1. ALGAE - (SPIROGYRA) (175x)

This is a common plant called spirogyra (spy-row-JY-ra) found in ponds. The name comes from the word spiral. Examine the Microslide carefully. Can you see why it was named spirogyra? The entire plant consists of only one cell. While each cell plant is independent, it grows in a long chain connected at its narrow ends to other single-celled spirogyra. Can you see where this plant is connected to other plants? The small green spots inside the cell are chlorophyll (KLOR-o-fil), which gives the plants its green color. Because the plant has chlorophyll, it can manufacture its own food with the aid of sunlight.

If you look along the edges of a pond, you will notice thin green strands which grow so close to one another that they look like a dark green scum floating or clinging to rocks.

Many small animals living in the pond depend upon spirogyra (often called algae: AL-jee) as a main food source. Have you ever seen a fish tank in which the glass became covered with a green coating? This happens when the algae grows faster than it is eaten by the fish or other animals in the tank.

2. EUGLENA - (500x) Stained

We have said that there are both plants and animals living in a pond. The euglena (u-GLEE-na) is a very interesting kind of one-celled living thing. It is both a plant and animal. Most scientists call it an animal.

The euglena has small green bits of matter in its body, much the same as a spirogyra. This green material is chlorophyll. With the aid of sunlight, the chlorophyll helps the euglena manufacture food. Because the euglena manufactures food, it is like a plant. Scientist shave placed euglena in a dish of water containing certain foods. The dish was kept in the dark away from sunlight. The euglena turned colorless but continued to live. We know that food cannot be manufactured without sunlight. We also know that all living things need food to live. How do you think the euglena which were kept in total darkness stayed alive? They were able to take in some of the food which was in the water. Because the euglena can take in food, it is like an animal.

3. GONIUM (450x)

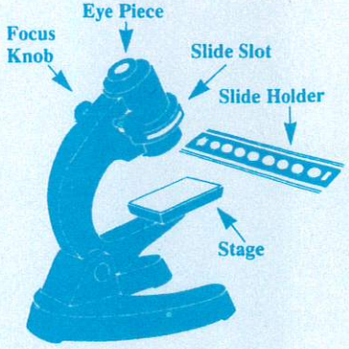
Judging from its color, what would you guess this to be, plant or animal? The gonium is a plant. Examine the large gonium in the lower center of this Microslide. How many cells can you count? Would you say a gonium is a 16 celled plant? Before you answer, examine the Microslide carefully. The object in the lower right of the Microslide is also a gonium. The gonium is a one-celled plant. However, it lives as a colony. Each cell is a complete plant. When the 16 cells of the colony grow large, they separate into single cells. A single cell divides into 2 cells: 2 cells become 4, and so on until the colony again reaches 16. How many times does cell division take place before the 16-celled colony is complete? If you said 4, you were right.

4. VOLVOX (150x)

The volvox is a small green animal found in most fresh water ponds. It is made up of many individual one-celled animals living together in a colony which is shaped like a hollow ball. The gonium in the Microslide 3 is a plant colony in which each cell is an independent plant. In the case of the volvox, each cell is also an independent animal, but the cells help each other by dividing up some of the jobs necessary to stay alive. For example, some cells specialize in reproducing. Can you notice young volvox inside the larger volvox?

INSERT HERE

MICRO-SLIDE-VIEWER™



Face the Micro-Slide-Viewer so that as much light as possible falls on the white Stage.

Insert the numbered end of the Slide Holder into the Slide Slot of your Viewer, moving it from your right to left.

View with your eye close to the Eye Piece.

With Slide No. 1 in place, focus by turning the Focus Knob.

NATIONAL TEACHING AIDS, INC.
div. of American Educational Products, LLC
1-800-289-9299

5. BLADDER WORT (5x)

We know that life in a pond is interdependent. Many small animals depend on green plants for food. Other small animals depend on other small animals for food. The bladder wort is a plant that depends upon animals for its food. In this Microslide you can see only a part of the entire plant. Growing on one of the stems of this plant is a round sac-like bladder, which is part of the plant. Growing out from the opening in this sac are thin hair-like extensions. When a small animal swims near by and touches the hairs of this plant, the hair acts like a trigger. The trigger opens the sac, the animal is sucked into the bladder and it closes before the animal has a chance to swim away. The bladder wort is not the only plant that eats animals.

6. CYCLOPS (10x)

When Anton Van Leeuwenhoek described what he saw through his microscope, he was impressed not only with the many different things he saw but also with their "strange beauty."

The cyclops is a common water animal which can be found in ponds almost any time of the year. One would just about fit inside this letter o. Most fresh water fish depend upon the cyclops as an important part of their food supply.

7. DIDINIUM EATING PARAMECIUM (175x)

The didinium depends almost entirely on paramecium for its food. Can you see two animals in this slide? They are both about the same size. Which one seems to be eating which? The animal on the right is the didinium. The didinium opens its snout (arrow) so wide that it can draw in a paramecium which is often larger than itself. For its size, the didinium is a hungry little animal, often eating as many as eight paramecia a day.

8. HYDRA EATING DAPHNIA (25x)

In this Microslide there seems to be little doubt as to who is about to eat whom. The hydra with its long thin tentacles will force the daphnia into its mouth. The hydra's mouth is located at the top of its body.

Does the daphnia appear too large to be eaten by the hydra? The hydra's body is very flexible and will bulge out until it has digested the daphnia.

LIFE IN A POND

SET 110

Most of us know that there are many things which we cannot see with our unaided eyes. We know that with the aid of a telescope scientists can explore space and see things which are actually very large, but, so far away that they cannot be seen without a telescope.

More than 250 years ago in Holland, a man named Anton Van Leeuwenhoek (LAY-ven-hook) looked at a drop of clear pond water through a microscope. What he saw amazed him. Little animal-like things were swimming around, some fast, some very slowly. Other things looked like plants but no one was sure. Leeuwenhoek had discovered a whole new world of plants and animals, so small that no one had ever seen them before.

Ever since that time scientists have been studying life in a pond. Because of these studies, we know much more about many different kinds of microscopic plants and animals. What do you think the word microscopic means?

Curiosity alone may be a good enough reason for wanting to know more about these tiny plants and animals. Scientists are usually curious men and women, but there are many other important reasons why they study life in a pond. Can you think of any good reasons to study pond life?

Scientists believe that all living things are interdependent. What do you think this means? When we study each plant and animal separately, we learn many things about each individual plant and animal. Yet plants and animals live near each other and affect each other's lives.

We know that birds are dependent upon insects, worms and berries for food. Plants and animals are dependent upon one another in many other ways.

A pond is a good place to study this interdependence because of the great many different kinds of plants and animals that live in a pond. A pond contains plants that are made of just one cell, and other plants that are made of millions of cells. A pond also contains animals of only one cell and other animals made of millions of cells.

In this set of Microslides, we will examine only a few of these plants and animals. The magnification given, for example, 175x for Microslide 1, Algae, means that the microscope was set at that power when the photograph was taken.