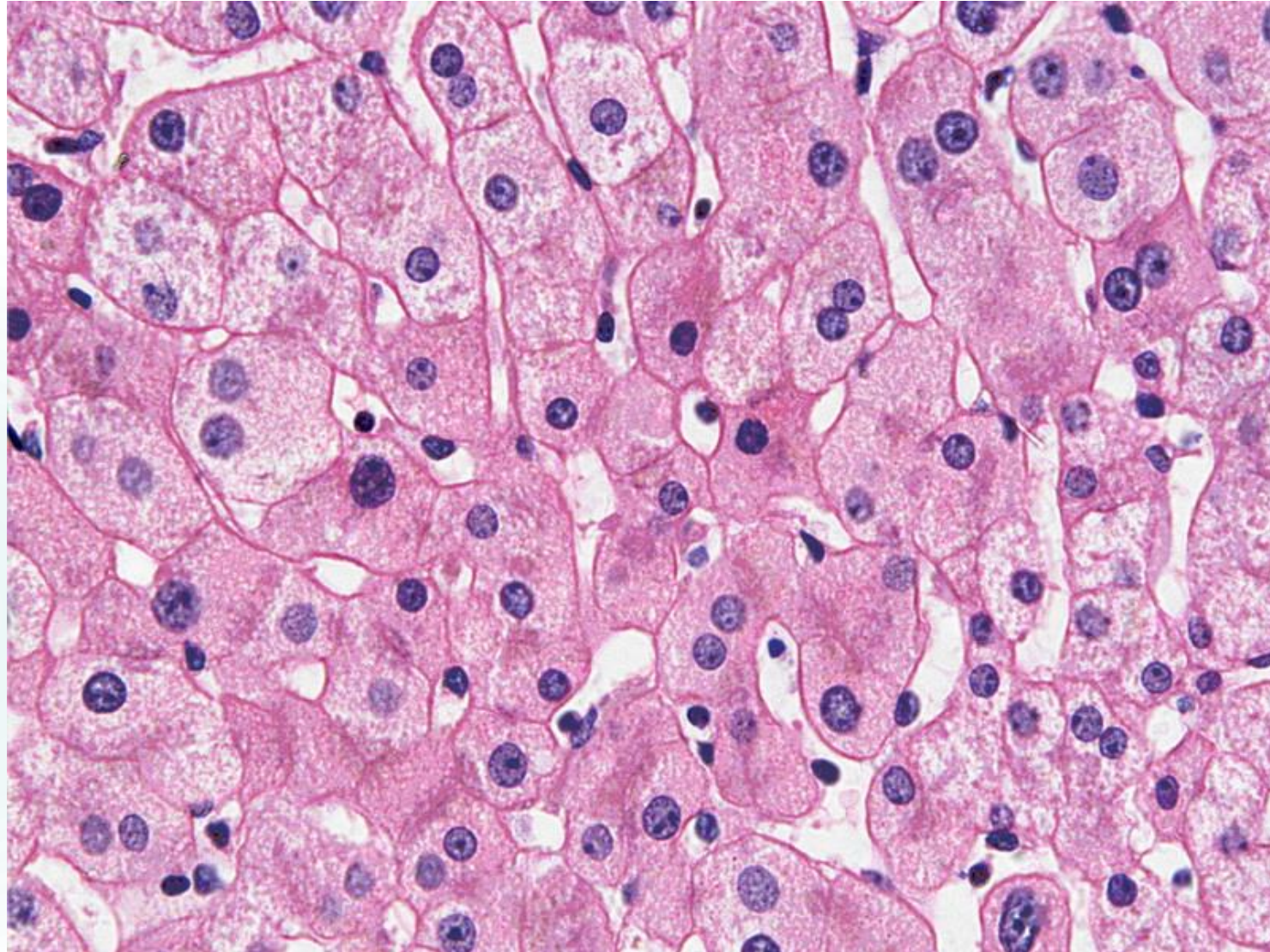


CELLS



VOCABULARY

- Cell Membrane
- Nucleus
- Cell Wall
- Chloroplast
- Vacuole
- Tissue
- Organ
- Organ System

THE IMPORTANCE OF CELLS

- Cells are the smallest unit of life in all living things
- They are organized structures that help living things carry on the activities of life, such as digestion, movement, growth and reproduction
- Different cells have different jobs

THE CELL THEORY

- All living things are made of one or more cells
- The cell is the basic unit of life in which the activities of life occur
- All cells come from cells that already exist

