

# 35–1 Human Body Systems





**The levels of organization in a multicellular organism include:**

- **cells**
- **tissues**
- **organs**
- **organ systems**

## Cells

A cell is the basic unit of structure and function in living things.

Individual cells in multicellular organisms are specialized.

**Specialized cells** are suited to perform a particular function.

## Tissues

**Epithelial tissue** includes glands and tissues that cover interior and exterior body surfaces.

**Connective tissue** supports the body and connects its parts.

**Nervous tissue** transmits nerve impulses through the body.

**Muscle tissue**, along with bones, enables the body to move.

## Organs and Organ Systems

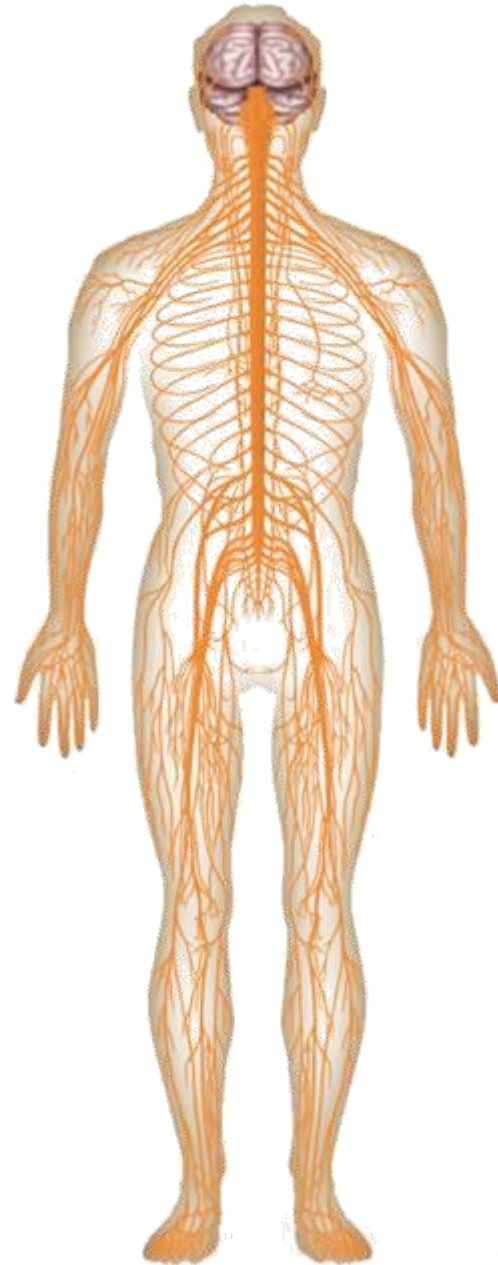
A group of different types of tissues that work together to perform a single function is called an organ.

A group of organs that perform closely related functions is an organ system.

There are eleven organ systems in the body.

