

Development of the Cell Theory:

The microscope was probably invented in 1597 by Dutch lens makers, Zaccharias and Hans Jansseen. One of the first scientists to observe cells was the English physicist Robert Hooke. In the mid-1600s, Hooke examined a thin slice of cork through the newly invented microscope. The microscopic compartments in the cork reminded him of the small rooms in a monastery and so he called them cells. Later in that century, Anton van Leeuwenhoek, from Holland, made further observations of plant, animal and microorganism cells. In 1831, Robert Brown, an English botanist, described a brown circular object in the cell which later became known as the nucleus. In 1838, the German botanist Mathias Schleiden proposed that all plants are made of cells. The next year his colleague, an anatomist Theodore Schwann, concluded that all animals are made of cells. In 1858, Rudolf Virchow proposed that all living things are made of cells and that all cells arise from already existing cells. These ideas of the last three scientists became known as the cell theory.

Cell theory:

Cells are the basic unit of life—structural and functional

All living things are made up of cells

Cells come from existing cells

Some exceptions to the Cell Theory:

--All living things are made up of cells, but viruses are not living things because they are not made up of cells.

They are made up of protein and nucleic acids, but they cannot replicate unless they are inside of living cells.

--There are two organelles in cells that have their own genetic material, mitochondria and chloroplasts, so that they can replicate on their own. One theory is that they were once independent organisms or cells that developed a close interdependence with ancient cells and these two cells eventually became the present day eukaryotic cell.

--If cells come from existing cells, where did the first cell come from? That will be discussed in evolution unit.

**Create a timeline of the development of the Cell Theory. Write about the scientist, when they worked, and their contribution. Your research should add more information to what is written above. Use the textbook (section 7-1) OR use the following websites:

URLs:

<http://science-of-aging.healthaliciousness.com/timelines/cell-history-timeline.php>

(scroll over specific events to see explanations and click on each to see more detailed information)

<http://timerime.com/en/timeline/168103/History+of+Cell+Theory/>

<http://bitesizebio.com/2007/11/05/history-of-cell-biology/>

An article about the history of cell theory in the journal Nature:

URL: http://www.nature.com/ncb/journal/v1/n1/full/ncb0599_E13.html

Creating a timeline activity:

URL: <http://www.schools.manatee.k12.fl.us/072JOCONNOR/cellhistory/>

URL: http://www.saskschools.ca/curr_content/biology20/unit1/UNIT1MODULE3LESSON2.htm