

Real Science-4-Kids



Level I

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Chapter 6: Protists I



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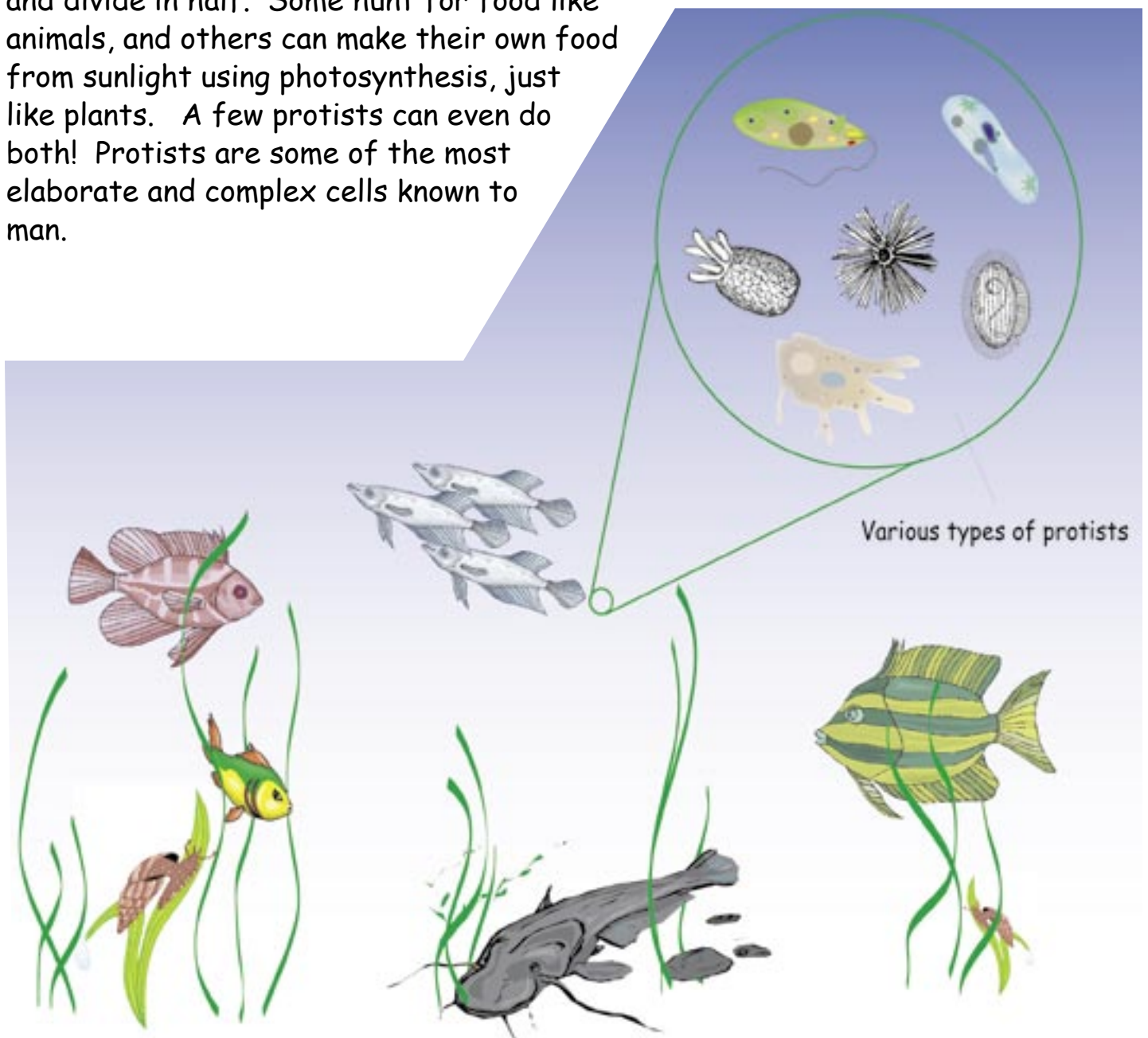
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6.1 Introduction

