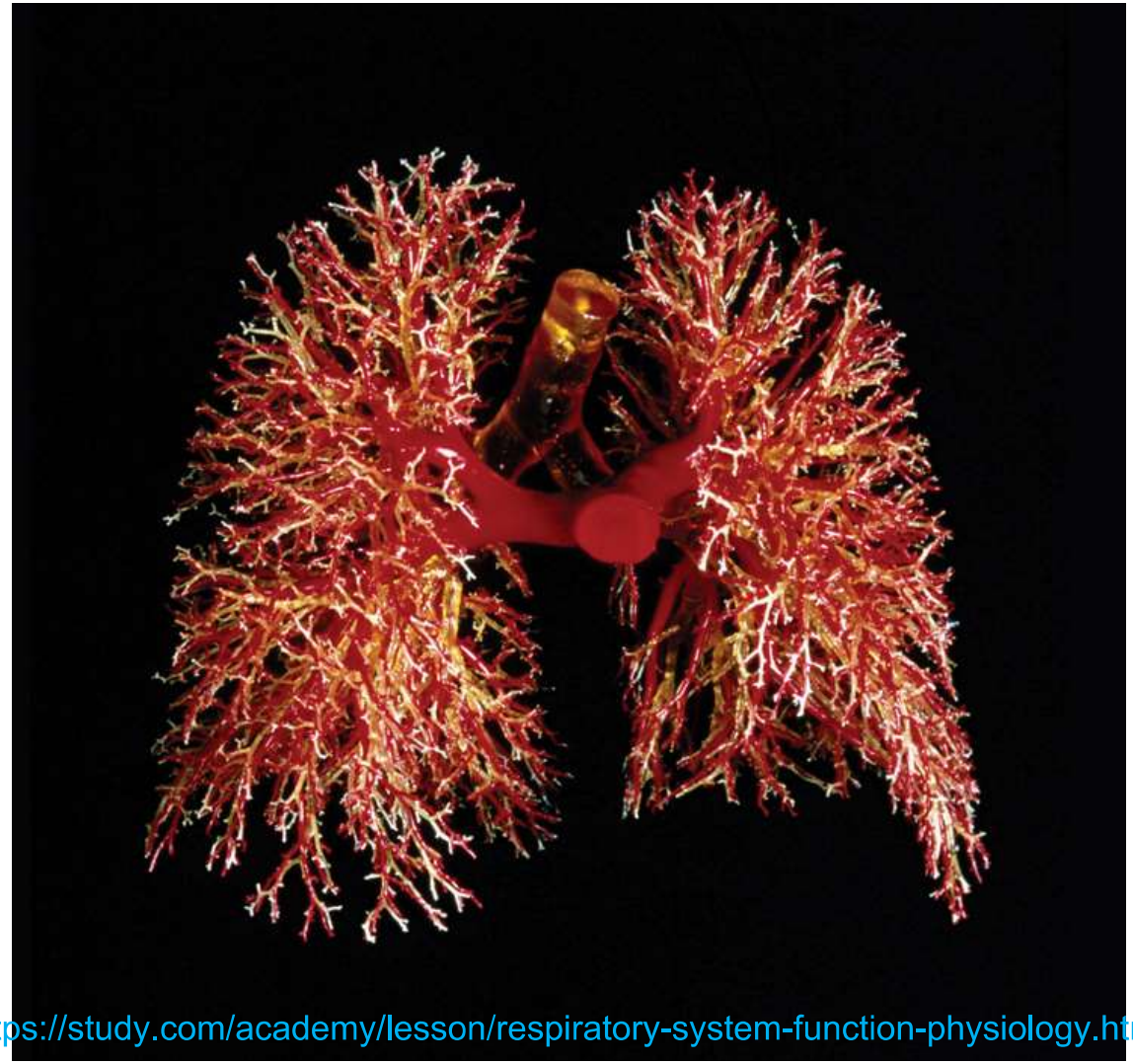
Respiratory and Circulatory Functions

KEY CONCEPT