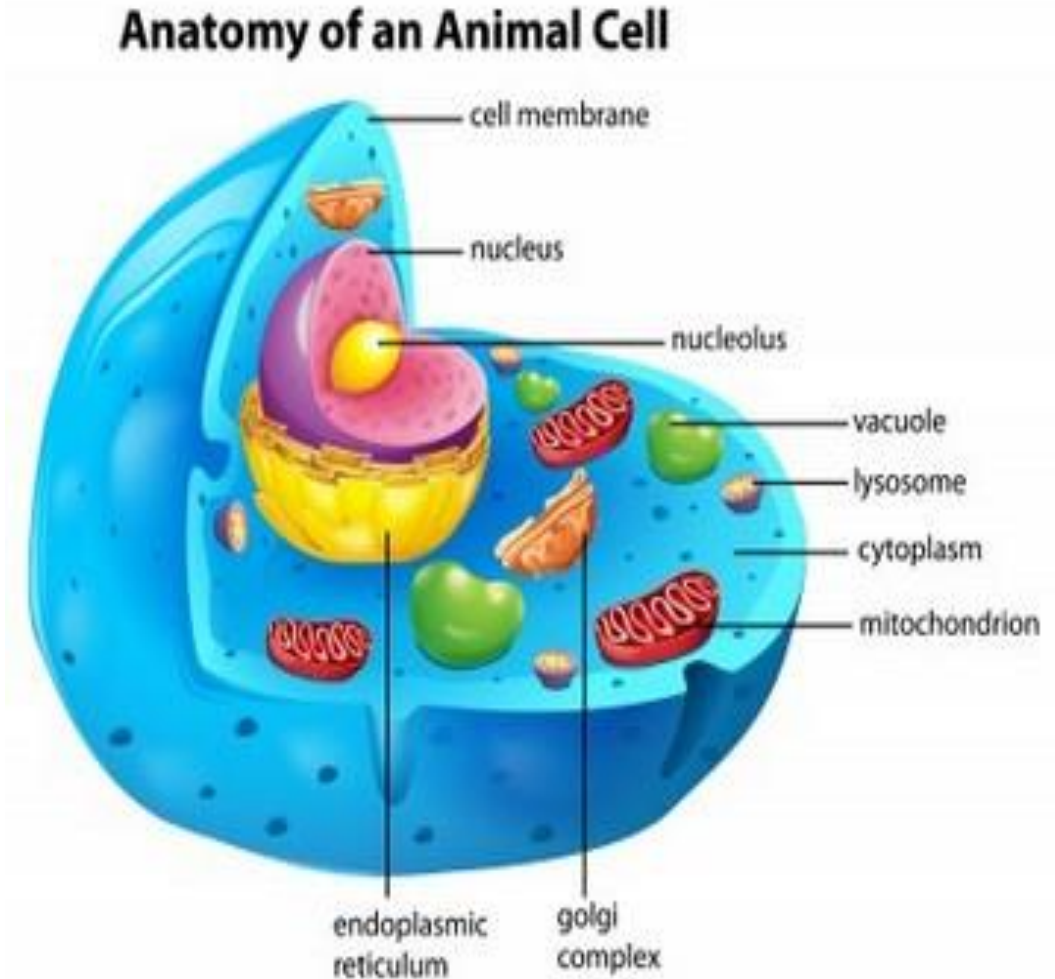
THE MICROSCOPIC CELL

- Cells were first observed by Robert Hooke in 1665
 - He used a microscope that he made himself
 - He first observed cells in a thin slice of cork
 - He called them cells after the small box-like rooms that monks lived in
- As microscopes became more and more advanced, scientists were able to view the different parts of cells and learn the different functions of each part

WHAT ARE CELLS MADE OF?

Animal Cells

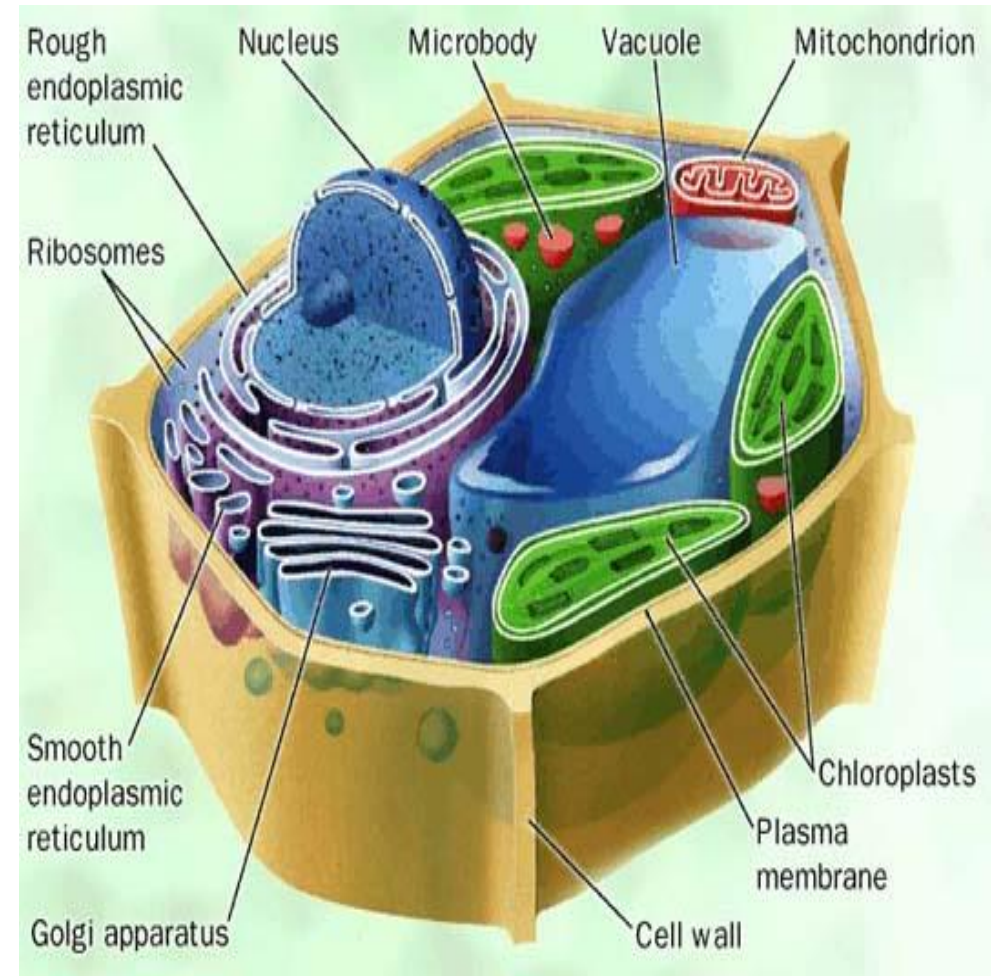
- Cell Membrane: Outer layer of the cell
 - Controls what enters and leaves the cell
- Cytoplasm: A gelatin-like substance that contains many chemicals that the cell needs
- Nucleus: Controls most of the cell's activities
 - Contains chromosomes, which contain DNA
 - DNA determines which traits an organism will have (Genes)
- Mitochondria: “Powerhouse of the cell”
 - Converts food energy into a form that the cell can use
- Vacuole: Stores food, water, minerals and wastes



WHAT ARE CELLS MADE OF?

