

TOPIC 2 – LEVELS OF ORGANIZATION IN BIOLOGICAL SYSTEMS

What do you remember about cells?

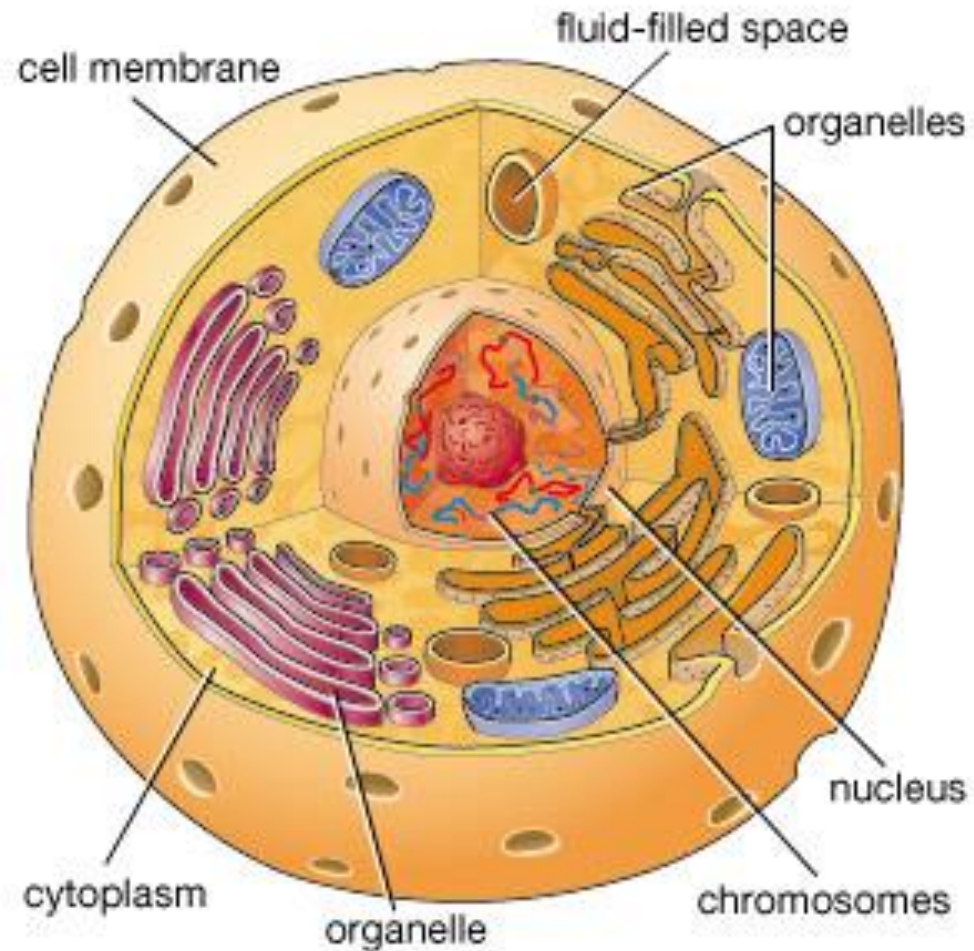
- **Individually**: Take 5 minutes and write down (or draw!) what you remember about the cell
- Some things to think about:
 - Definition
 - Size
 - Types
 - Growth
 - Parts
 - Functions
 - Importance
 - Defining characteristics