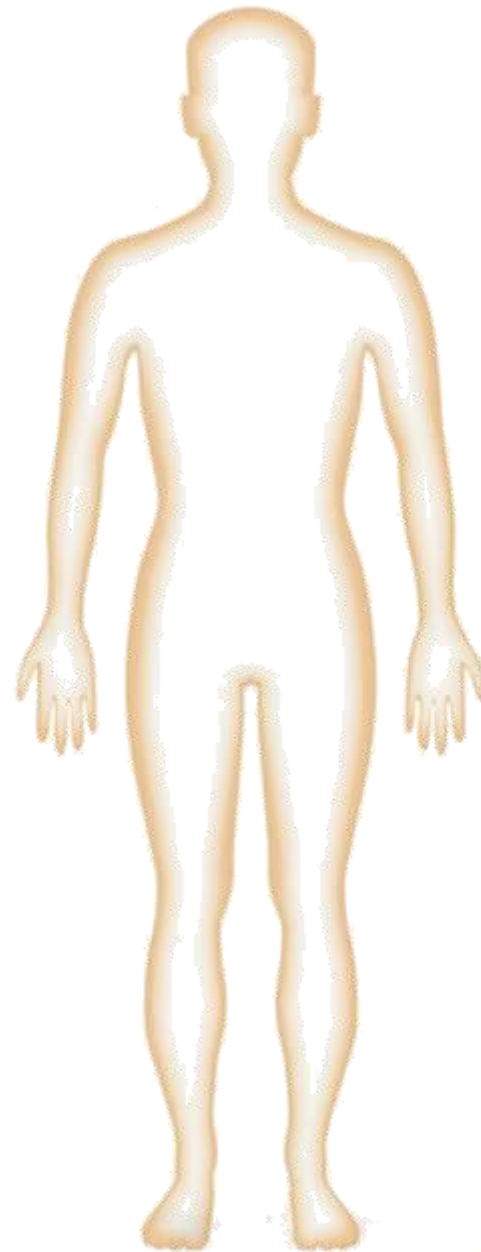
## Nervous System

**Structures:** Brain, spinal cord, peripheral nerves



## Integumentary System

**Structures:** Skin, hair, nails, sweat and oil glands



## Skeletal System

**Structures:** Bones, cartilage, ligaments, tendons





## Muscular System

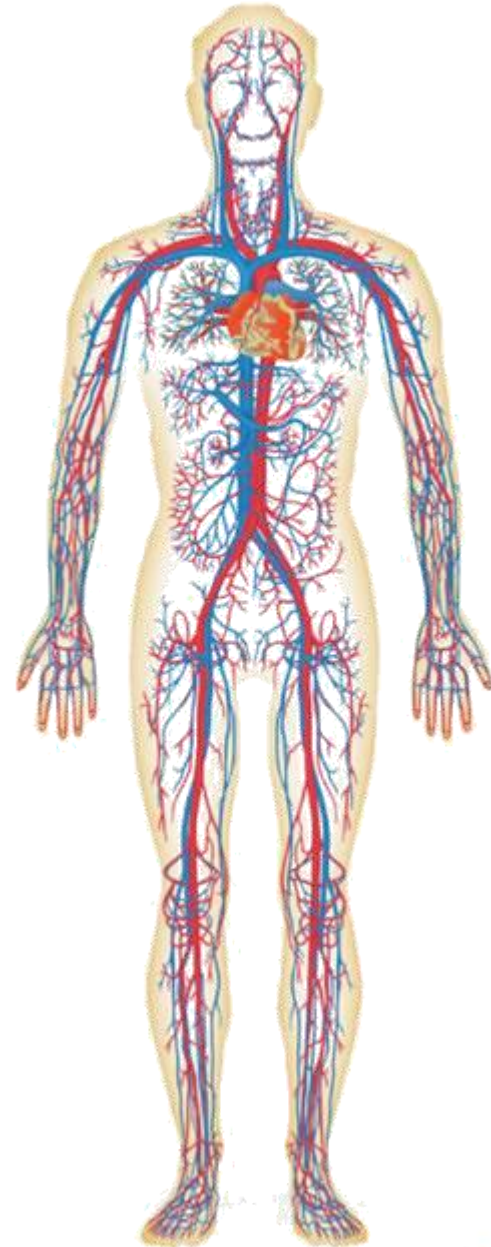
**Structures:** Skeletal muscle, smooth muscle, cardiac muscle