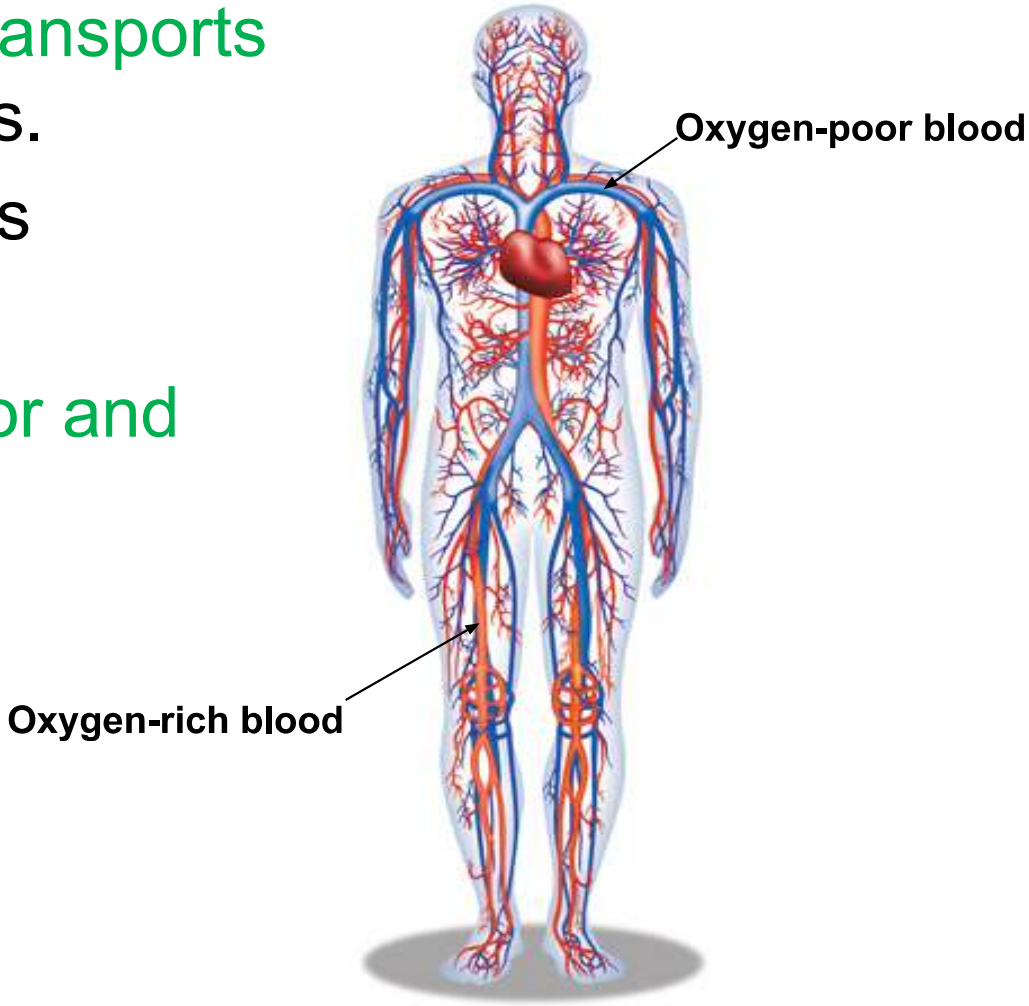
The respiratory and circulatory systems bring oxygen and nutrients to the cells.



