



KEEP ON MOVING

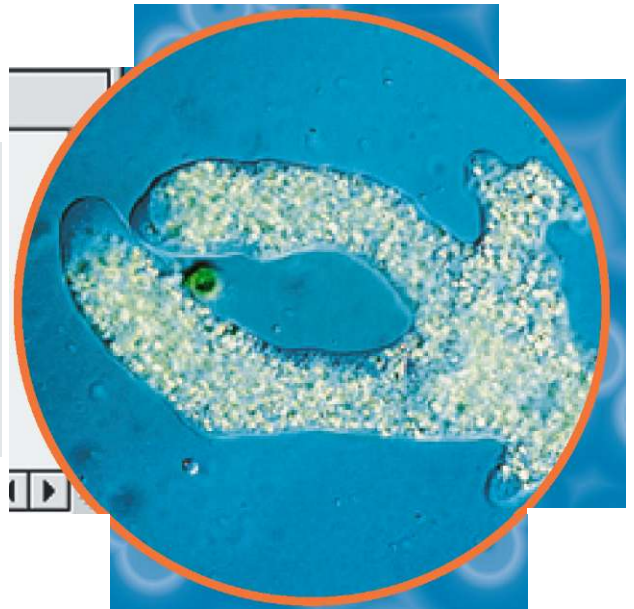
They might be tiny, but protists need to stay alive just like any other life-form.

Whether you're talking about an elephant or a one-celled *Euglena*, survival means the same thing: getting enough food to eat, keeping away from predators, reproducing, and adapting to changes in the environment. Take a close look at some protists that have developed adaptations over time to help them survive the game of life. And don't be fooled by the pictures! These protists may all look the same size, but they're not: A paramecium is about 10 times bigger than *Vorticella*.

AMOEBA:

Eating on the Go

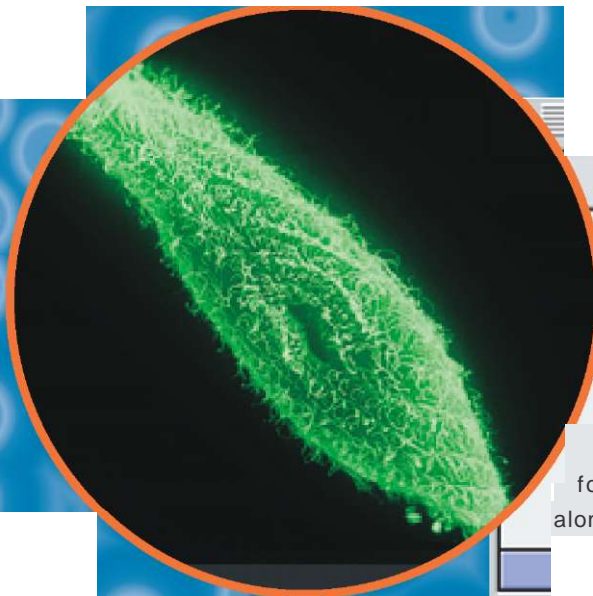
How do you grab a bite if you don't have a mouth? A one-celled amoeba (a ME ba) uses its membrane both for hunting and capturing bacteria and algae. It moves by pushing out its cell membrane to form fingerlike extensions called pseudopods, or "false feet." Then the jelly-like contents of the amoeba round out the bulge, pulling the rest of the body forward. The amoeba wraps its "feet" around its prey and engulfs the food within its membrane (right). Once inside, the food gets trapped in the amoeba's vacuole (VACK yoo ohl), a cell structure for storing and digesting food.

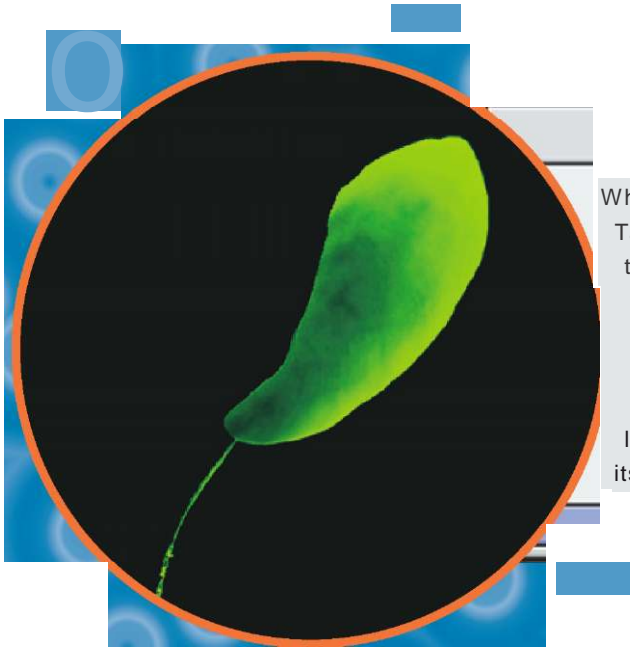


PARAMECIUM:

