

What are Cells?

Name: _____

Date: _____

How Were Cells Discovered?

- _____ are so small that they remained hidden until the invention of the microscope about 400 years ago.
- English scientist Robert Hooke used a microscope to look at a slice of _____.
- Observed that cork contained tiny _____.
- The matter in cork is _____, its cells are empty.
- They look like little boxes filled with _____.
- Hooke named the holes “_____”.
- Anton van Leeuwenhoek
 - Dutch _____ maker
 - Was the first person to study _____ cells
- Leeuwenhoek looked at _____ with his microscope and saw it was filled with tiny living things.
- He called these living things “_____”.

Modern Cell Theory

- Credit for developing the cell theory belongs to _____ German scientists:
 - _____ Matthias Schleiden
 - Identified that all _____ are made up of cells
 - _____ Theodor Schwann
 - Identified that all _____ are made up of cells
 - _____ Rudolf Virchow
 - Cells come from _____ cells
- During the Middle Ages, it was commonly believed that living organisms could come from _____ things.
- Many scientists believed in this idea of _____ generation
- However, _____ felt that there was another explanation.
- He heated meat broth in special flasks that had long necks bent in the shape of an _____.
- He designed the necks this way so air could enter the flask but living things would be _____ in the bend of the neck and never reach the broth.

- He left the flasks _____ and waited to see what would happen.
- Months later, no living things had grown in the _____.
- When the flasks were _____, living organisms did begin to grow in the broth.
- Pasteur concluded that when living organisms grew in the broth it was because they had gotten in the broth from the _____.
- Principles of Cell Theory
 - All living organisms are composed of _____ or _____ cells.
 - The cell is the basic unit of _____ in all organisms
 - All cells come from _____ cells
- Since the development of the cell theory, scientists have learned much more about cells, their complexities, and their _____.
- _____ helps scientists as they continue to study the cell and its connection to life.

Origin of the Cell

- The Bible describes the creation of all life by an all-wise and all-powerful _____.
- For _____ of years most people believed that life came from some intelligent, higher being.
- Christians, Jews, and Muslims believe that the Creator was the God of the _____.
- Many people today still accept the Bible story as a _____ account of the origin of life.
- In the _____ while scientists were working to disprove the theory of spontaneous generation.
- Charles Darwin's theory of _____ was becoming popular.
- His theory was focused mostly on the origin of different _____.
- However, scientists who did not believe in God created life took the concept of evolution _____.
- Alexander Oparin suggested that living cells arose gradually from nonliving matter _____ of years ago.
- This idea is called _____.
- In 19th century microscopes showed a cell as a simple looking _____.
- To believe a simple blob could have come from something _____ was not too hard to believe since people have been believing in spontaneous generation for years.
- Today with powerful _____ we can see the amazing complexities of the cell.

- Scientist now know that what once looked like a simple blob is a highly-sophisticated system of parts that work together to _____ life.