https://study.com/academy/lesson/respiratory-system-function-physiology.html

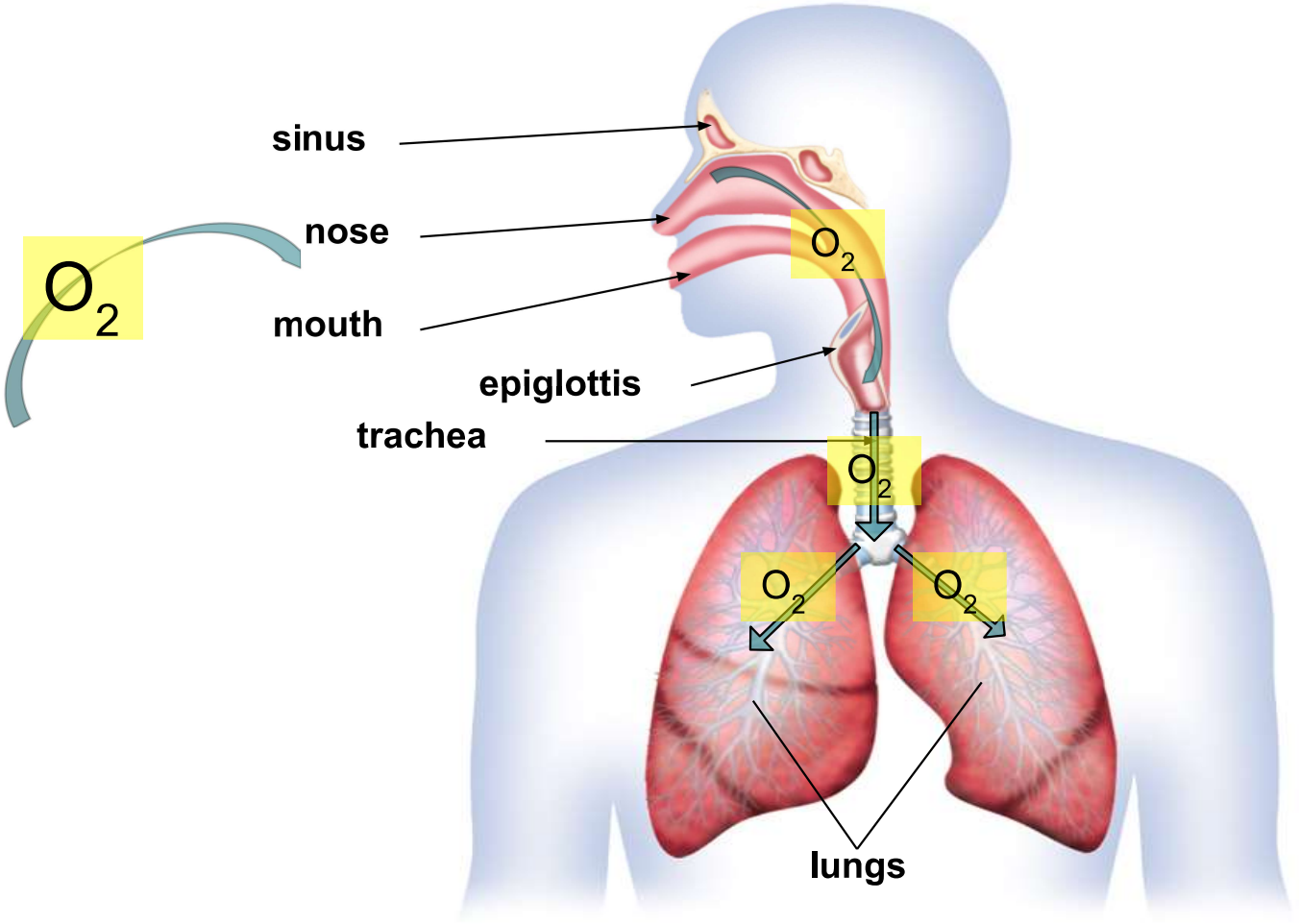
Respiratory and Circulatory Functions

- **The respiratory and circulatory systems work together to maintain homeostasis.**
  - The circulatory system transports blood and other materials.
    - brings supplies to cells
    - carries away wastes
    - separates oxygen-poor and oxygen-rich blood



Respiratory and Circulatory Functions

- The respiratory system is where gas exchange occurs.
  - picks up oxygen from inhaled air
  - expels carbon dioxide and water

