

The Development of Cell Theory

Hans and Zacharias Janssen - 1595



Until the invention of the microscope, the smallest thing that could be seen was about the size of a human hair. Around 1595, Hans and Zacharias Janssen (father and son) created the first microscope. Hans and Zacharias were spectacle makers from the town of Middelburg,

Holland. While they were experimenting with different lenses, they found that by putting two lenses together they could adjust the magnification of an object. Because it used two lenses their microscope was known as a compound microscope. Zacharias is sometimes associated with the invention of the first telescope as well.

Robert Hooke - 1665



Robert Hooke was an English natural philosopher who studied many different areas of science. He made many discoveries and was an expert at making observations. He studied comets, the rotation of Jupiter, and human memory. His most important discoveries were in the fields of Paleontology and Biology. He was the first to identify the fossilization process of petrification. While observing objects with a microscope he looked at slices of cork and discovered small compartments. He called those compartments cells because they reminded him of the living quarters of monks in a monastery.

Anton van Leeuwenhoek - 1676



Leeuwenhoek is known today as the "Father of Microbiology". He was a Dutch tradesman and scientist. He made significant improvements to the microscope. He made over 500 lenses that worked with his microscopes. With his microscopes he discovered many things including what he called "animalcules". These animalcules were actually protozoans he found in stagnant pond water. A protozoan is a single celled microscopic animal. He was also the first person to observe muscle fibers and bacteria.

Matthias Schleiden - 1838



Matthias Schleiden started off as a lawyer in Hamburg Germany. He received his education at Heidelberg University. After practicing and being unsuccessful at law he became very depressed. He decided to change careers and go into a field more related to his interests. That field was medicine/ biology. He studies soon focused on plant anatomy and physiology. He wrote very important papers on plant biology and was first to determine all plants are made of cells. Schleiden was the first German biologist to accept Charles Darwin's theory of evolution. He eventually became a professor of plant biology.

Theodor Schwann - 1839



Theodor Schwann was a German physiologist who made many important contributions to the field of Biology. His observations refuted the idea of spontaneous generation. He found several chemical relationships to life processes. His research lead to his development of cell theory. Schwann made many observations of animal cells under a microscope and found many important properties. Schwann had strong interests in nervous and muscular tissue.

In his cell theory Schwann concluded:

1. All living things are made of cells – they can be single or multi-celled.
2. Cells are the basic units of life
3. Cells are formed from pre-existing cells



The microscope first used by Anton van Leeuwenhoek

The Development of Cell Theory

1. Who is given credit for the invention of the first compound microscope?

2. What is a protozoan and who was the first to observe one?

3. How did Robert Hooke come up with the term "cell"?

4. Who is the first individual to discover plants were made of cells?

5. What was the first profession of Matthias Schleiden? Why did he decide to switch careers?

6. Which individual is known as the "Father of Microbiology"?

7. What are the three components of cell theory?

a. _____

b. _____

c. _____

Timeline

Name: _____

Cell Theory Timeline Instructions

CELL THEORY

Cell theory is very important in our understanding of life. There are several individuals responsible for the development of cell theory. In this activity you will be creating a timeline of those individuals.

Make sure you include:

1. The image of the person and their approximate discovery date
2. Four facts about the person which includes their contribution

Materials Required:

Two sheets of computer paper

Image sheet

Glue/ Paste

Scissors

Instructions:

Fold two sheets of paper in half (hotdog style). Cut both sheets along the fold. Glue all four sections together. Next, cut out the images and arrange them by date on your timeline. Make sure you have enough space to include your facts between the images. Write down the names and dates of the individuals, your four facts and glue the images in the correct order. See the sample below.

SAMPLE:



Image Sheet



