Cell Theory & Prokaryotes

Introduction

* Living organisms are made up of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Living organisms can be made up of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** or many **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**of cells
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  – life forms consist of only one cell
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** – life forms are made of many cells

Some Unicellular Organisms:

* **\_\_\_\_\_\_\_\_\_\_\_\_\_** – a mostly friendly bacteria that **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – a pond water creature that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** – a pond water predator that may **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Some Multicellular Organisms:

* **\_\_\_\_\_\_\_\_\_\_\_** – a common **\_\_\_\_\_\_\_\_\_\_\_\_**
* \_\_\_\_\_\_\_\_\_\_\_ – a common creature that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_ – a life form that may \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Humans and Cells

* Made of *trillions* of cells
* Of those trillions there are only about **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* For example: **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* All humans began as **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** that grew & divided into **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!**

**Discovery of Cells**

* **\_\_\_\_\_\_\_\_\_** – English scientist, **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, discovered cells while looking through one of the first microscopes
* Looked at a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and described what he saw as “tiny boxes or honeycombs”
* Named the boxes **“\_\_\_\_\_\_\_\_\_\_\_\_”** as they reminded him of the cells in monasteries
* Thought cells only **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* \_\_\_\_\_\_\_\_\_\_ - **Anton van Leuwenhoek** used a handmade microscope to observe pond scum & discovered \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* He called them “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
* He also observed \_\_\_\_\_\_\_\_\_\_\_\_\_\_ from fish, birds, frogs, dogs, and humans
* Therefore, it was known that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as well as plants

**Development of the Cell Theory**

* **\_\_\_\_\_\_\_\_\_\_\_** – **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ Observed the nucleus in the epidermis of an orchid
* \_\_\_\_\_\_\_\_\_\_\_\_ - **Matthias Schleiden**, a German professor of botany, conclusively identified the first plant cells and concluded that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_– **Theodor Schwann**, a German physiologist, who was a close friend of Schleiden, stated that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* **\_\_\_\_\_\_\_\_\_\_\_\_\_** – **Rudolf Virchow**, German physician, now known as the father of modern pathology
* Discovered that all disease results as an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Proved that **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, not from non-living matter

**The Complete Cell Theory**

Putting it all together:

The 3 Basic Components of the Cell Theory were now complete:

1. All living things are composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Schleiden & Schwann, 1838-39)

2. The cell is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of structure *and* function in all living things (Schleiden & Schwann, 1838-39)

3. All cells come from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Virchow, 1858)

Two Basic Types of Cells:

1. [**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**](http://www.scienceprofonline.com/cell-biology/prokaryotic-cell-parts-functions-diagrams.html)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Reproduce by [\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_](http://www.scienceprofonline.com/microbiology/binary-fission-cell-division-reproduction-prokaryotes.html) (another copy by dividing).
* No \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or any other \_\_\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_ travels openly around the cell.
* All \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are prokaryotes.
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that we can see, such as trees, grass, worms, flies, mice, humans, mushrooms and yeast are eukaryotes.
* Can either be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Can \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in one of several ways (Ex. meiosis, mitosis).
* Have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ within containing its \_\_\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ most evident distinction between these cell types.