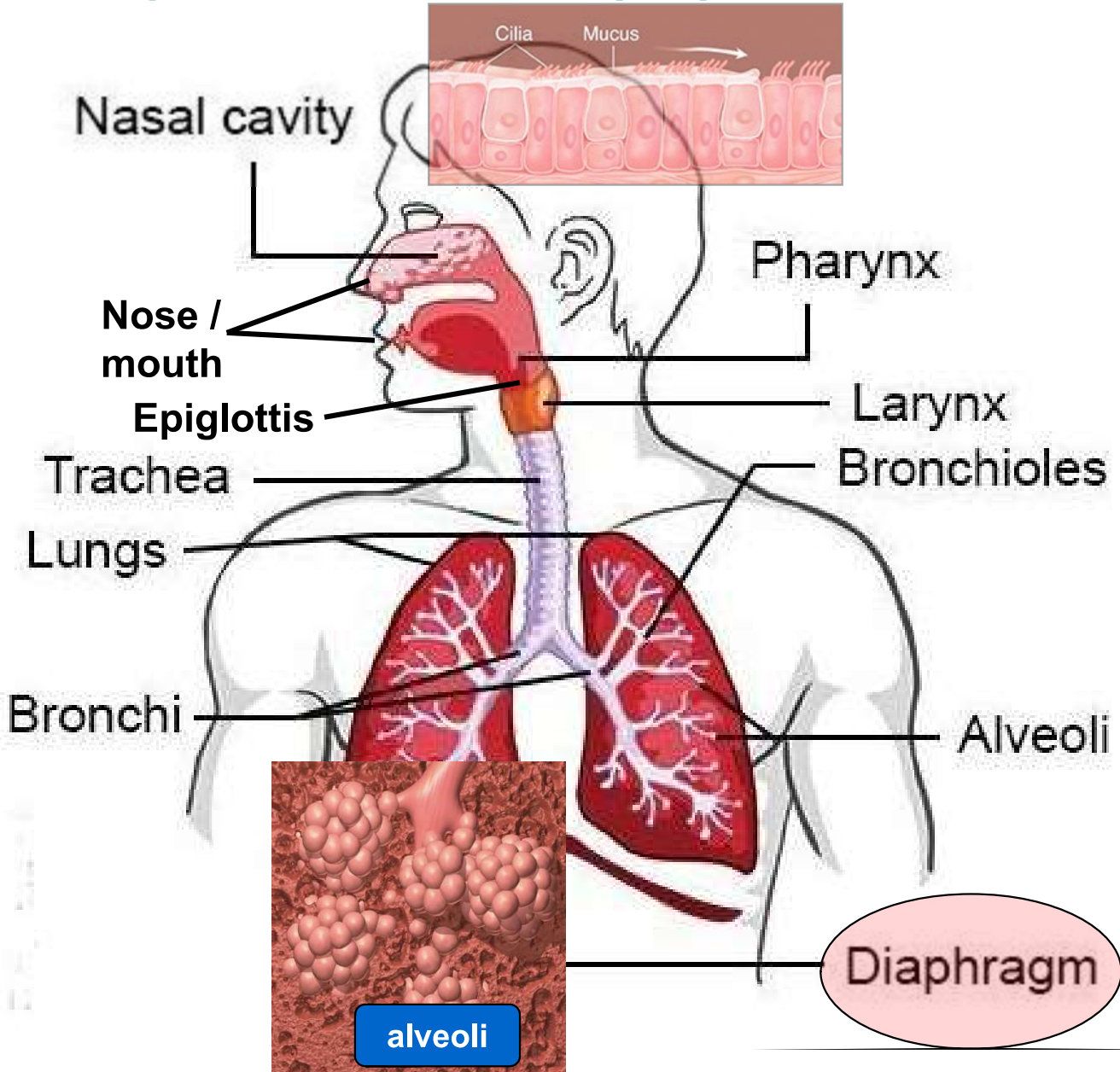


Respiratory and Circulatory Functions

- **Pathway of oxygen through the respiratory system:**

Nose/ Mouth
↓
Nasal cavity
↓
Pharynx
↓
Epiglottis
↓
Larynx
↓
Trachea
↓
Bronchus (left) / Bronchus (right)
↓
Bronchioles (left) / Bronchioles (right)
↓
Alveoli (left) / Alveoli (right)

