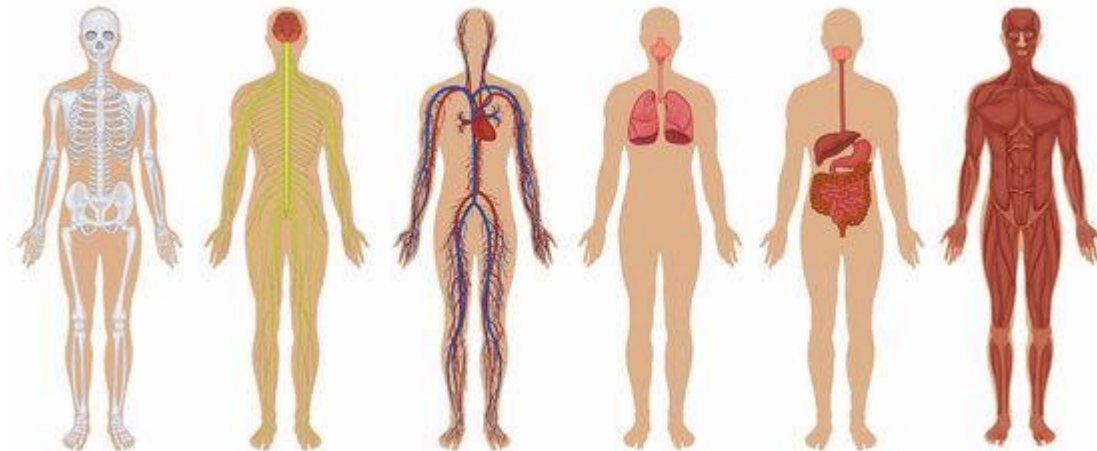


# Human Body Systems

Lesson 14

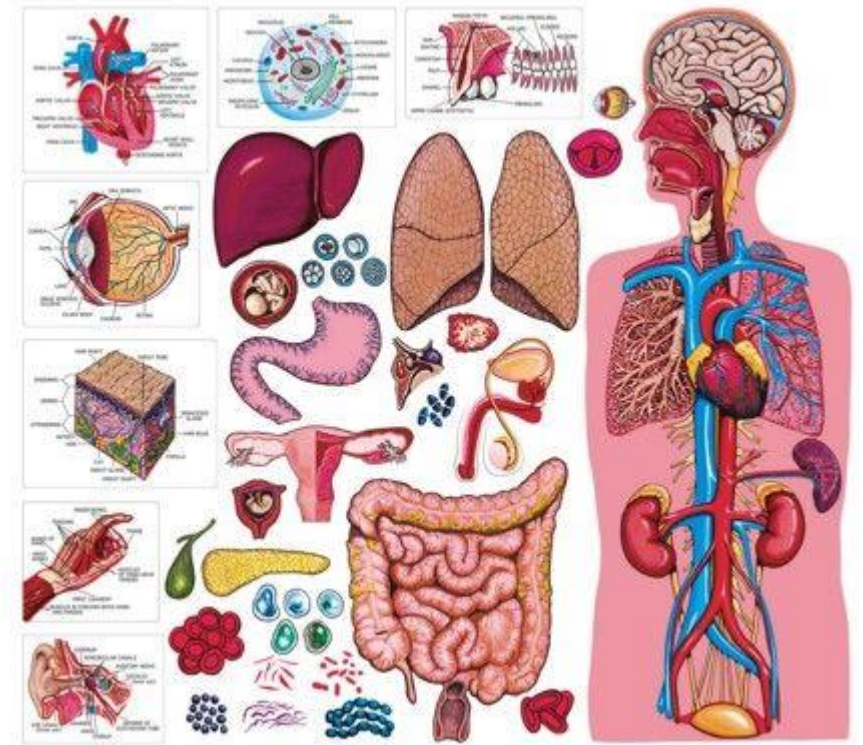
# Body Systems

- A system is made of parts that work together as a whole
- In the human body, many different systems work independently, but are also connected to each other
- Each organ system consists of organs that are made from various types of tissue
  - Tissue refers to a group of similar cells working together to carry out a specific function

