

Teaching Suggestions

Science and Mathematics Lab

(Course 1, Lesson 5-7)

Ponds are Cities of Life

OVERVIEW

In this activity, students will identify the organisms present in a sample of pond water. They will count the number of each type of organism and determine the total number of organisms. They will then use this information to find the fraction of each type of organism present in their sample and convert that fraction to a decimal.

RECOMMENDED TIME

1 class period

MATERIALS

- microscope
- box of microscope slides
- box of coverslips
- droppers
- pond water

PREPARATION

Before class, obtain a box of microscope slides, a box of coverslips, one dropper for each student, and a small bucket of pond water.

TEACHING THE LAB

1. Give each student a microscope slide of pond water. Students may have to share microscopes.
2. Use the diagrams to help students identify the organisms.

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Ponds are Cities of Life (continued)

Answers and Conclusions

1. Answers will vary. Fractions will depend on the total number of organisms and the type of organisms present.
2. Decimals will vary with the individual pond sample.
3. Answers will vary. The most common organism should be the same for every dropper sample.
4. Answers will vary. The least common organism should be the same for every dropper sample.

EXTENSION

The fractional values and decimal values will differ from student to student because the total number and type of organisms will vary from sample to sample.

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Ponds are Cities of Life

INTRODUCTION

Ponds contain millions of microscopic organisms. These organisms include nematodes (phylum Nematoda), crustaceans (phylum Arthropoda), monerans, including bacteria and their relatives (kingdom Monera), and protists, including amoebas, paramecia, and algae (kingdom Protista).

OBJECTIVES

In this lab, you will:

- identify each type of microscopic organism.
- count each type of organism and determine the total number of organisms.
- represent the number of each type of organism as a fraction of the whole group.
- convert these fractions into decimals.

MATERIALS

- microscope
- box of microscope slides
- box of coverslips
- droppers
- pond water

PROCEDURE

1. Use a dropper to place a drop of pond water from near the surface onto a clean microscope slide. Place a coverslip on the drop of water.
2. Examine the water under low- and high-power magnification.
3. Use the diagram to help you identify the organisms you observe.



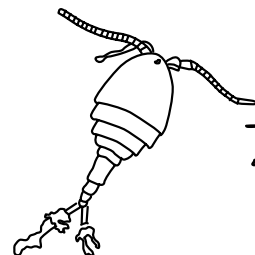
Protist
(Amoeba)



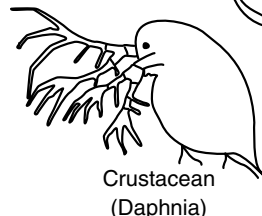
Protist
(Paramecium)



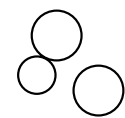
Vorticella



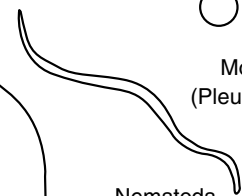
Crustacean
(Cyclops)



Crustacean
(Daphnia)



Moneran
(Pleurococcus)



Nematoda
(Nematode worm)

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Ponds are Cities of Life (continued)

- Record the name and number of each type of organism in the Data Table.
- Find the total number of organisms you observed.

DATA AND OBSERVATIONS

Type of Organism	Number	Fraction (number of organisms/total number of organisms)	Decimal
Total Number of Organisms:			

Questions and Conclusions

- Write the number of each type of organism over the total number of organisms. Enter these fractions in the Data Table.
- Convert these fractions into decimals. Enter the decimals in the Data Table.
- Which organism is most common in your sample of pond water? How did you determine your answer?
- Which type of organism is least common in your sample of pond water? How did you determine your answer?

EXTENSION

Compare your fractions and decimals with those of a classmate. Are they the same? different? Why?