Lungs



Respiratory and Circulatory Functions

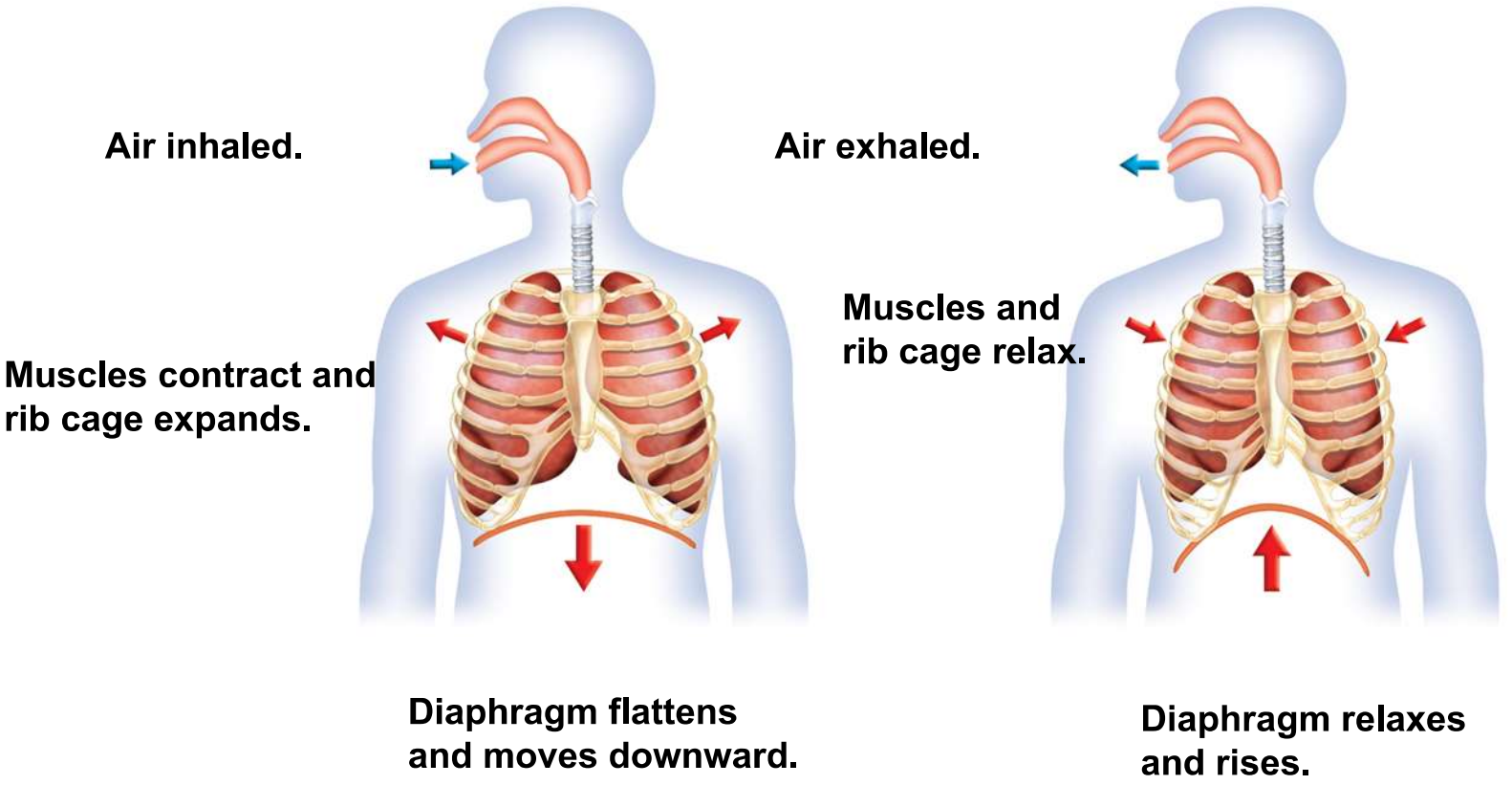
- **Main parts and functions of respiratory organs:**

- Nasal cavity: has mucus that warms and moisten air.

  has cilia (tiny hairs) that filter dust.
- Epiglottis: regulates air flow (when you swallow it closes preventing food or saliva from entering airways..
- Larynx: contain the vocal cords.
- Alveoli: Where the lungs and the blood exchange oxygen and carbon dioxide.

