Cell Theory

Human understanding of nature often follows the invention and improvement of instruments that extend human senses. The development of microscopes provided increasingly clear windows to the world of cells.

Light microscopes, the kind used in your classroom, were first developed and used by scientists around 1600. In a light microscope, visible light passes through the object such as a thin slice of muscle tissue, and glass lenses then enlarge the image and project it into the human eye or a camera.

In 1665, an English scientist named Robert Hooke observed compartments in a thin slice of cork (oak bark) using a light microscope. He named the compartments *cells*. Actually, Hooke was observing the walls of dead plant cells. Many more observations by many other scientists were needed to understand the importance of Hooke's discovery. By 1700, Dutch scientist Anton van Leeuwenhoek had developed simple light microscopes with high-quality lenses to observe tiny living organisms, such as those in pond water. He described what he called "animalcules" in letters to Hook and his colleagues.

For the next two centuries, scientists using microscopes, found cells in every organism they examined. By the mid-1800's, this evidence led to the **cell theory**. The cell theory states that all living things are composed of cells and those cells are the basic unit of structure and functions in living things. Later, the cell theory was extended to include the concept that all cells come from preexisting cells.

The discovery of the cell has made a massive impact on how we all live today. Scientists are able to treat diseases and cancer because of their knowledge of the cell.