## Circulatory System

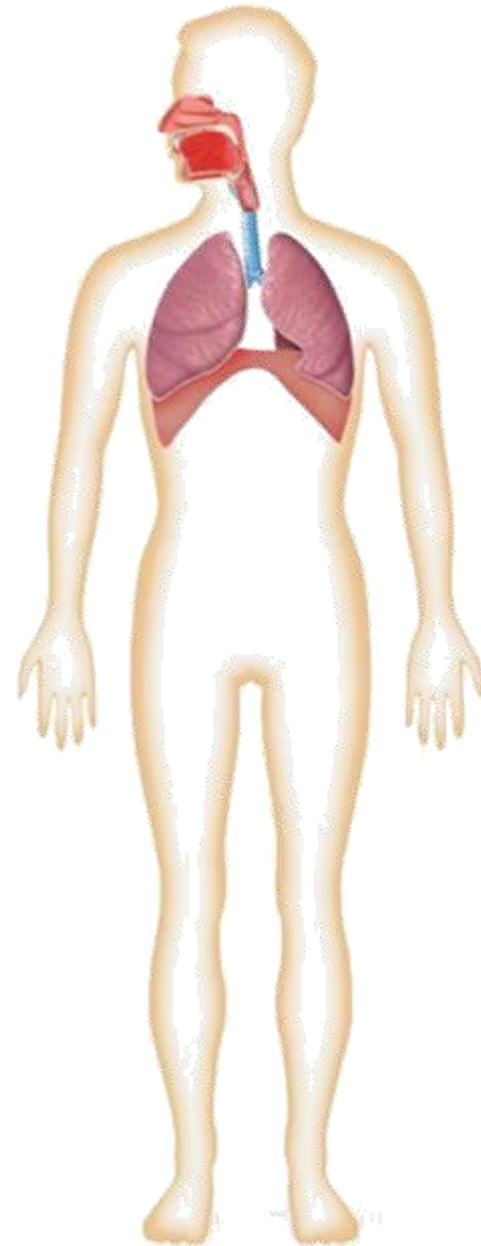
**Structures:** Heart, blood vessels, blood

**Function:** Brings oxygen, nutrients, and hormones to cells; fights infection; removes cell wastes; helps to regulate body temperature



