**Study Guide: Cells**

**Essential Questions:**

* What is life?
* How has technology changed what we know about the natural world?
* What basic needs are common to all living things?

**Vocabulary:**

Homeostasis

Reproduction

Cell theory

Cell

Hooke

Van Leeuwenhoek

Microscope

Unicellular

Multicellular

Prokaryote

Eukaryote

Tissue

Organ

Organ system

Organelle

Cell membrane

Semi-permeable

Cytoplasm

Nucleus

DNA

Cell wall

Vacuole

Mitochondrion

Endoplasmic reticulum

Chloroplast

Cellular respiration

Photosynthesis

Chlorophyll

Osmosis

Diffusion

**What You Need to Know:** Give the major contribution to the cell theory for each of the scientists below.

|  |  |
| --- | --- |
| Hooke |  |
| van Leeuwenhoek |  |

1. What do all living things need?
2. What processes do all living things carry out?
3. What are the 3 parts of the cell theory?
4. How did improvements in the microscope help advance our understanding of cells?
5. Put the following in order from least complex to most complex: tissue, organism, organ system, organelle, cell, organ
6. Give an example of each from #6.
7. Make a Venn diagram comparing plant and animal cells.
8. Tell the function of each of the following organelles:

|  |  |
| --- | --- |
| Cell wall |  |
| Cell membrane |  |
| Cytoplasm |  |
| Nucleus |  |
| Vacuole |  |
| Mitochondrion |  |
| Endoplasmic reticulum |  |
| Chloroplast |  |

9. Cellular respiration:

a. Definition?

b. What are the raw materials (reactants)?

c. What are the products?

d. What organelle does it happen in?

10. Photosynthesis:

a. Definition?

b. What are the raw materials (reactants)?

c. What are the products?

d. What organelle does it happen in?

e. What does chlorophyll do for the plant?

11. What does it mean to be selectively permeable?

12. What is the difference between osmosis and diffusion?

13. Draw a picture illustrating diffusion.