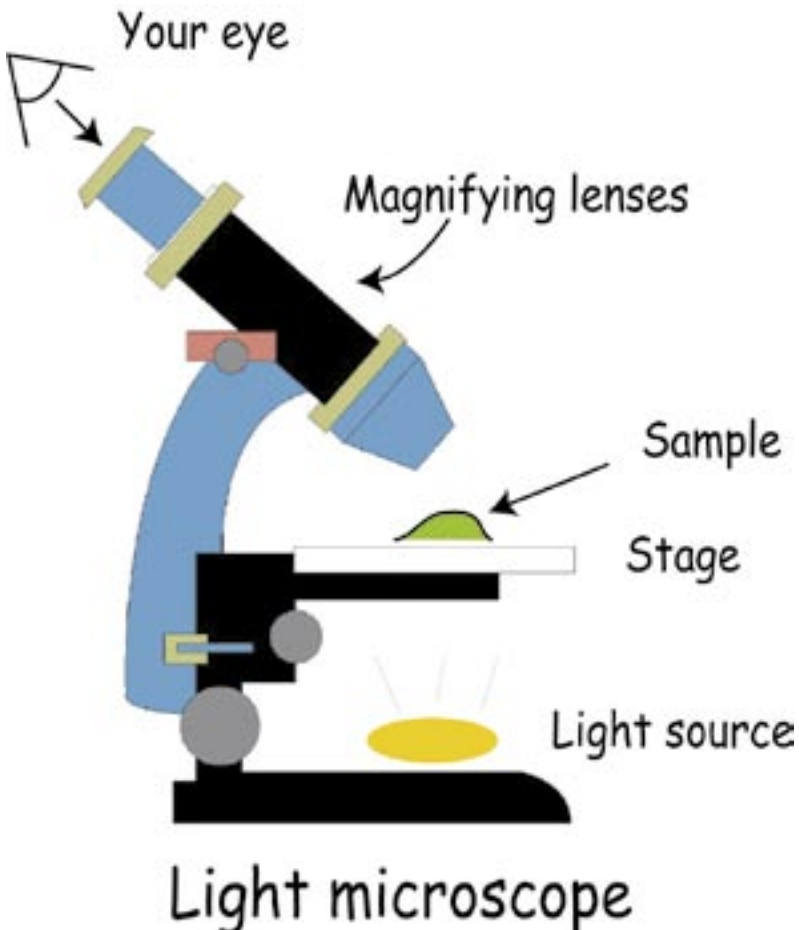
Protists, also called **protozoa**, are tiny creatures that are like both plants and animals. Most are made of only one cell. They are so small that they cannot be seen with the naked eye. For most of human history nobody knew they even existed. But in the middle of the 17th century the first microscopes were invented and an entirely new world of microscopic organisms, including protists, was found. Protists live almost everywhere, including soil, freshwater ponds, and salt water oceans.

Despite their small size, protists are amazing creatures. They crawl, swim, and divide in half. Some hunt for food like animals, and others can make their own food from sunlight using photosynthesis, just like plants. A few protists can even do both! Protists are some of the most elaborate and complex cells known to man.



6.2 The microscope

There are protists all around us all of the time, but because they are single-celled organisms, they are not easily seen without a microscope.



A microscope makes very small objects appear larger. Scientists use several different types of microscopes to look at cells, molecules, and even individual atoms! However, the easiest microscope to use, especially by students, is the *light* microscope. A light microscope is like a very powerful magnifying glass.

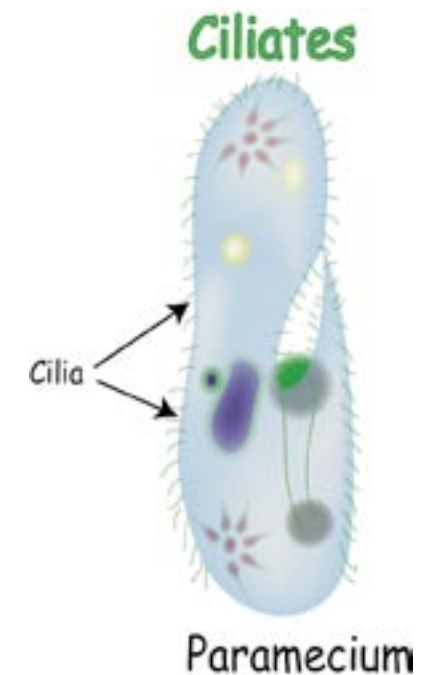
To use a light microscope, the sample is placed below the magnifying lenses, usually on a small stage. In modern microscopes, the sample is illuminated with a light source that is placed either above or below the sample. This extra light illuminates the small structures found in microscopic samples.