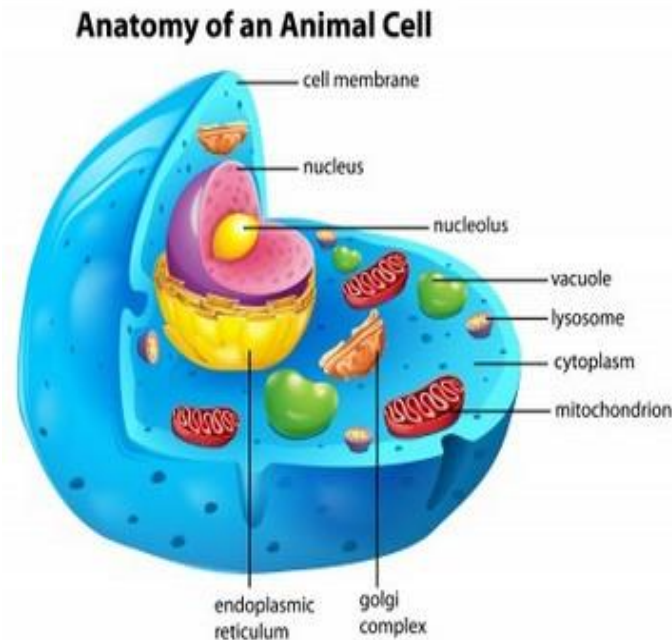
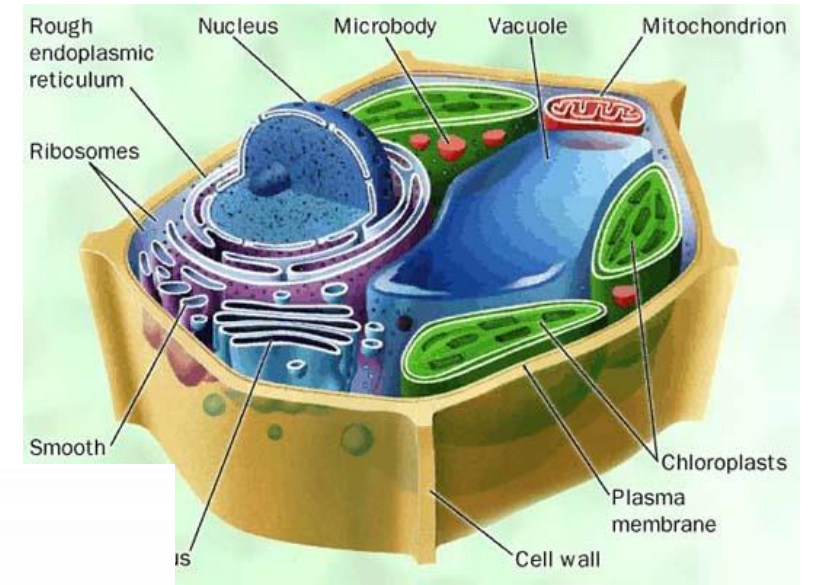
Plant Cells

- Cell Wall: The outermost layer
 - Provides support and protection
- Cell Membrane: Outer layer of the cell
 - Controls what enters and leaves the cell
- Cytoplasm: A gelatin-like substance that contains many chemicals that the cell needs
- Nucleus: Controls most of the cell's activities
 - Contains chromosomes, which contain DNA
 - DNA determines which traits an organism will have (Genes)
- Chloroplast: Captures energy from sunlight and uses it to convert carbon dioxide and water into food and oxygen
 - Give plants their green color
- Mitochondria: "Powerhouse of the cell"
 - Converts food energy into a form that the cell can use
- Vacuole: Stores food, water, minerals and wastes



DIFFERENCES BETWEEN ANIMAL AND PLANT CELLS

- Animal cells and plant cells are very similar
- Plant cells contain some things that animal cells do not:
 - Cell wall
 - Chloroplasts
- Both cells have vacuoles, but animal cell vacuoles are far smaller than plant cell vacuoles