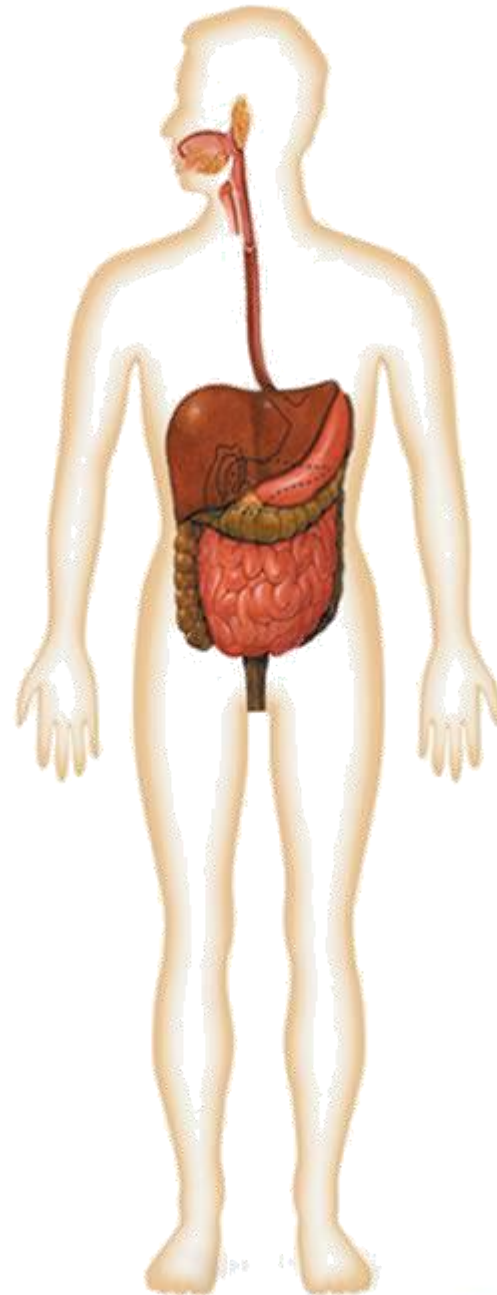
## Respiratory System

**Structures:** Nose, pharynx, larynx, trachea, bronchi, bronchioles, lungs



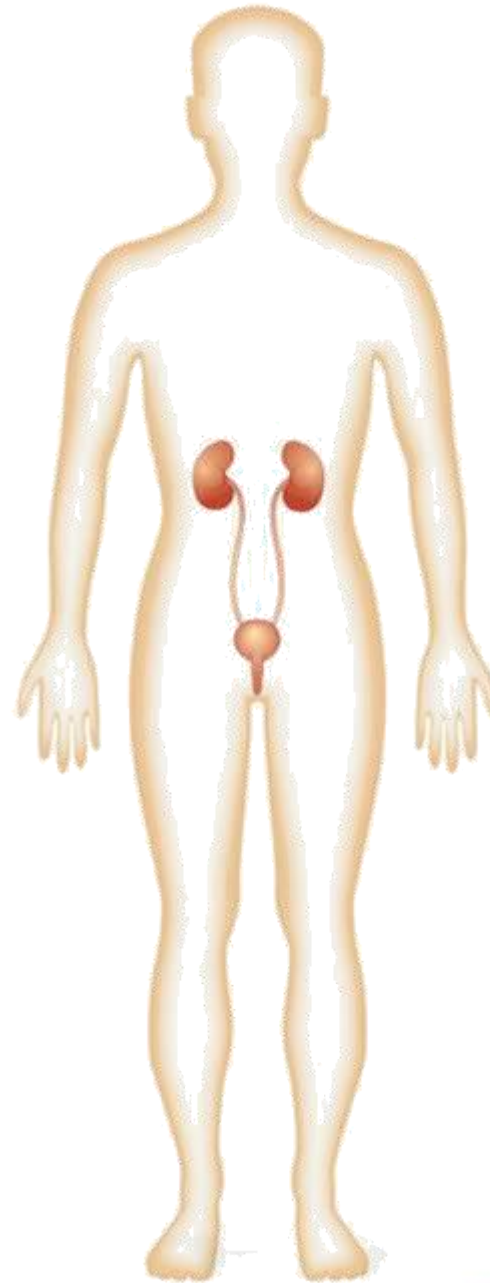
## Digestive System

**Structures:** Mouth, pharynx, esophagus, stomach, small and large