In 1665, Robert Hooke, an English scientist, was the first person to observe cells with a small microscope. He was able to magnify thin slices of cork 30 times (30X) and was able to see individual cork cells. Around the same time, Anton van Leeuwenhoek, a Dutchman, made a much more powerful microscope. He magnified pond water 300 times (300X) and saw tiny one-celled "animacules" swimming around. He was the first person to observe the single-celled organisms that we now call protists. Much to his dismay, he even found protists living in his mouth!

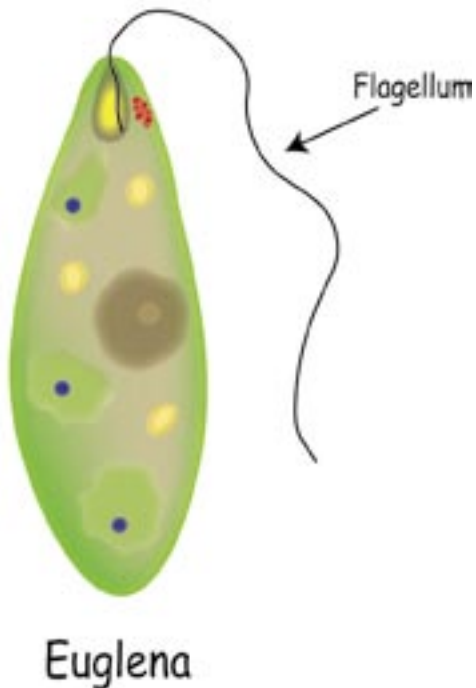
6.3 Movement

There are almost 60,000 known species of protists. This is as many as the number of known plants and animals in the visible world. Although protists are classified in the single kingdom, **Protista**, they vary in structure and function more than any other group of organism. Protists are divided into three main groups, depending mainly on how they move: the **ciliates**, the **flagellates**, and the **amoeba**.

The ciliates swim with very small hair-like projections on their bodies called **cilia**. The cilia beat very rapidly and propel the tiny creature through the water like a little submarine. A **paramecium** is a type of ciliate.



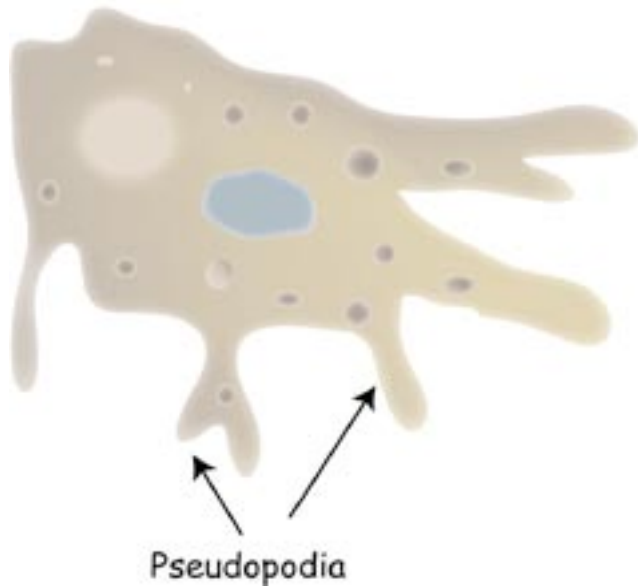
Flagellates



Flagellates also swim, but instead of many short hair-like projections, flagellates have only one or two long whip-like **flagella** that extend from one end of their body. These whips propel the flagellate through the water much like the tail of a fish.