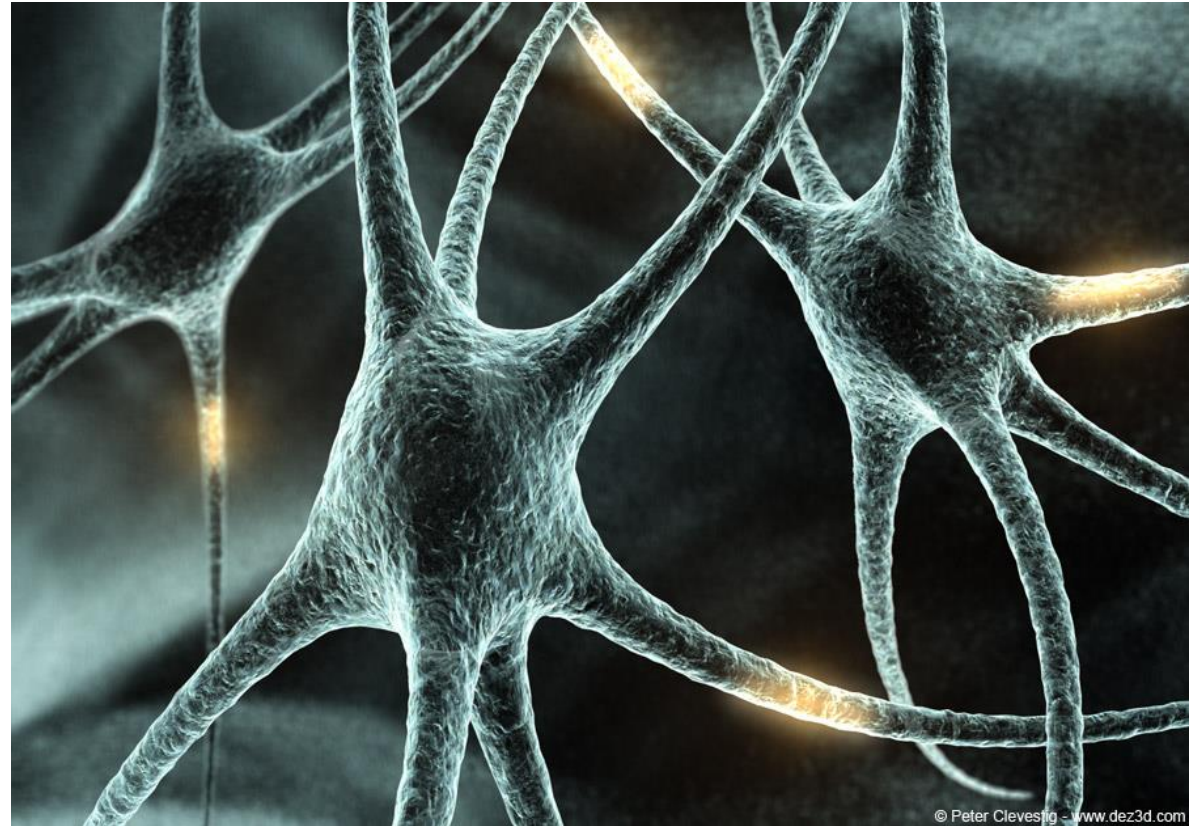
HOW CELLS WORK TOGETHER

CHAPTER 2, LESSON 2

TYPES OF CELLS

Branching Cells

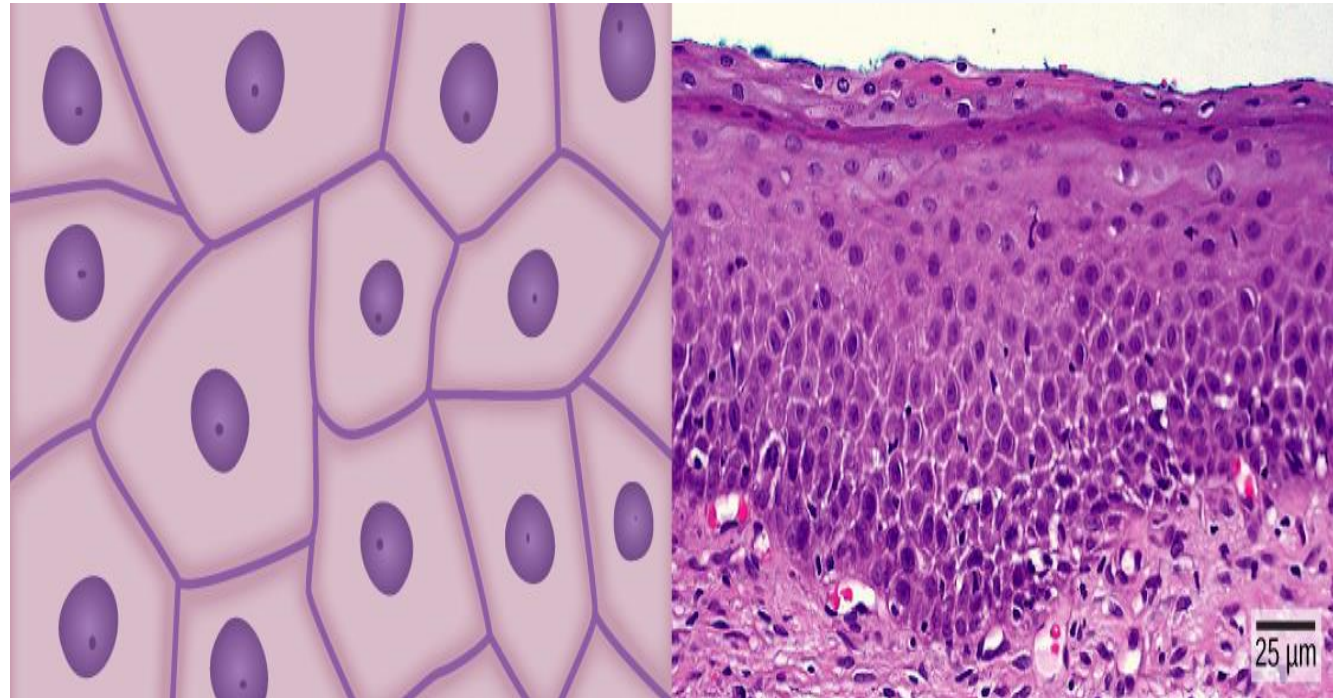
- Nerve Cells
- Shaped like wires, they help get messages between the nerves and brain quickly