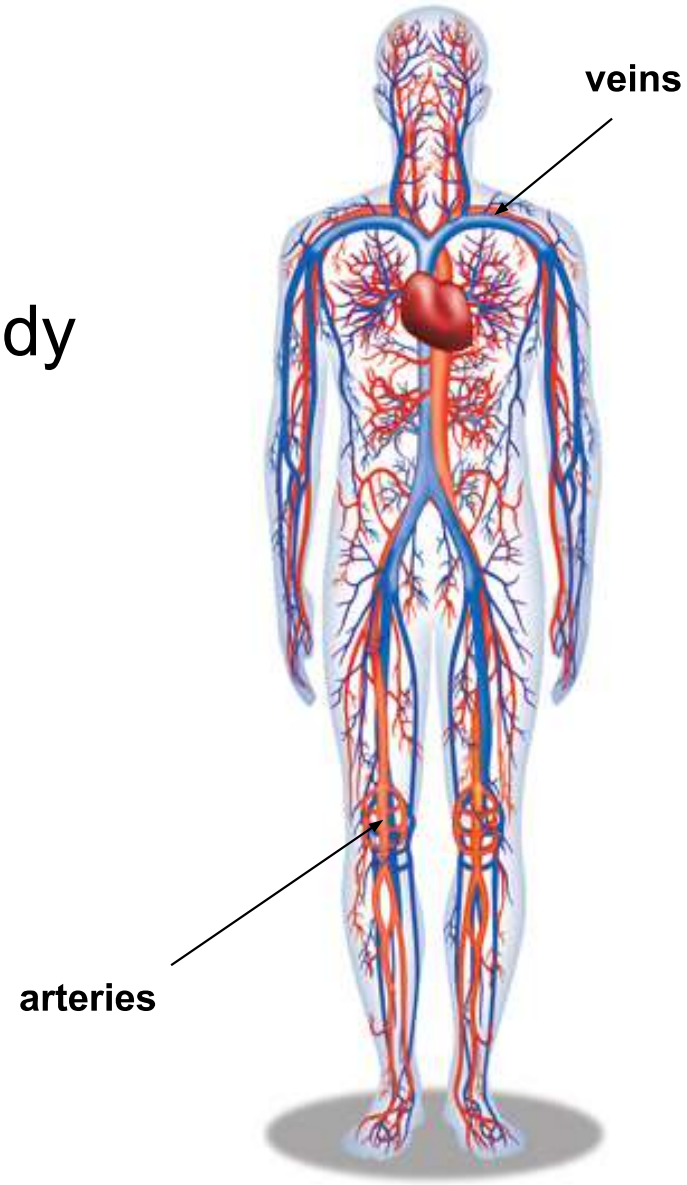
Respiratory and Circulatory Functions

- Breathing involves the diaphragm and muscles of the rib cage.
- Air flows from areas of high pressure to low pressure.



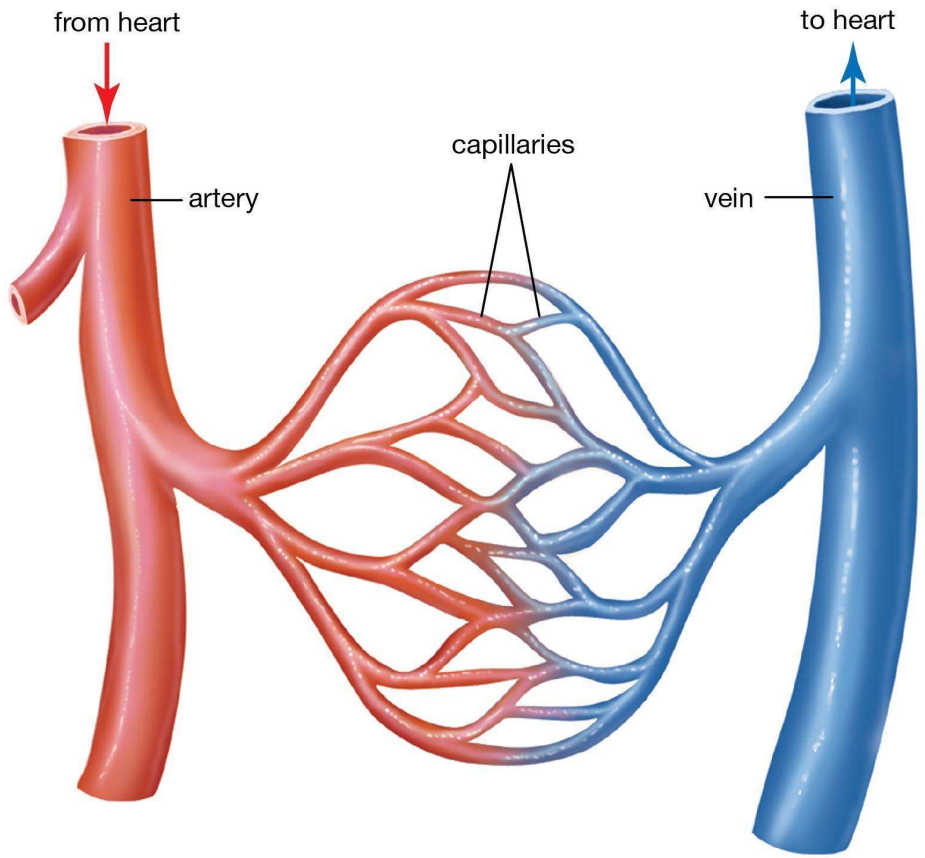
Respiratory and Circulatory Functions

- **The circulatory system moves blood to all parts of the body.**
  - The system includes the heart, arteries, veins, and capillaries.
    - heart pumps blood throughout body
    - arteries move blood away from heart
    - veins move blood back to heart
    - capillaries get blood to and from cells



