VIRTUAL VOYAGE

A Paramecium's Paradise

Think a pond is small? In human terms, it is. But to a one-celled protist called a paramecium a pond is an entire universe. Climb into a virtual reality machine and take a trip through the universe, er, pond . . .

Time to start swimming. But in this pond universe you are only one cell. How can a single cell swim with no arms or legs? Feel those thousands of tiny hairs that cover the outside of your cell. They're called cilia, and they move. Swish them quickly back and forth to make yourself slide through the water. It's a little like humans doing the wave at a baseball game. Coordinate your cilia so they move in sequence. That's called beating.

As a paramecium [pair uh MEE see um], you can change your shape and size, but only a little bit. As you beat those cilia, expand your single cell, then contract it. It's like paramecium aerobics, only better! Expand, contract, in, out, in. The change in shape works with the cilia to zip you through the water. Experienced paramecia can move at a rate of about 6 inches per minute. That may not seem fast, but remember, you're smaller than the period at the end of this sentence. You should take what you can get. Most kids can run about 7 miles an hour. As a paramecium you would move closer to 35 miles an hour.

This part of the pond is a great environment for you. The water is still, so lots of plants decay here, breaking down in the water and attracting bacteria, which are a protist's main diet. Now you swim up toward the surface of the pond in search of some. They're all over the place. Up, up, up you go!

Oops. An obstruction is in your way. A stick, maybe, or a lily pad stalk, or even a fishing line. No matter. You throw your cilia into reverse gear, then you push them back and forth. You keep it up, turning ever so slightly until the path is clear.

Lunch 'n Hunch

You know how to swim—you have to, so you can find food. Good thing. You're really getting hungry by now. At last! Here come a few bacteria. You open your gullet, or mouth—it's

Cilia surround a paramecium, magnified 100 times.

shaped like a funnel—and let the bacteria swim to you. You then beat your cilia-lined gullet. This movement helps suck the bacteria in, just like a wave carries a surfer to shore. The bacteria go down into your food vacuole (VAK yoo ohl), the cavity where your food is stored and digested. You'll take the nourishment you need and excrete the rest. Most bacteria are 1 micrometer wide, smaller than paramecia, which are 0.03 millimeters. There are plenty of exceptions to the rule, though.

Danger Ahead

Now something approaches you. It's another protist, one known as a didinium (die DIN ee um). These protists are maybe half your size, but they're dangerous. They aren't always satisfied eating decaying plant material, and this one wants you. Yikes! Sensing trouble, you flex your body and shoot little arrow-shaped threads from your sides at the didinium. Uh-oh. This was a wrong move. The threads might work as weapons with certain enemies, but a didinium has more strength than you.

The didinium swims closer and shoots out threads of its own, like yours … only poisonous. When they strike, they paralyze. All the didinium needs to do now is open its gullet wide and, and … swallow you whole! Ohhhh! As you slide down the hatch, you think to yourself: Good thing this is only virtual reality!

Activity

WATCH 'EM SWIM **Obtain permission from adults and invite a friend to join you on a protist hunt. Find a pond or other slow-moving body of water. Over the course of several days look closely for signs of protists. Draw and write your observations of the area around the water. Note any indications that protists might be present. Collect some water in a small container and take it to school. Look at a few drops under the microscope. What do you observe? If you see protists, record what they look like and how they move. Repeat the process with different water samples. Write down any similarities and differences.**