide from the microscope and carefully place a drop of methyl green on the slide near one edge of the coverslip. Hold a piece of paper towel or other absorbent material on the other side of the coverslip to allow the dye to stain the drop of culture.

Again examine the culture using low power, and then use high power. Record your observations using diagrams if necessary. Repeat the process for the various organisms.

Questions:

1. When the dye was added to the cells, how did it affect their color? How can you explain this result?
2. What parts are present in these cells that were missing from the cells you examined in Activity 1?
3. How do the other cell parts differ from those found in Activity 1? Are there any other differences between these cells and those in Activity 1?
4. What do you think would be some advantages to an organism with more parts and more cells?