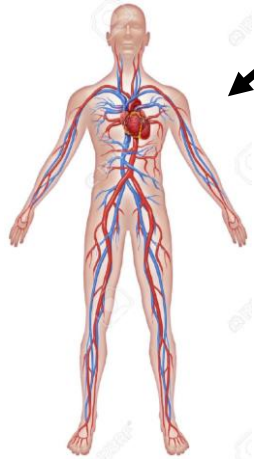


# The Characteristics of Systems

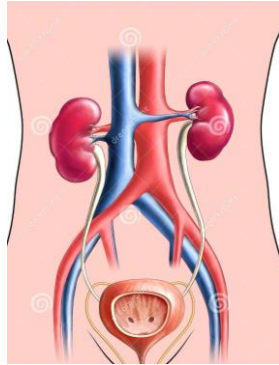
- All systems have the following characteristics:
  1. A system is made of individual parts that work together as a whole
  2. A system is usually connected to one or more systems
  3. If one part of a system is missing or damaged, the system will not function well or may not function at all
- Your body has a variety of systems that work together to maintain your health



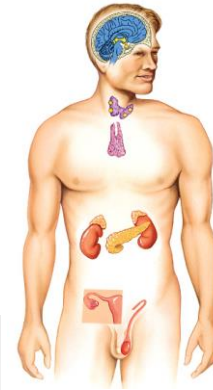
# Intro the Systems of the Human body



↙ **Circulatory system**  
Transports blood, nutrients (chemicals needed for survival), gases, and wastes.



↖ **Excretory System**  
Removes liquid and gas wastes from the body.



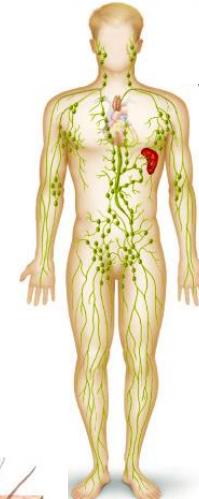
**Endocrine System**  
Manufactures and releases hormones.



**Skeletal system**  
Supports, protects, and works with muscles to move parts of the body. →



↑ **Reproductive System**  
Includes reproductive organs for producing offspring.



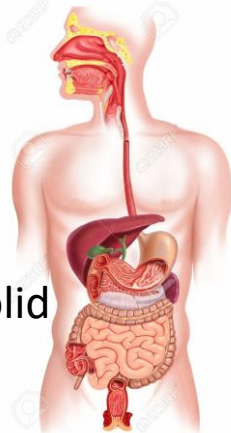
↙ **Immune System**  
Defends the body against infections.



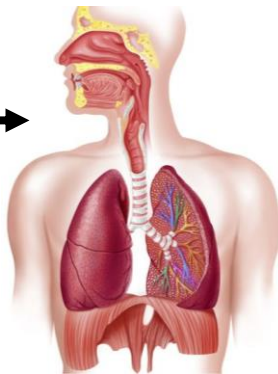
↘ **Muscular System**  
Has muscles that work with the bones to move parts of the body.



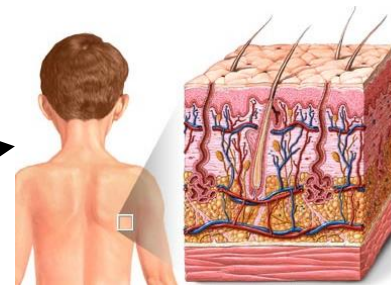
→ **Nervous System**  
Detects changes in the environment and signals these changes to the body, which then carries out a response



↗ **Digestive System**  
Takes in food. Breaks down food. Absorbs nutrients. Eliminates solid waste.



