The History of Cells

Pioneers in Cells

We now know the basic unit of all living things is the cell, just as the atom is the basic unit of matter. It was the work and dedication of several scientists that has led us to the place we are today. Some say our time may be looked back upon as the golden age of biology. The reason for this is the fact that the molecules of life can now be analyzed by new techniques to determine their roles and structures in the cell. We have learned many things that have enhanced our understanding of the cause of disease. The effects of this ongoing explosion of knowledge still remain to be seen.

Discovery

The first person to see **cells**, the building blocks of life, was an English scientist, Robert Hooke. In 1665, he used one of the earliest microscopes to view thin slices of cork. Cork is found in some plants. The first cells observed were no longer living. Hooke found that cork was composed of a honeycomb of hollow chambers that he called cells. What he saw in the microscope was actually the spaces in the cork where cells once lived. Hooke decided to call the hollow structures *cells* because they reminded him of the small rooms in which monks slept.

Anton van Leeuwenhoek (AN tun van·LAY vun hook) was one of the earliest and most successful observers of cells. He was the first person to observe living cells. He observed single-celled organisms swimming about in a drop of pond water. He used a simple microscope that he had made, using a tiny bead for a lens. He manufactured over two hundred simple microscopes that allowed him to observe the wonderful world of tiny "animalcules." These microbes are now known as **bacteria** and **protozoans**.

The Cell Theory

By the 1800s, better microscopes were being made, and scientists had many ideas about cells. Their ideas were put together into a theory, an idea that is consistently supported by data. The credit for the theory goes to two German scientists, Matthias Schleiden, a **botanist** (one who studies plants), and Theodor Schwann, a **zoologist** (one who studies animals). Schleiden discovered that plants were made up of cells, and Schwann reported the same to be true of animals; this discovery led to the first part of the Cell Theory. Together they hypothesized that all living things are made up of cells; this was the second part of the Cell Theory. Several years later, Randolph Virchow, a German doctor, hypothesized that cells didn't just form on their own. He believed that cells divide from existing cells to form new cells. This led to the third part of the Cell Theory. The **Cell Theory** is one of the major theories in science. It is not based on the hypotheses and observations of only one scientist but is the result of the discoveries of many scientists. Today, the Cell Theory serves as the basis upon which **histologists** (scientists who study cells) have built their ongoing explosion of knowledge and information in cell biology.

The **Cell Theory** states that:

- All organisms are made up of one or more cells.
- Cells are the basic units of structure and function in all organisms.
- All cells come from other cells that already exist.

Name: _____ Date: _____

The History of Cells: *Reinforcement Activity*

To the student observer: List the pioneers in the study of cells.

_____

_____

_____

Analyze: Do you believe the cork that Hooke observed could produce new cells? Explain.

_____

_____

_____

Directions: Complete the following sentences.

1. _____ are the building blocks of life.
2. _____ was the first person to see cells.
3. The first cells observed were dead cells in thin slices of _____
4. _____ was the first person to observe living cells in a drop of pond water.
5. The _____ is one of the major theories in science.
6. The work of _____, _____, and _____ led to the development of the Cell Theory.
7. _____ are scientists who study cells.
8. List the three parts of the Cell Theory.
   a. _____
   b. _____
   c. _____