

CHAPTER
1

Egg-speriment With a Cell

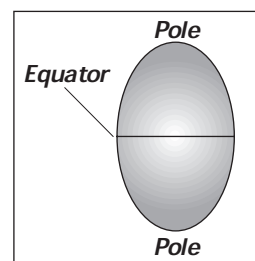
One of the cell structures you will be learning about in Chapter 1 is the cell membrane. In the Chapter 1 Project, you will model how a cell membrane works to let water enter and leave the cell. You will use a chicken egg as a model of a cell. After dissolving the shell in vinegar to expose the membrane, you will soak the egg in various liquids and observe how the size of the egg changes as it takes on or loses water through the membrane. You also will keep a daily record of observations and measurements of the egg.

◆ Project Rules

- ◆ As soon as you get your egg, observe its features and measure its circumference. Record your observations and measurements.
- ◆ Soak the egg in vinegar for at least two days. Then observe and record how the egg has changed, including any changes in appearance or texture. Also measure the circumference of the egg, using the procedure described on the next page. Record your observations and measurements.
- ◆ Soak the egg in plain water for one or two days. Each day, observe and record how the egg has changed and measure and record its circumference.
- ◆ Soak the egg in water with food coloring, salt water, and another liquid of your choice for at least one day each. Continue to keep a daily record of observations and measurements of the egg's circumference.
- ◆ Graph the data you have collected and prepare a report of your results. Be prepared to explain your results and show your egg to the class.

◆ Project Hints

- ◆ For best results in this project, it is important to measure your egg carefully each day. This is because changes in the circumference of the egg may be slight, and measurements that are not precise may mask changes that have occurred.
- ◆ The drawing shows how to measure your egg's circumference.
- ◆ Follow these steps when measuring the egg each day:
 1. Carefully take the egg out of the liquid and pour the liquid down the drain.
 2. Rinse off the egg in cold water over the sink and blot it dry with a paper towel.
 3. Using a flexible tape measure or piece of string, measure the circumference of the egg. If you are measuring your egg with a piece of string, follow these steps:



CHAPTER 1 PROJECT OVERVIEW *(continued)*

- a. Wrap the string snugly around the egg at the equator (but be careful not to cut into the egg’s membrane with the string).
 - b. Grasp the string between your thumb and finger exactly at the point where the end of the string meets the rest of the string after circling the egg.
 - c. Keeping your thumb and finger in place, lay the string straight on a flat surface.
 - d. Use a metric ruler to measure the distance from the end of the string to the point where you are holding it.
4. Record your measurements and any other observations about the egg in the data table on Worksheet 1 or in a similar data table of your own.
 5. Return your egg to the container and cover it with the same or another liquid, according to the project rules above.

◆ Project Time Line

Task	Due Date
1. Finish soaking egg in vinegar and record results	_____
2. Finish soaking egg in plain water and record results	_____
3. Finish soaking egg in water with food coloring and record results	_____
4. Finish soaking egg in salt water and record results	_____
5. Finish soaking egg in a liquid of your choice and record results	_____
6. Complete report and graph	_____
7. Present results	_____