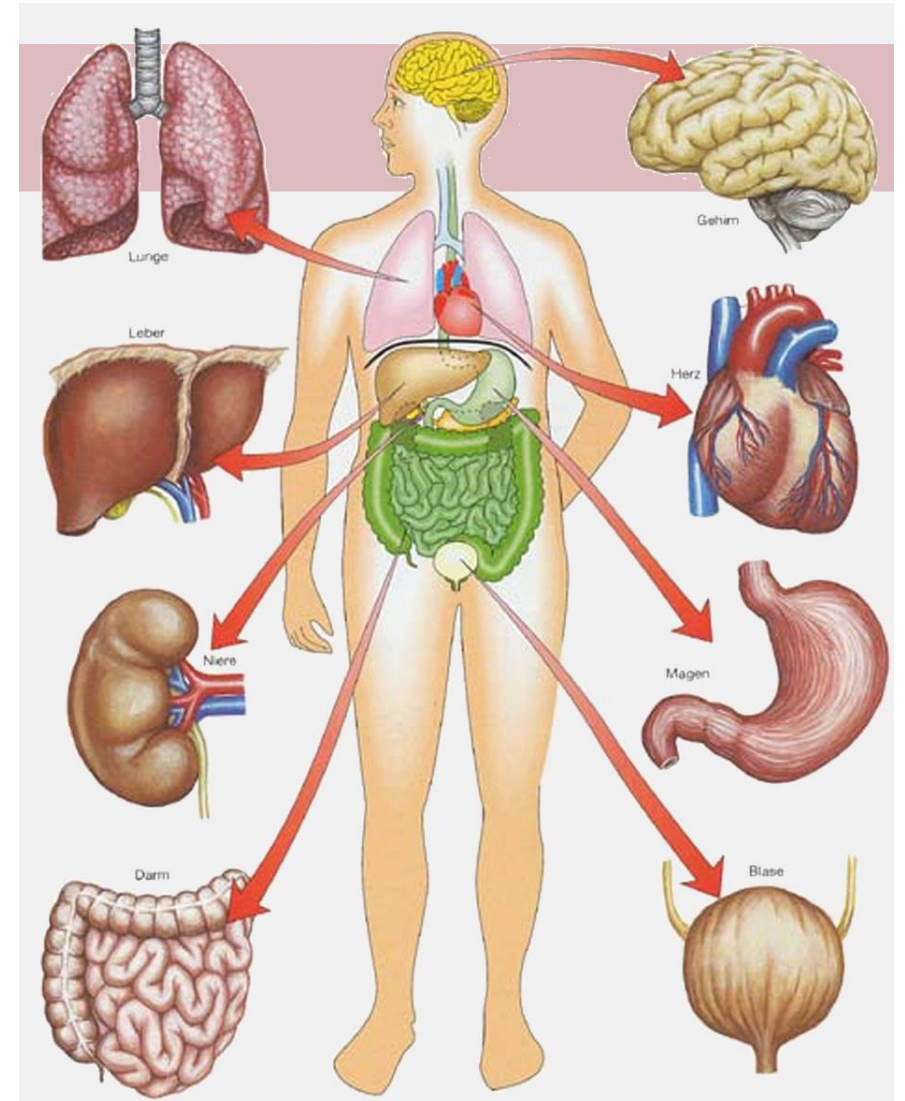
→ **Respiratory System**  
Controls breathing. Exchanges gases in lungs and tissues.



→ **Integumentary system System**  
Includes skin, hair, and nails. Creates a waterproof protective barrier around the body.

