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## Lesson 6: Paramecium Observations

**Purpose:** To explore the structures, function, and classification of the protist Paramecium.

**Question:** What are paramecium and how are they classified?

**Instructions for Part 1:**

- See Mr. Ower for a drop of the paramecium culture. Cover the drop with a cover slip.
- The paramecium have been given a chemical to slow them down. It may take a few minutes for the chemical to work. Find a non-swimming paramecium and observe it at 400X.

**Instructions for Part 2:**

Read through the following section and answer the questions as required. Always write 1-3 sentences for each responses when required.

1. The paramecium has a cell membrane. And, more importantly, it has a part just outside the cell membrane called the pellicle. What is the function of the **pellicle**?

*The pellicle is a stiff, but flexible, covering that surrounds the paramecium and gives it its shape.*

2. Use the fine focus knob to take the paramecium into and out of focus. You should notice thousands of short hairs moving. These are the **cilia**. What are the three functions of the cilia?

*The three functions of the cilia are movement, capturing food, and sensing the environment.*

3. Observe the interior part of the paramecium. You should observe one or more star-shaped structures. These are the **contractile vacuoles**.

- a. What is the function of a contractile vacuole?

*The function of the contractile vacuole is to collect and expel excess water.*

- b. Why does the paramecium need a contractile vacuole?

*The paramecium needs a contractile vacuole because it is in a hypotonic environment. This means water is constantly entering the cell and the paramecium needs a way to remove it. Hence, the contractile vacuole.*

4. The paramecium is, like all protists, a eukaryote. You should be able to see a large nucleus within the cell. The function of the large nucleus is to control the everyday tasks of the cell. However, near the large nucleus, is a second nucleus, called the **small nucleus (micronucleus)**. What is its function?

*The function of the small nucleus is related to reproduction.*

5. You may have noticed that the paramecium is shoe-shaped. That is, there is an indent or channel on one side of the paramecium. This is called the **oral groove**. What is its function?

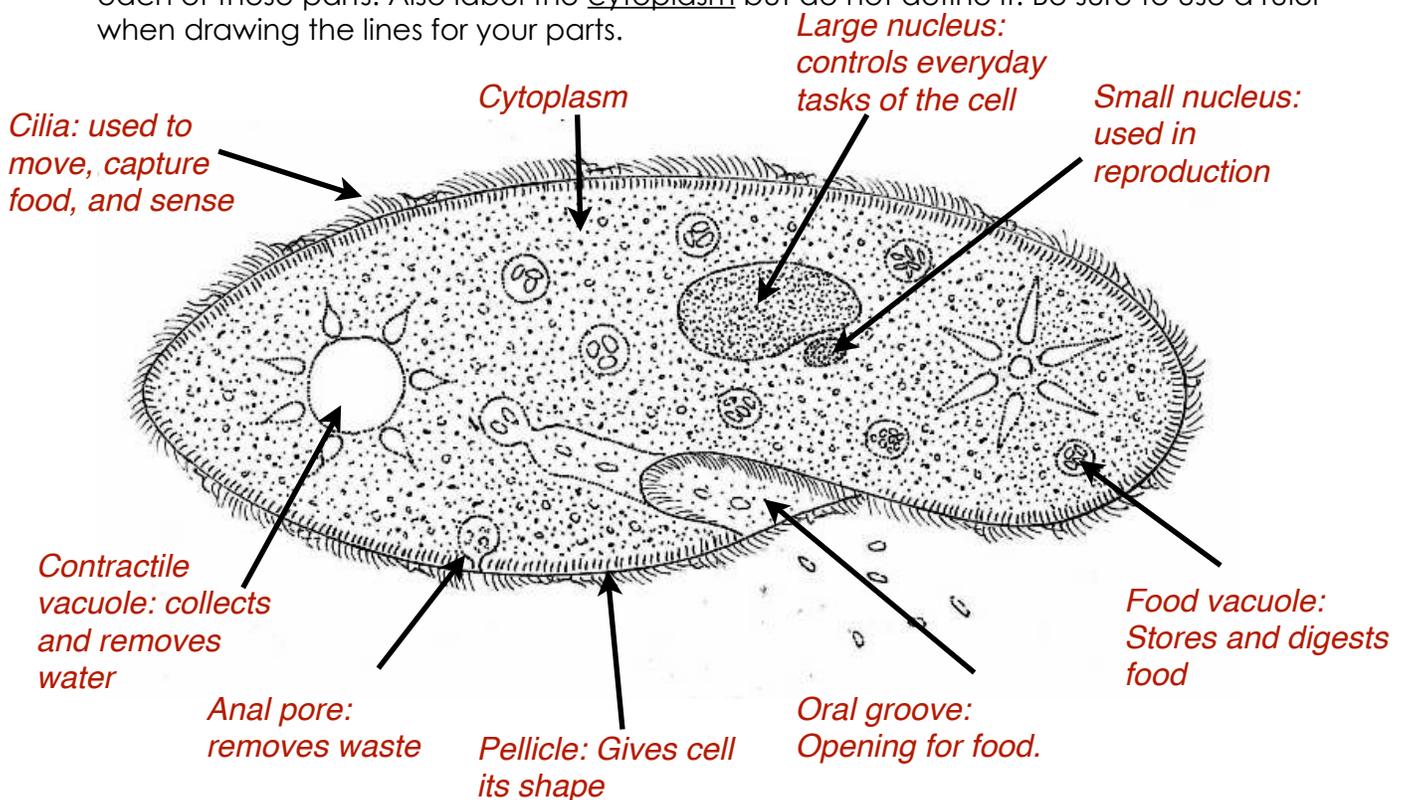
*The function of the oral groove is to collect food for the paramecium. It is lined with cilia. The cilia move water, containing food, into the paramecium.*

You do not need to write sentences for 6 and 7. Just fill in the blanks!

6. **Food vacuoles** form at the end of the oral groove. The function of the food vacuole is to store and digest/distribute food.
7. After the food vacuole finishes its function, it moves to the edge of the cell and expels the waste material. This creates a temporary part in the cell called the anal pore.

### Part 3

Below is a diagram of a paramecium. Based on what you have learned, label the diagram with the following parts: anal pore, contractile vacuole, cilia, food vacuole, large nucleus, oral groove, pellicle, small nucleus. Please write a very short definition for each of these parts. Also label the cytoplasm but do not define it. Be sure to use a ruler when drawing the lines for your parts.



### Reflecting.

1. Which subgroup of protist does the paramecium belong to? What evidence do you have to support your answer? Write 1-3 sentences to answer these questions.

*The paramecium belongs to the subgroup protozoa. This is because, like all protozoa, the paramecium is a heterotroph and eats other organisms for energy.*