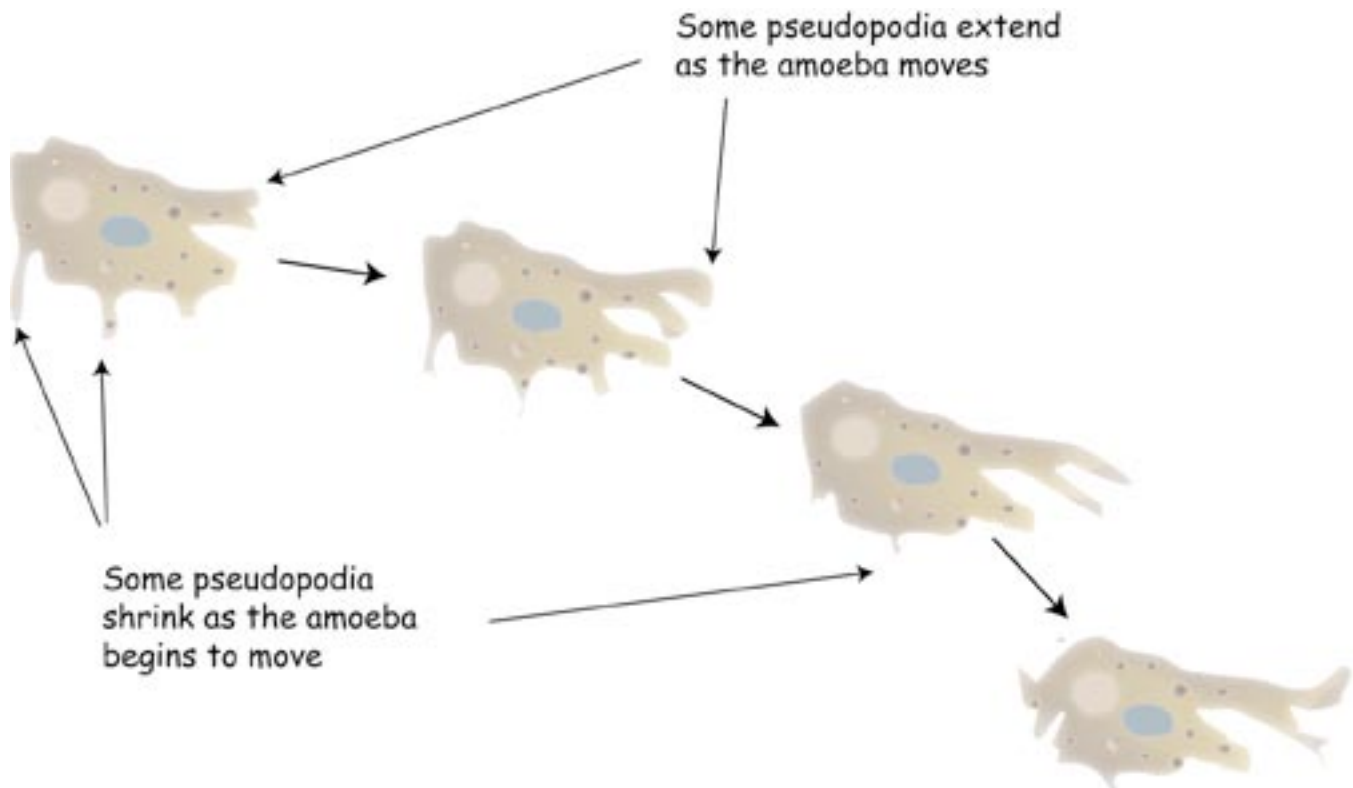
A **euglena** is a type of flagellate.

Amoeba



The amoeba move very differently; they do not swim or use flagella or cilia. Instead, amoeba crawl along surfaces by extending and bulging the edges of their membranes. The portions of their membranes that stick out are called **pseudopodia**. **Pseudo** is Greek and means "false" and **podia** means "foot." So a pseudopod is a "false foot."

In a microscope, the movement of an amoeba along the surface of a glass slide looks something like this:



6.4 Summary

Here are the main points to remember from this chapter:

- Protists are microscopic, one-celled organisms that have both plant-like and animal-like qualities.
- A microscope is a special instrument that makes very small things appear larger.
- There are three main types of protists based primarily on how they move: **ciliates**, **flagellates** and **amoeba**.
- Ciliates move with tiny hair-like projections called **cilia**.
- Flagellates move with one or two long whips called **flagella**.
- Amoeba move by crawling with **pseudopodia**, or "false feet."