intestines, rectum



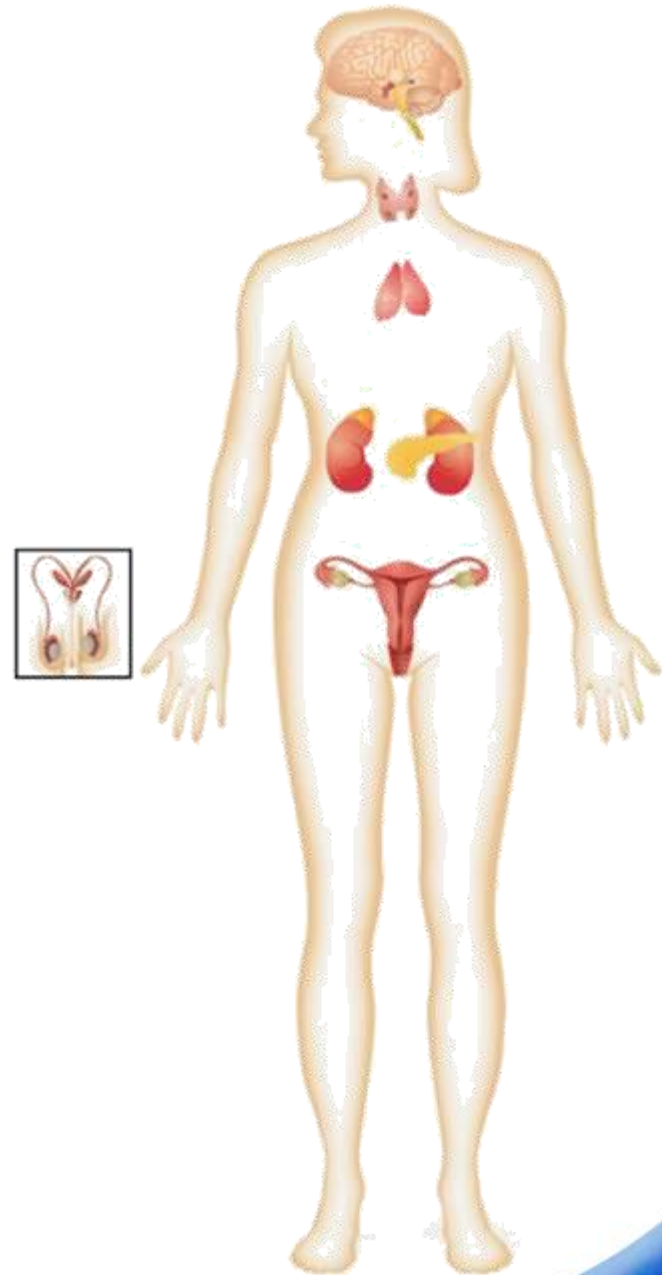
## Excretory System

**Structures:** Skin, lungs, kidneys, ureters, urinary bladder, urethra



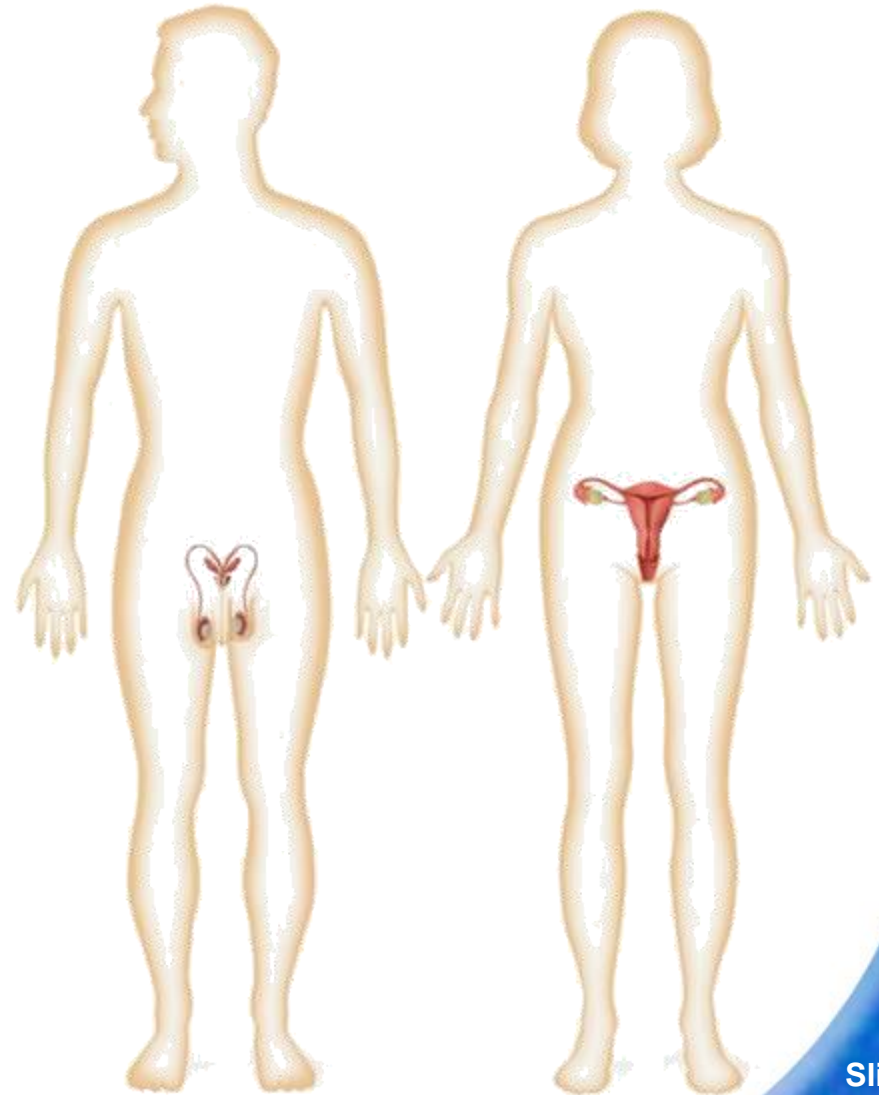
## Endocrine System

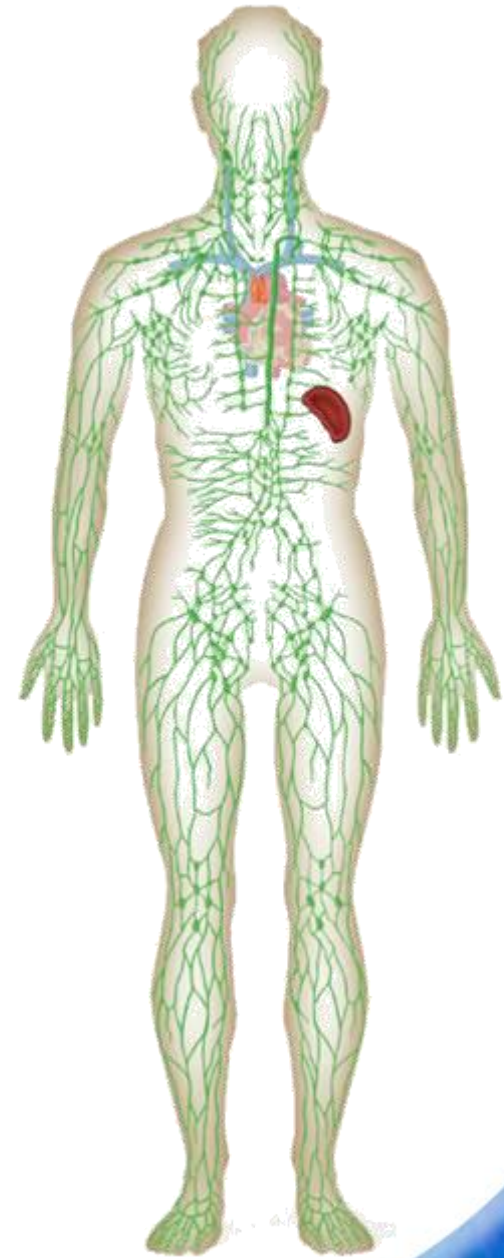
**Structures:** Hypothalamus, pituitary, thyroid, parathyroid, adrenals, pancreas, ovaries (in females), testes (in males)



## Reproductive System

**Structures:** Testes, epididymis, vas deferens, urethra, and penis (in males), ovaries, Fallopian tubes, uterus, vagina (in females)





