

Paramecia and Other Protists

Biological Classification Series

Grade Levels:

Grades 5-10

Subject Areas:

Science

Life Sciences

Biology

Synopsis:

Using a comparison to the size of a tadpole, introduces paramecia as examples of the kingdom of ciliate, unicellular Protists that are found in all environments. Live-action photography captures the various ways these single-celled organisms move, reproduce and feed and observes that unicellular Protists are far more numerous than the multicellular rotifer. The introduction includes daphnia, euplotes, cyrtomonas, stentors, vorticella, amoeba, euglena and brown and green algae as well as trypanosome and plasmodium that feed on humans and cause disease.

Learning Objectives: Students will:

Understand that paramecia are microscopic unicellular Protists.

Realize that, despite their small size, Protists move, feed and reproduce in a variety of complicated ways.

Explain the purpose and action of cilia.

Understand that Protists are found in all environments.

Vocabulary:

paramecium, Protists, daphnia, rhythmic, cilia, prey, bacteria, inseminate, transparency, pulsating, vacuole, cytoplasm, membrane, nucleus, unicellular, ciliate, euplotes, cryptomonas, stentor, vorticella, pluricellular, multicellular, rotifers, amoeba, deforming, diatoms, green algae, chlorophyll, euglena, organic matter, carcass, savoring, filament canobacteria, foraminifers, human parasites, trypanosome, sleeping sickness, Chagas disease, plasmodium, malaria

Pre-Viewing Discussion:

When we talk of microscopic animals, how small are we talking? What if these microscopic animals had only one cell? Would they be smaller than tadpoles? How small would they be?

Given that these tiny creatures do exist, where do you imagine they are found? Are they found in ponds? Are they found in oceans? Are they found on dry land?

Do we have photographs or motion pictures of these small creatures? What would scientists use to photograph them? How were unicellular animals discovered?

Post-Viewing Discussion:

How do paramecia move? What propels them forward?

How do paramecia reproduce? Do they only use one method? What is the other method they use?

How do we know these creatures are unicellular? What have scientists observed about their cellular nature?

How do ciliates protect themselves when there is not enough food available?

In the world of Protists, why is it often difficult to distinguish between plants and animals?

What human diseases are caused by Protists?

Further Activities:

Find out which of the five major classification groups paramecium and other Protists are in (i.e. Kingdom, Phylum, Class, Order, Family). Chart the relationships of animals in the largest to the smallest taxonomic groups around them. What characteristics make this group similar to and different from the other groups to which they are related? Then, pick one species from the program and determine its genus and species name, writing them in the proper scientific terminology. Find out why the genus and species name is written the way it is.

Further investigate how paramecia reproduce. Find photographs of each stage in their reproductive cycle and classify the type of reproduction this pattern illustrates.

Further investigate how the amoeba moves. What are the animal's extensions of cytoplasm called? Why is the amoeba's method of locomotion of such interest to scientists? What other animals use a similar method of locomotion?

Discover why green algae are essential to the health of our planet. How do they support the food chain? What varieties of green algae are found throughout the world? To communicate their biological significance, consider presenting your findings in chart form.

Investigate the four species of plasmodium that cause malaria. What happens to a human body that has been invaded by these parasites?

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