Cell Organelles
Organization of Matter

- All living things are made of matter.
- The smallest unit of matter is called an atom.
- When atoms of the same kind get together they form elements. Oxygen, Nitrogen, and Carbon are some examples of these.
- When elements get together they form molecules.
- Molecules form cells.
Organization of Living Matter

Cells

Tissues

Organs

Organ Systems
Cell Discovery

- Cells were discovered by Robert Hooke in 1655.
- He was looking at pieces of cork under a microscope.
- He saw open spaces in the cork.
- They resembled rooms which monks used to live in called cells.
Cell Theory

- All living things are made of cells.
- Cells are the basic unit of structure and function. (Basically a cell is a living thing)
- All cells come from other cells.
Cell Organelles (Parts)

Found in Plants and Animals
Cell Membrane

- The membrane surrounds the cell.
- It protects the cell.
- It is semi-permeable meaning it lets some materials enter and keeps others out.
- It let’s food, oxygen, and water in the cell.
- It let’s wastes leave the cell.
The nucleus is the brain of the cell.

It controls all the functions of the cell.
Chromosomes

- Chromosomes contain all the information about the cell and its functions.
- DNA is found in the chromosomes.
Nucleolus

- This is a structure inside of the nucleus.
- It’s job is to make ribosomes.
Mitochondria

- Mitochondria are the powerhouses of the cell.
- This is where food is converted to energy.
- They have a rod-like shape.
Cytoplasm

- Cytoplasm is a jelly-like substance found all over the cell.
- All the parts of the cell can be found in the cytoplasm.
Endoplasmic Reticulum

- Think of these as a maze of pathways in the cytoplasm.
- ER carry proteins and other materials around the cell.
Vacuoles

- They store food, water, and wastes until they are used or let out of the cell.
- Plant cells have 1 or 2 large vacuoles
- Animal cells have many smaller ones
Ribosomes

- The job of a ribosome is to make protein for the cell.
- Protein is used for growth and repair in the cell.
Golgi Bodies

- Can be thought of as the post office.
- Golgi bodies take proteins and newly formed materials, package them and send them to other parts of the cell.
Lysosomes

- They’re the clean-up crew.
- They break down large pieces of food.
- They also break down dead materials into usable materials.
Peroxisomes

- These structures take care of toxins.
- They do this so the cell isn’t poisoned by these materials.
Centrioles

- These organelles help the cell to divide.
- Only in animal cells
Cell Parts

Found Only in Plant cells
Chloroplasts

- These are green-colored structures in cells.
- Photosynthesis takes place inside of chloroplasts.
Cell Wall

- The cell wall protects the plant cell.
- It is the hardest substance in a plant cell.
- It also helps to keep the shape of the cell.
Review Questions

1. Which parts do plant cells have that animal cells do not have?
2. Why is the nucleus important?
3. What does mitochondria do?
**Bacterial vs. Specialized Cells**

**Bacterial Cell**
- Prokaryote
- No nucleus
- Very simple
- Small in size

**Specialized Cell**
- Eukaryote
- Has a nucleus
- More complex
- Larger

**DNA**
**Cell Membrane**
**Living cells**