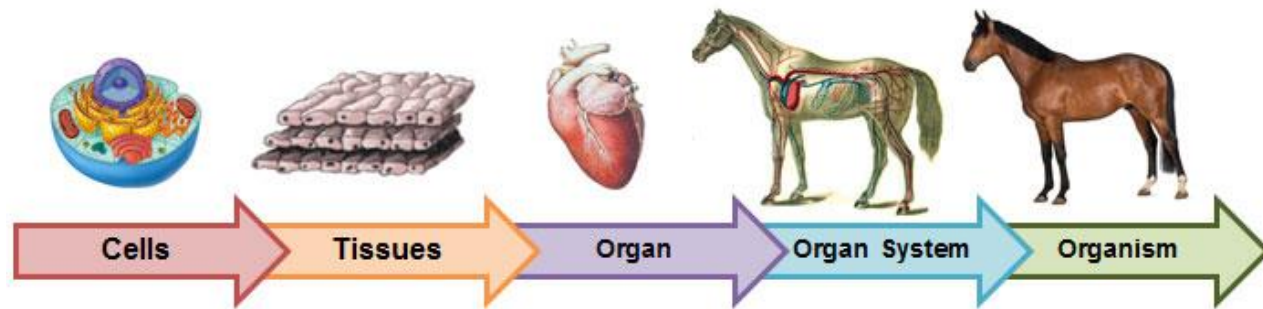
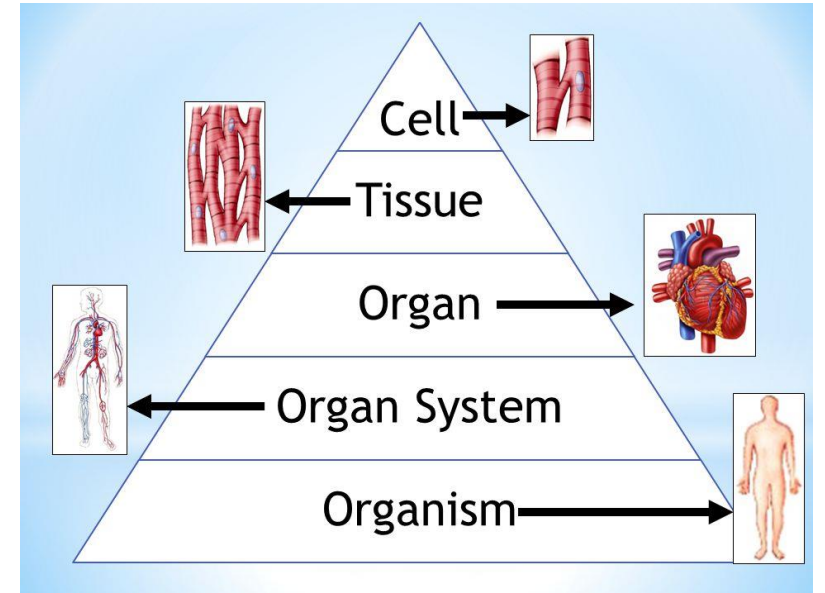
# Organ Systems: Putting It All Together

- 11 major body system in the human body
- Each body system is called an **organ system**
  - Have one or more organs that perform specific body functions
  - E.g. your heart is part of the circulatory system which pumps blood to the lungs and the rest of your body



# Organ Systems: Putting It All Together

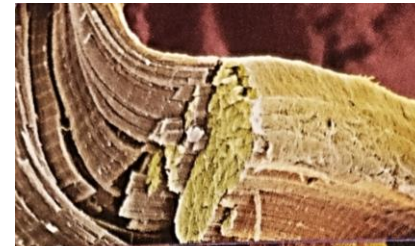
- Within each organ system are **tissues** and **cells**
  - Cells of the same structure and function are grouped into **tissues**
  - **Groups of tissues** form organs
    - E.g lungs or the heart



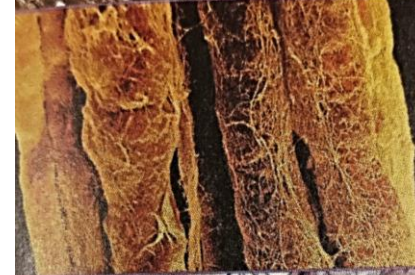
The cell is the basic unit of life. **Cells** working together make up **tissue**. An **organ** consists of several types of tissues working together to perform a task, such as the pumping of blood by your heart. Organs working together make up an **organ system**.