Respiratory and Circulatory Functions

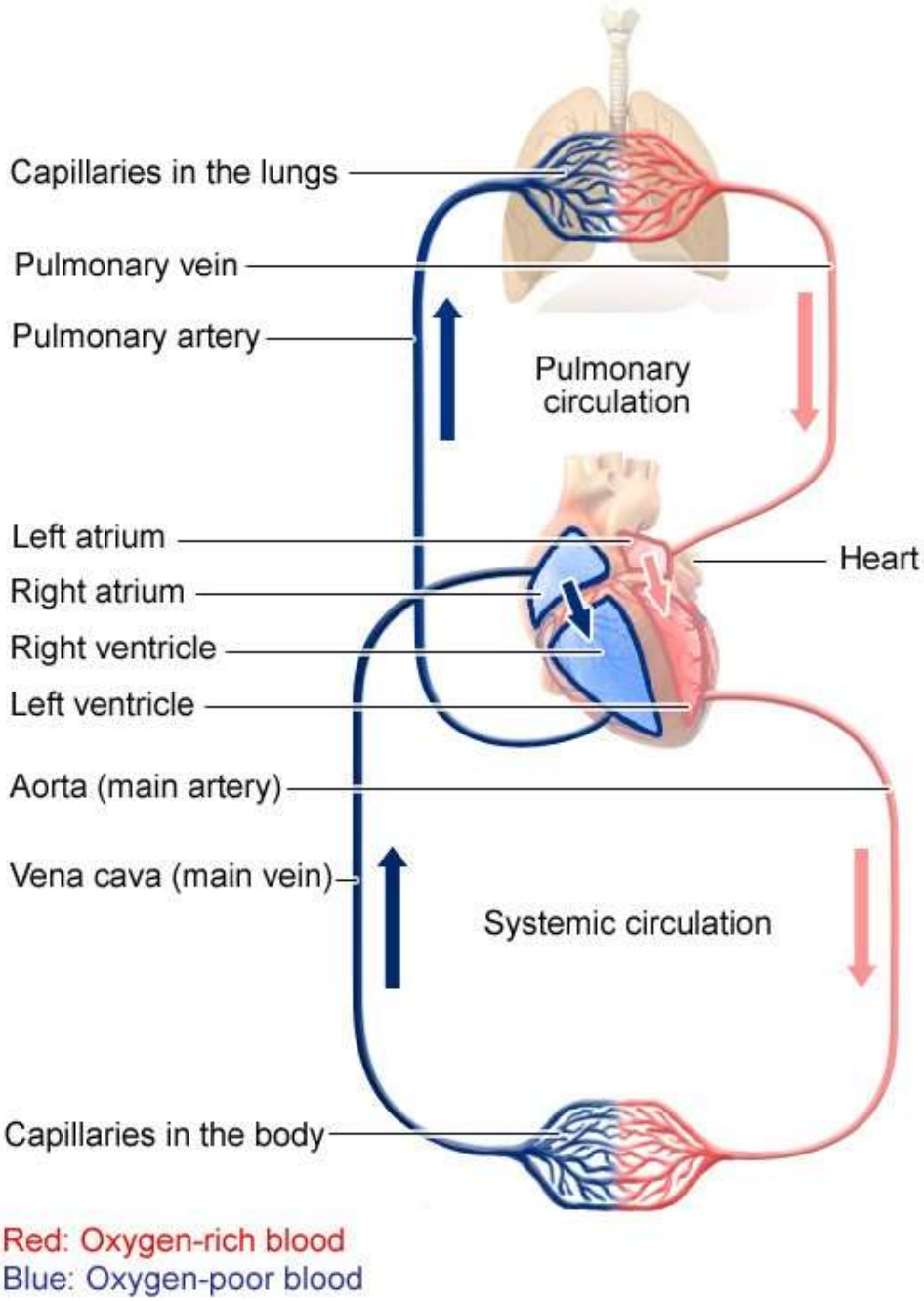
- **Blood vessels:**
  - Arteries: carry oxygen-rich blood away from the heart
  - Veins: carry oxygen-poor blood to the heart
  - Capillaries: smallest blood vessels (one cell thick)