TYPES OF CELLS

Flat Cells

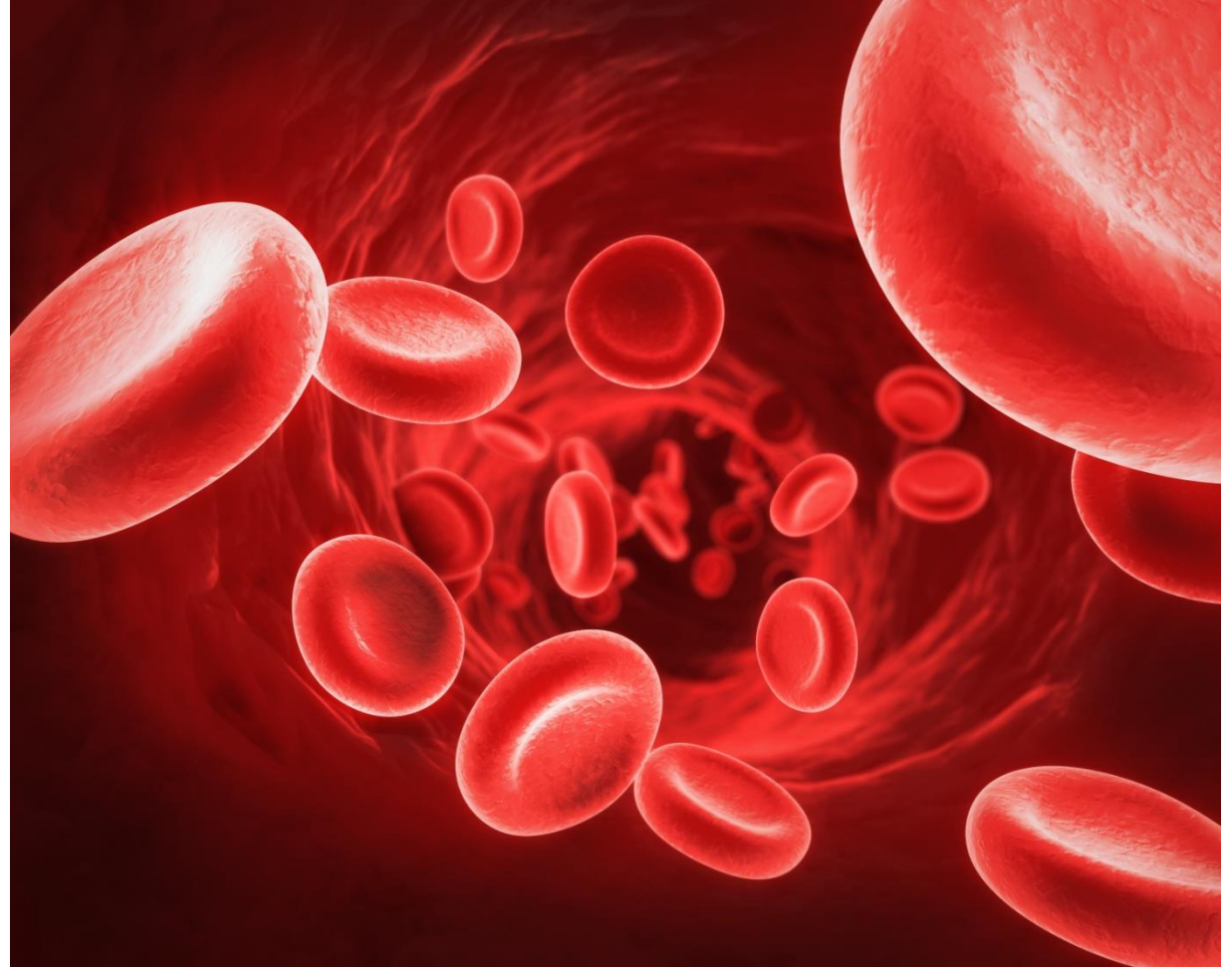
- Skin Cells, lining different parts of the body
- Join or overlap to cover a surface