Cells

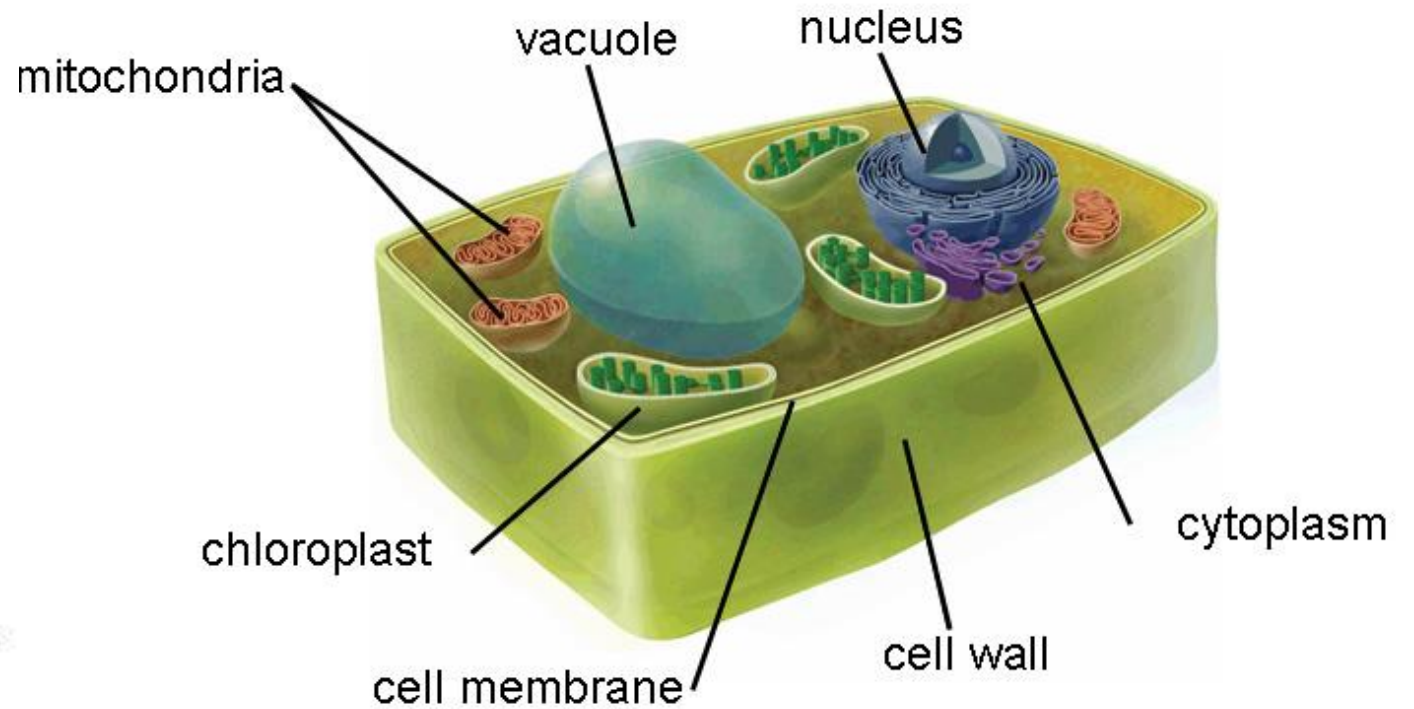
- The cell is the **building block of all living organisms.**
 - It is the **smallest unit of life**
- We are made of about 10,000 billion cells.
- At the beginning **all cells are the same**, but as they **develop** they become **specialized**.
- There are about 200 types of cells that **vary in function**

Animal Cell



© 2006 Encyclopædia Britannica, Inc.

Plant Cell



Cellular Reproduction

- *Our focus this year is primarily on animal cells (in particular humans)*
- *In particular, we are interested in the different types of cells, how these are produced and how they work together in the body*

What comes next....?

- Multi-celled organisms being more complex require cells to specialize and work together to perform these same functions.

What comes next....?

- These cells are grouped into:

- Tissues



- Organs



- Organ Systems



- Organism

Tissues

- a group of specialized cells that have the same structure and function.

4 different tissues:

- Epithelial Tissue
- Connective tissue
- Muscle Tissue
- Nerve Tissue

Organs

- a group of **several different tissues** that are organized a specific way to carry out a **specific function**

Ex: the artery is a blood vessel made of epithelial, muscle and connective tissues which together make blood circulation possible.

System

- is a group of organs that work together to perform a task

Human body consists of many systems to ensure proper functioning

- Digestive System
- Respiratory System
- Circulatory System
- Lymphatic System
- Excretory System
- Reproductive System
- Nervous System
- Musculoskeletal System