Respiratory and Circulatory Functions

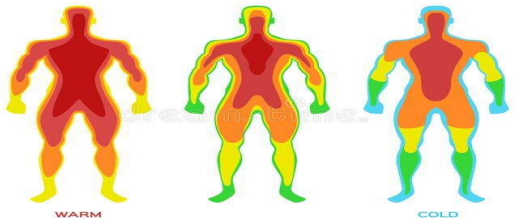
- **Summary:**

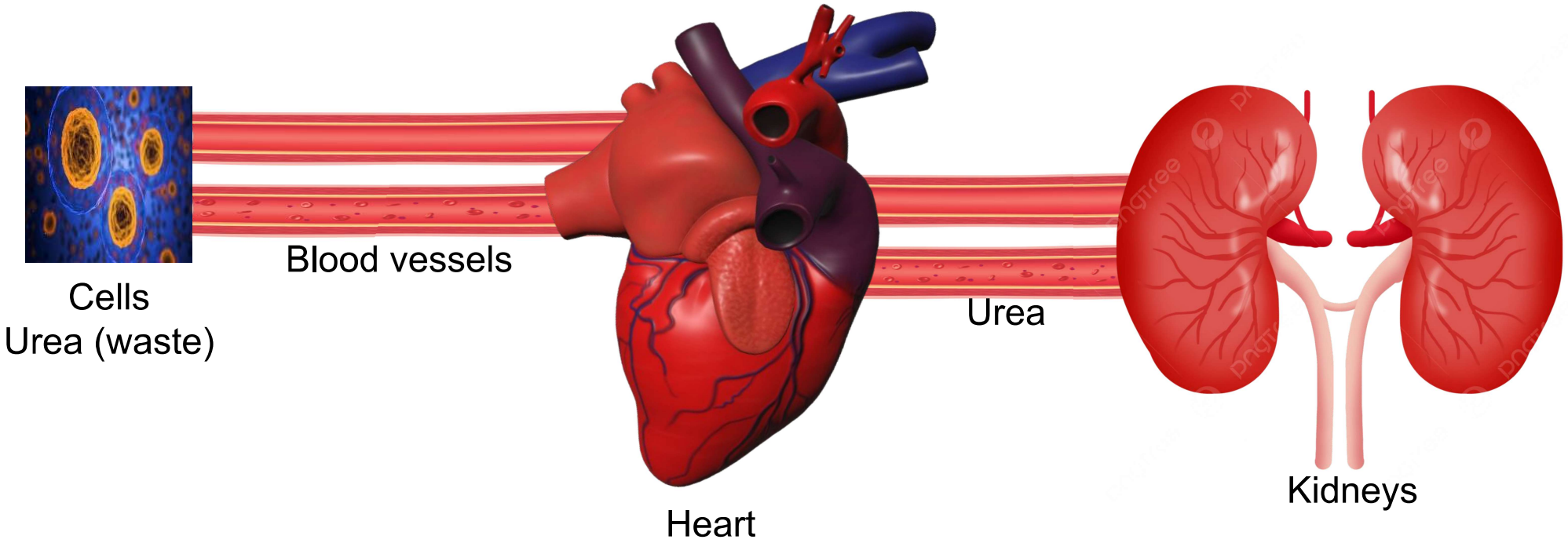
O_2 Moves from the alveoli in the lungs to the blood vessels (pulmonary vein) to the heart which pumps blood to all body parts by arteries. Body cells return deoxygenated blood back to heart by veins then the heart send this blood to lungs by pulmonary artery.



Respiratory and Circulatory Functions

- There are three major functions of the circulatory system.
  - transporting blood, gases, nutrients
  - collecting waste materials (cells □ heart □ kidneys)
  - maintaining body temperature (bringing blood near the skin to let heat escape)





Respiratory and Circulatory Functions

- **Exercises**
  - How do the respiratory and circulatory systems help maintain homeostasis in the body?
  - List the main parts and functions of the respiratory system.
  - Describe the basic parts and functions of the circulatory system.
  - Why can't you breathe through your mouth when swallowing food? What would happen if you could do this?
  - A mechanical ventilator breathes for a paralyzed person. During inhalation, the machine forces air under pressure into the lungs. During exhalation, the pressure drops and air moves out of the lungs. How does this machine compare with natural breathing?