# Tissues: The Foundation of Body Systems

- The four types of tissues form the basis for all organs in your body
  - Muscle tissue
  - Nerve tissue
  - Connective tissue
  - Epithelial tissue



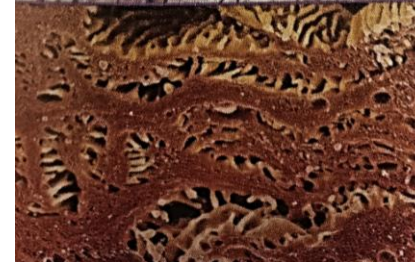
Muscle Tissue



Nerve Tissue



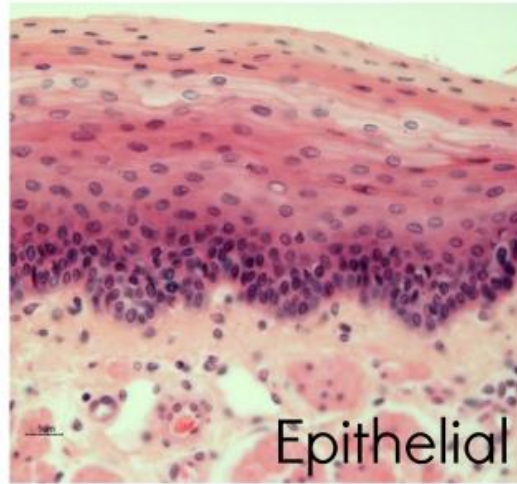
Connective Tissue



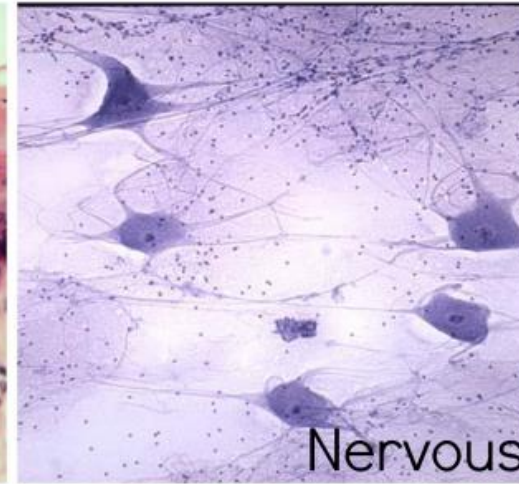
Epithelial Tissue  
(e.g. esophagus)

# How Tissues Function in the Human Body

**Epithelial tissue** covers the surface of organs and the body. It also lines the inside of body parts, such as the mouth, esophagus, and the stomach.



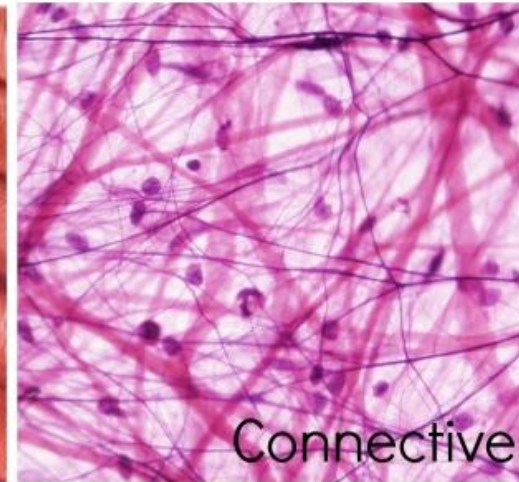
**Nerve tissue** transfers signals in the body and its organs to tell the body how to respond to changes in its internal and external environments.



**Muscle tissue**, such as skeletal muscle tissue, assists in body movement. It also helps some organs carry out specific functions such as the heart pumping blood



**Connective tissue** holds together and supports other tissues, such as skeletal connective tissue. Connective tissue connects, protects, and insulates organs.





# Summary

- There are 11 major organ systems in the human body which work independently, but are also connected to each other
  - circulatory, respiratory, digestive, excretory, nervous, endocrine, immune, integumentary, skeletal, muscle, and reproductive systems
- Level of organization (from smallest to largest):  
Cell → tissue → organ → organ system → organism
- There are four types of tissues that form the basis for all organs in the body
  - Muscular tissue, connective tissue, nervous tissue, epithelial tissue

# Review Q

1. Name three organ systems found in the human body
2. What is the level of organization from smallest to largest? \*cell is the smallest\*
3. What are two types of tissue found in the human body?