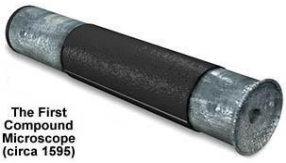
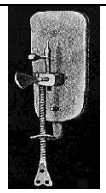
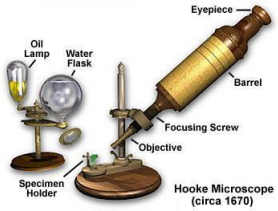
# The Cell Theory Notes

1. Many important scientists aided in the discovery of the cell and the formulation of the cell theory.

| Scientist | Contribution | |
|---|---|---|
|  <br>Zacharias Janssen |  | |
|  <br>Anton Von Leeuwenhoek |  | |
|  <br>Robert Hooke |  | |
|  <br>Matthias Schleiden | | |
|  <br>Theodor Schwann | | |
|  <br>Rudolf Virchow | | |

2. The Cell Theory
    a. all organisms are made of _____
    b. _____are the basic units of structure and function for all _____things
    c. All cells come from other_____.

**Match the scientist with the correct letter stating his contribution to cell discovery.**

| | |
|---|---|
| _____1. Zacharias Janssen | A German histologist that concluded all cells come from other cells |
| _____2. Rudolf Virchow | B German physiologist that concluded all animals are made of cells |
| _____3. Robert Hooke | C Came up with the word "cell" after studying cork under the microscope |
| _____4. Theodor Schwann | D German botanist who concluded that all plants are made of cells |
| _____5. Anton Von Leeuwenhoek | E Dutch tradesman who made the first simple microscope |
| _____6. Matthias Schleiden | F Dutch scientist that built a compound microscope with his father. |

All living things, plant or animal, have one thing in common. Which of the following is the common thing?

**A** They all have cells that are held up by cell walls.
**B** They all have the same way to get water and food into their cells.
**C** They all have cells.
**D** They all have special cells that can do many different things.

In all living things, the presence of what structure supports the cell theory.

**A** cell wall
**B** cell membrane
**C** vacuole
**D** chloroplast

One of the most important general principles in the science of biology is the one known as the cell theory. Scientists use the term “theory” to indicate something that is more than just a hypothesis. A theory is a statement that has been proven true after many experiments. The cell theory was developed over many centuries by hundreds of scientists. It has been proven true so many times some scientists call it a concept.

The term “cell” was first used by English scientist Robert Hooke as he observed thin slices of cork under the microscope. He used the word cell because the compartments he saw in the cork reminded him of small rooms, called cells, used in monasteries and jails. The compartments in the cork were empty because the cells had died and disintegrated, but he also described cells in living plant tissues, which were filled with fluids.

In 1675 the Dutch scientist Antonie van Leeuwenhoek discovered microscopic animals in water. He also discovered bacteria, which were not reported by anyone else for another 200 years.

Numerous scientists contributed various bits, large and small, to the final cell theory.

However, the credit for pulling it all together usually goes to a pair of German scientists. In 1838 and 1839 the botanist, Matthias Schleiden and the zoologist Theodor Schwann proposed a hypothesis that *all living organisms are made up of one or more cells* and that those cells are the smallest thing that is alive. Since that time, thousands of scientists have examined millions of living organisms and have never found a single thing smaller than a cell that can function completely on its own.

The idea that *the cell is the basic unit of life* was derived from the observation that the smallest thing that has all of the properties of life is a single cell. If the cell is broken open, the life processes stop.

In 1858 the German biologist Rudolf Virchow supplied the third part of the cell theory when he stated that *all cells come from the division of preexisting cells.*

Although most scientists believe that the first cells spontaneously arose from chemical reactions when the earth was first formed, that occurred under very different conditions than those existing today and took a very large amount of time. Today we never see a cell produced except by division of a preexisting cell.