TYPES OF CELLS

Round Cells

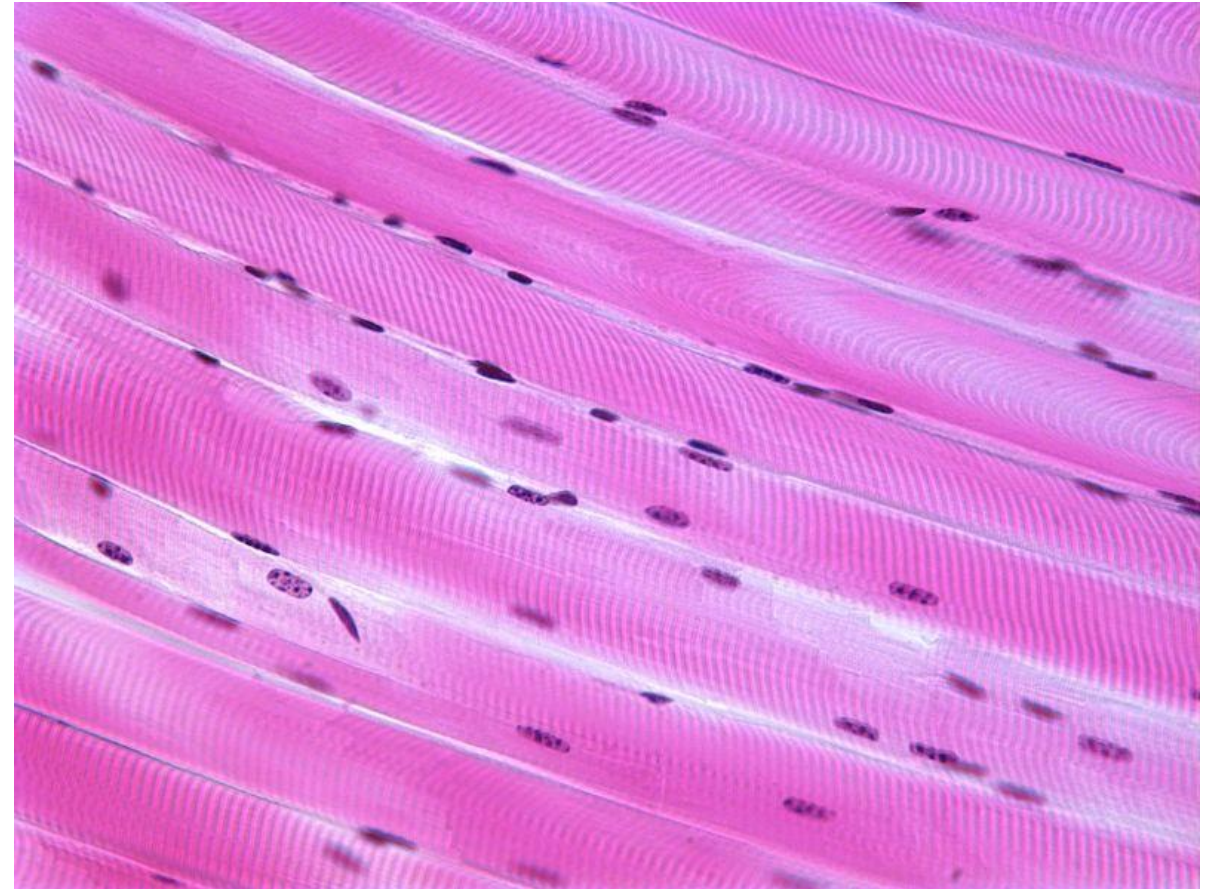
- Red Blood Cells
- The smooth shape helps them move easily through blood vessels



SPECIAL CELL STRUCTURES

Long Protein Fibers

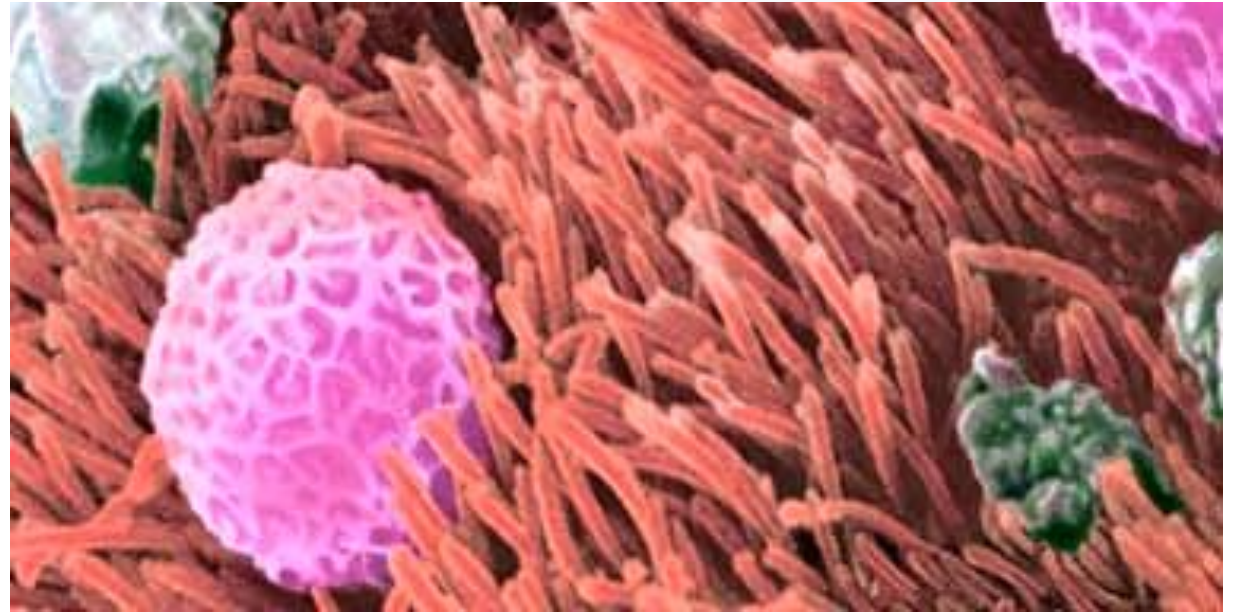
- Muscle cells have long protein fibers that help the muscle shorten