Making a Fast Getaway

Faster than any other protist, the slipper-shaped paramecium can swim more than two millimeters a second. That means it can travel one centimeter in five seconds—not bad for an organism as small as the dot on an "i." A paramecium uses its speed to outswim predators and sneak up on its prey. It moves by beating thousands of cilia, or hairlike objects, all over its body (left). Together the cilia move the paramecium forward or backward, and they also sweep food into a groove along the organism's body.



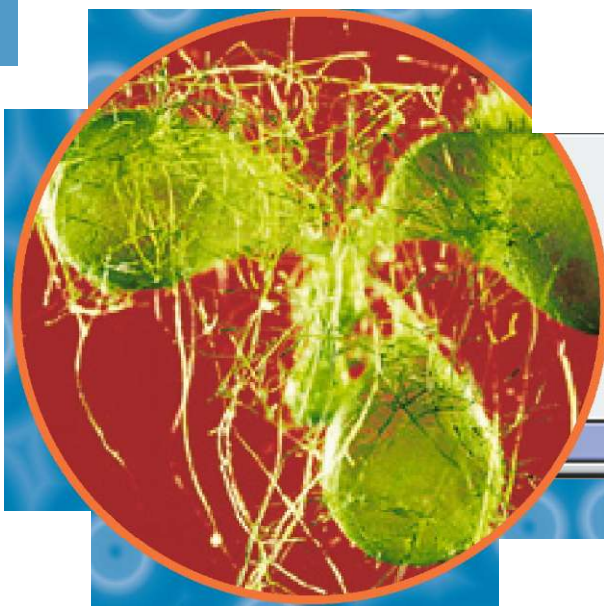
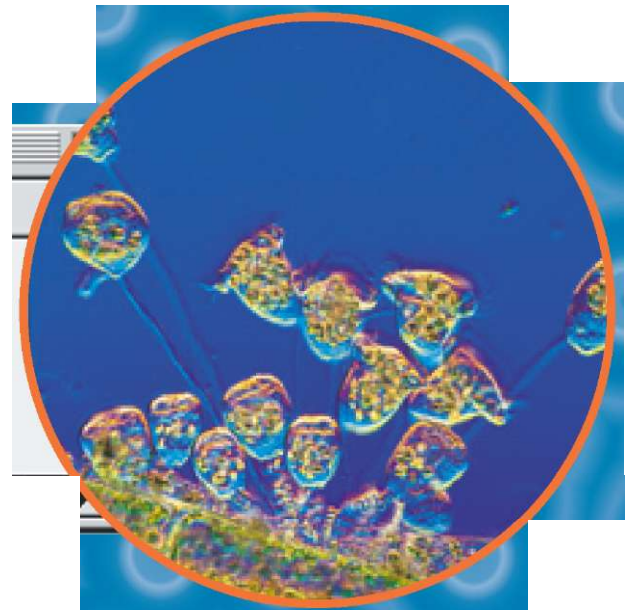


EUGLENA: **Playing It Both Ways**

When an organism's surroundings change, it tries to adapt. Take euglena (yoo GLEE na), which can make its own food through photosynthesis but can survive without sunlight if necessary. In sunlight, it makes its own food, just as plants do. But when a euglena does not get enough light, it hunts prey (such as smaller protists) and digests it, just as animals do. Euglena comes equipped with one or two tail-like extensions called flagella (left), which it uses to propel itself through water or to anchor itself.

VORTICELLA: **Scoop It Up**

A protist that uses its cilia for eating is the *Vorticella campanula* (right). Shaped like an upside-down bell, this organism has a long tube and a funnel-like mouth. Cilia line the broad lip of its mouth. By waving its cilia back and forth, *Vorticella* creates a small whirlpool at the entrance of its mouth that sucks bacteria and other freshwater-food bits into the funnel.



ALGAE: **Eating In**

All algae make their own food through photosynthesis. These protists take energy from the Sun and turn it into food that they store in their bodies (left). Most kinds of algae live in fresh or salt water. Algae provide food for other organisms.