## Lymphatic/Immune Systems

**Structures:** White blood cells, thymus, spleen, lymph nodes, lymph vessels

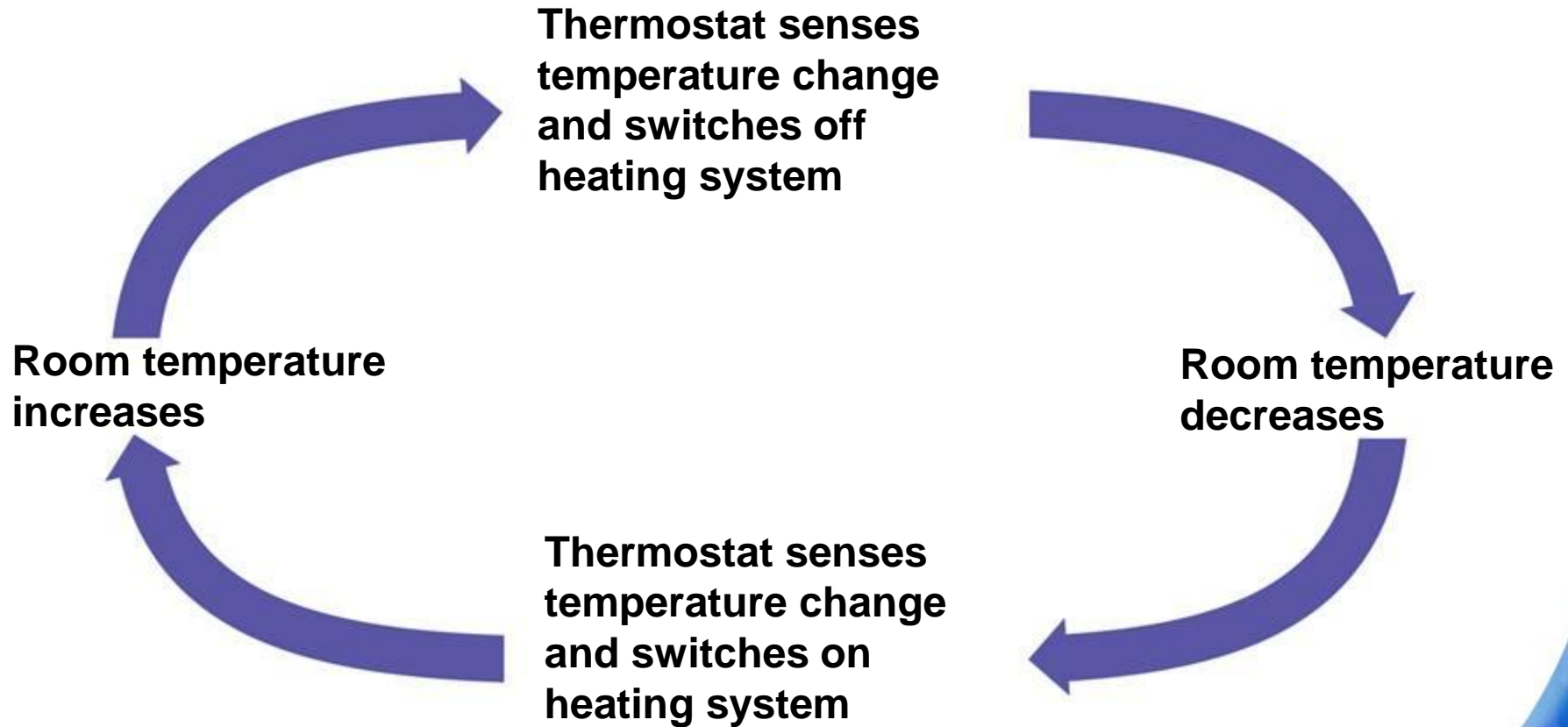




**Homeostasis is the process by which organisms keep internal conditions relatively constant despite changes in external environments.**

Homeostasis in the body is maintained by feedback inhibition.

## An Example of Feedback Inhibition



The hypothalamus monitors the temperature of the skin and the temperature of organs.

If core body temperature drops, the hypothalamus:

- causes blood vessels in the skin to constrict reducing heat loss from skin.
- causes the skeletal muscles to contract involuntarily—to “shiver.”

This causes the body temperature to increase.

If the core body temperature increases, the hypothalamus:

- causes blood vessels in the skin to dilate so heat can escape from the skin.
- the body produces sweat, which cools the body by evaporation.

This causes the body temperature to decrease.

# 35-1 Section QUIZ

Continue to:

**Section QUIZ**

- or -

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## 35-1 Section QUIZ

1 Which of the following organ systems transports oxygen, nutrients, and hormones to cells?

A a. circulatory system

b. muscular system

c. excretory system

d. nervous system

**2** The type of tissue that holds organs in place and binds different parts of the body together is called

- a. muscle tissue.
- b. epithelial tissue.

**A** c. connective tissue.

- d. skeletal tissue.

**3** One major function of the integumentary system is to

- A**
- a. help regulate body temperature.
  - b. cause the body to move.
  - c. provide a surface for gas exchange.
  - d. control growth, development, and metabolism.



**4** Which of the following is NOT an example of feedback inhibition?

- a. shivering to warm the body
- b. sweating to cool the body

**A** c. nervous tissue receiving messages

- d. turning on the heating system of a house

## 35-1 Section QUIZ

- 5** The process by which an organism keeps internal conditions relatively constant is called
- a. a feedback loop.
  - b. negative feedback.
  - A** c. homeostasis.
  - d. normal temperature.

**END OF SECTION**