SPECIAL CELL STRUCTURES

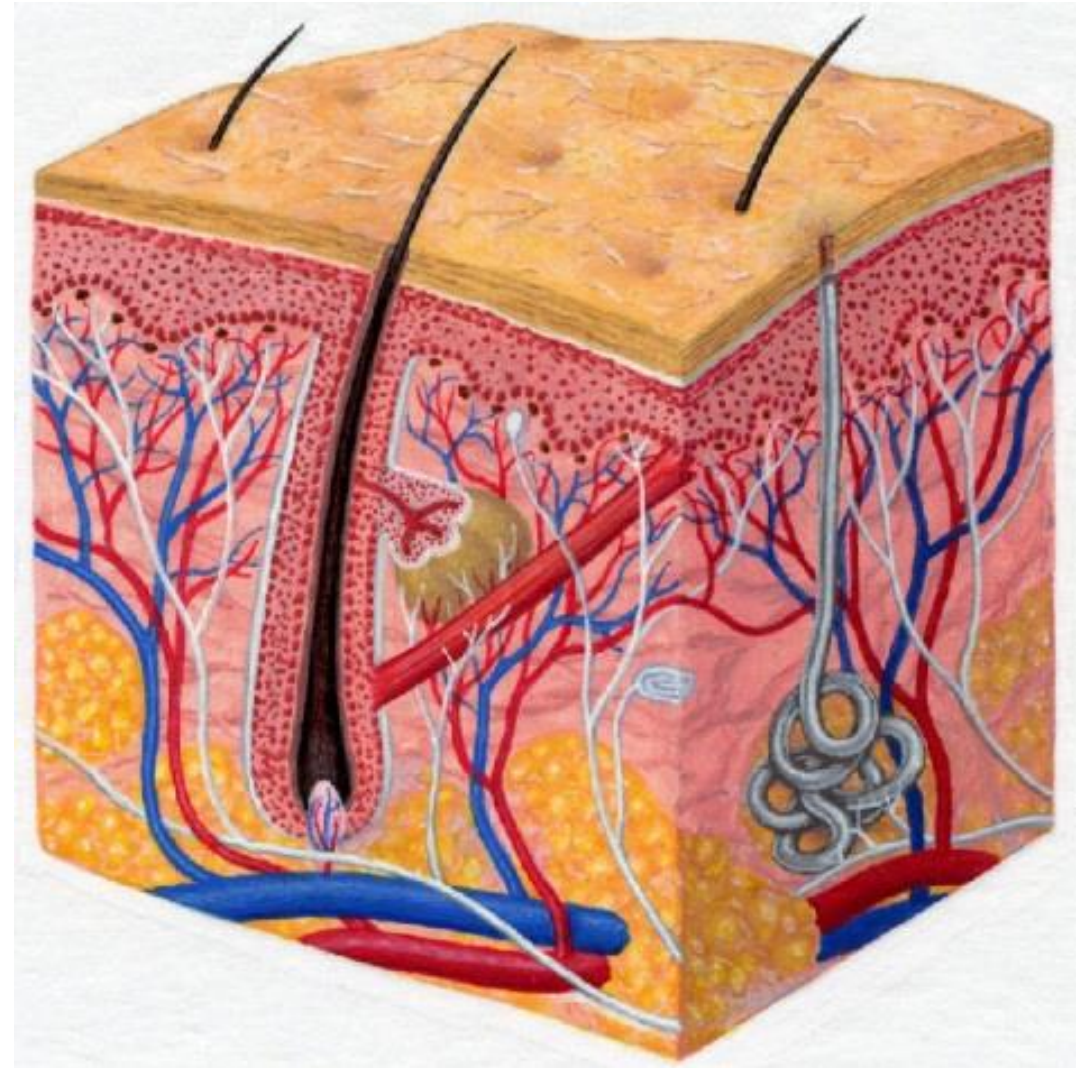
Cilia

- Hair-like structures on cells
- Found in the airways of the lungs and inner ear
- They can help keep out dirt
- They can help transfer vibrations



TISSUES & ORGANS

- Tissue – A group of the same type of cells working together doing the same job
- Organ – A grouping of different tissues combined together into one structure to perform a main job in the body



