

Protozoa Group

Read the attached information about protozoans. You must put together a presentation at least 2 minutes in length on protozoans. In your presentation you should include:

- The definition of protozoa
- Describe what protozoans eat
- Describe a harmful protozoan
- Describe each of the types of protozoans (except for the ampicomplexans)
- Anything else you think is important.

By the end of your presentation, the class should be able to answer these questions:

- What are protozoa?
- Are all protozoa dangerous to humans?
- What do protozoans eat?
- What are 3 types of protozoans?
- Describe how each of the protozoans move.

Protozoa

The name protozoa means “first animals.” As the principal hunters and grazers of the microbial world, protozoa play a key role in maintaining the balance of bacterial, algal, and other microbial life. They also are themselves an important food source for larger creatures and the basis of many food chains.

Protozoa have been found in almost every kind of soil environment from peat bogs to arid desert sands. They teem in the deep sea as well as near the surface of waters, and can be found even in frigid Arctic and Antarctic waters.

Some species of protozoa are part of the normal microbial flora of animals, and live in the guts of insects and mammals, helping to break down complex food particles into simpler molecules. A very small number of species cause disease in people, including *Plasmodium vivax*, which causes malaria.

The four main subgroups of protozoa are the ciliates, the flagellates, the sarcodina, and the apicomplexans.

The word protozoa means “little animal.” They are so named because many species behave like tiny animals—specifically, they hunt and gather other microbes as food.

Protozoa mainly feed on bacteria, but they also eat other protozoa, bits of stuff that has come off of other living things—what’s generally called organic matter—and sometimes fungi.

Some protozoa absorb food through their cell membranes. Others, like the amoebas <ah-me-buhs>, surround food and engulf it. Others have openings called mouth pores into which they sweep food.

All protozoa digest their food in stomach-like compartments called vacuoles <vac-you-ohls>. As they chow down, they make and give off nitrogen, which is an element that plants and other higher creatures can use.

Protozoa range in size from 1/5,000 to 1/50 of an inch (5 to 500 μm) in diameter. They can be classified into three general groups based on their shape.

One group is the Ciliates <silly-ates>, which are generally the largest protozoa. They have hair-like projections called cilia <silly-uh> and they eat the other two types of protozoa as well as bacteria. You can just see the thin cilia poking out around the edges of the protozoan in the image to the right.

The second group is the Amoebae <ah-me-bee>, which can be subdivided into the testate amoebae, which have a shell-like covering, and the naked amoebae, which don't have this covering.

Finally, the third group is the Flagellates <flah-geh-lets>, which are generally the smallest of the protozoa and have one or several long, whip-like projections called flagella poking out of their cells.

To hunt, protozoa have to be able to move about. Amoebas ooze about by extending parts of their cells as pseudopods <sue-doh-pods> or "false feet." Amoebae have fluid cell membranes or coverings that they can stretch out, bend and curve. As the membrane moves outward, the fluid and other parts inside the cell follow, flowing into the new bulge created by the moving membrane. Many ciliates swim along by beating their cilia in a rhythmic pattern, like so many tiny oars. Flagellates swim by waving their flagella, using them much like a fish uses its tail push itself through water.

Some protozoa prefer to latch themselves in one place. For example, a ciliate called Vorticella <vor-tih-sell-uh> attaches to a spot on a long, springy stalk. It creates a mini whirlpool around its mouth pore by beating the cilia ringing its bulbous top end so that food particles get sucked in. Whenever anything too big to be eaten hits a Vorticella, it springs back out of the way by rapidly coiling up its stalk. (To see video clips of Vorticella doing their thing, visit [this web page](#).)

The vast majority of protozoa do us no harm. But, yes, there are a few that cause disease. One type of amoeba can live in human intestines. It feeds on red blood cells and causes a disease known as dysentery <dis-in-tear-ee>. The parasitic protozoan *Cryptosporidium parvum* <crypt-toe-spore-id-ee-um par-vum> sickened around 400,000 people in Milwaukee in 1993 when it got into the tap water. Perhaps the best-known protozoal menace is *Plasmodium* <plaz-mo-dee-um>, the parasite that causes malaria. This terrible disease leads to about 800,000 deaths each year worldwide.