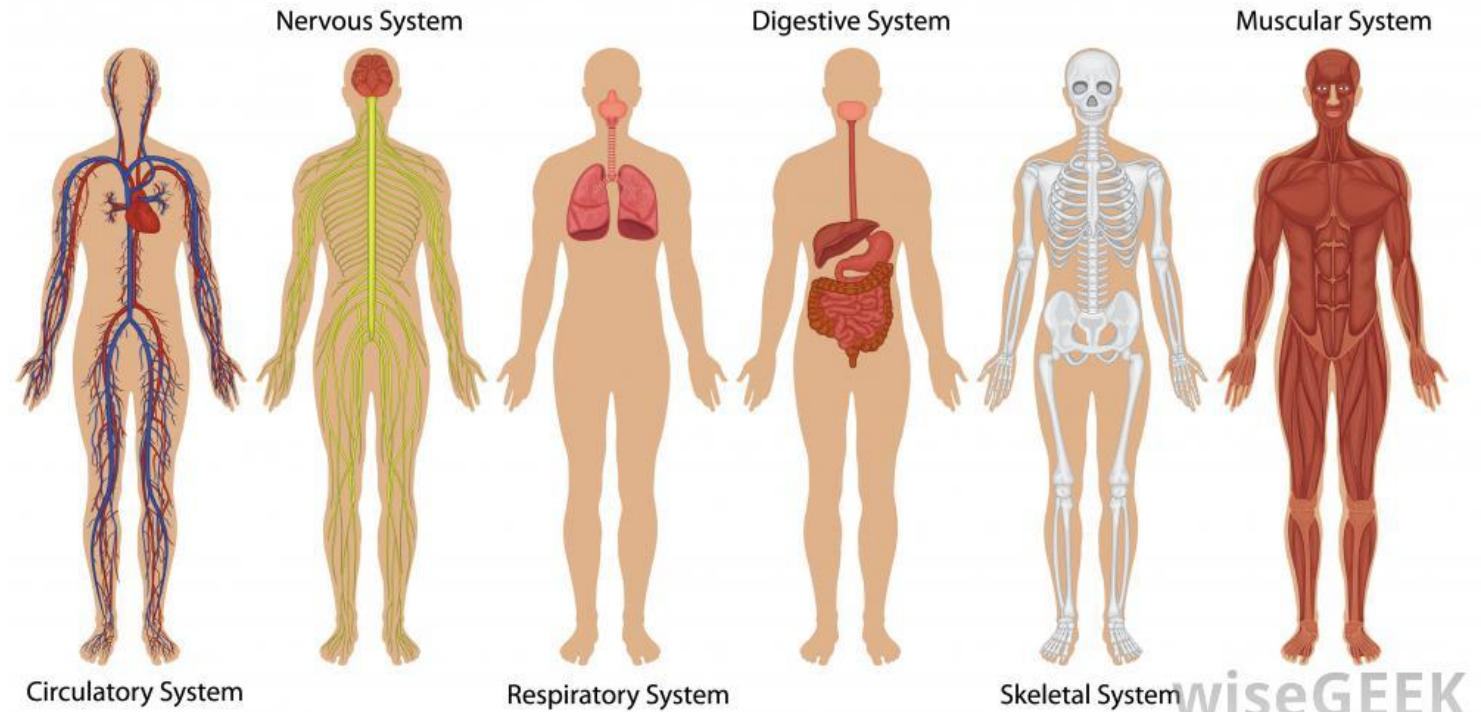


HOW ORGANS WORK TOGETHER

CHAPTER 2, LESSON 3

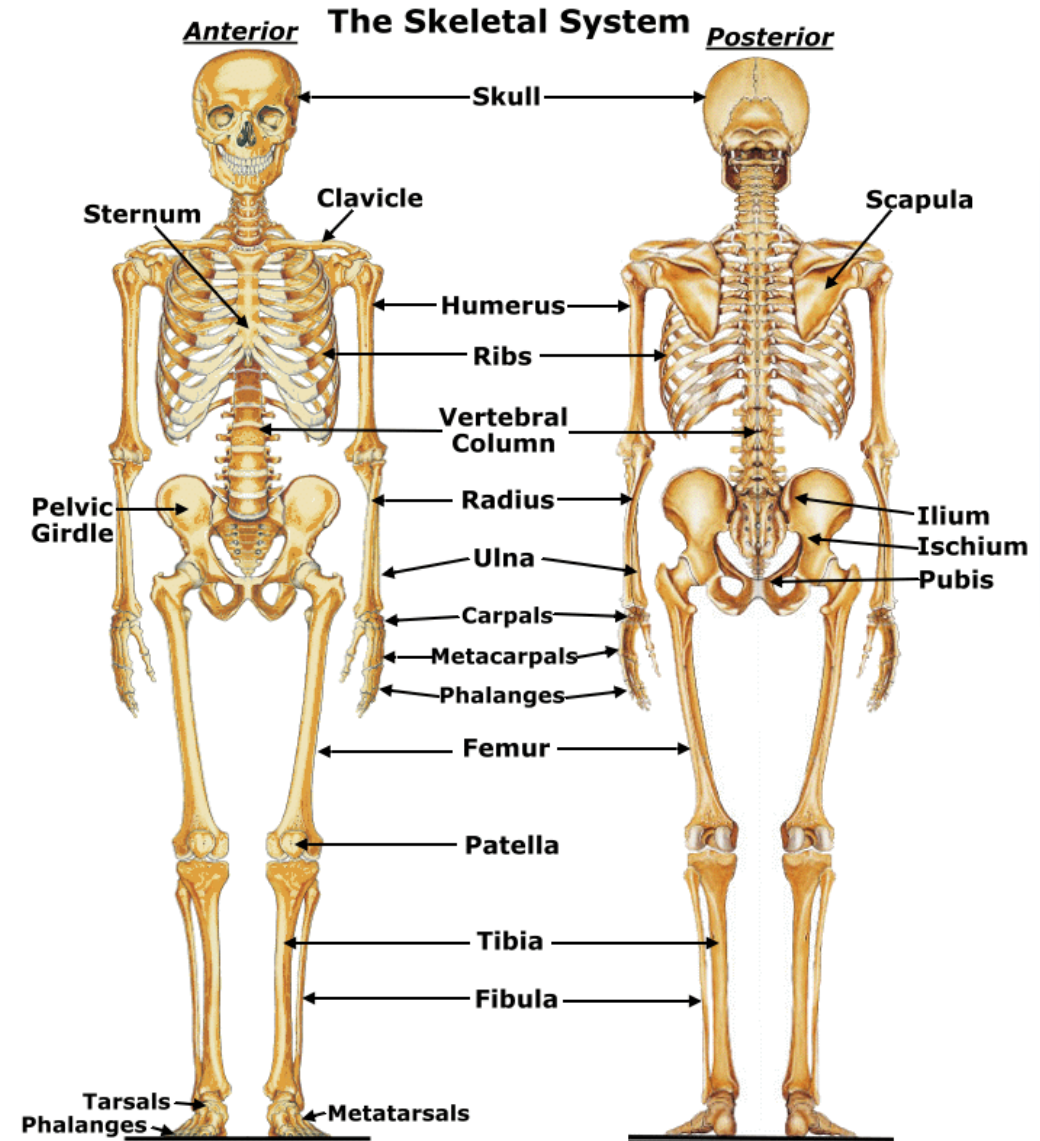
ORGAN SYSTEMS

- Organ System – A group of organs working together to carry out a life process



SKELETAL SYSTEM

- Bones work together to protect organs, move the body, and produce blood cells



MUSCULAR SYSTEM

- Muscles work together to move the body



SYSTEMS WORKING TOGETHER

- Many different systems can work together to carry out life processes
 - The skeletal system, muscular system and nervous system work together to move the body
 - The nervous system, circulatory system and respiratory system work together to circulate blood

