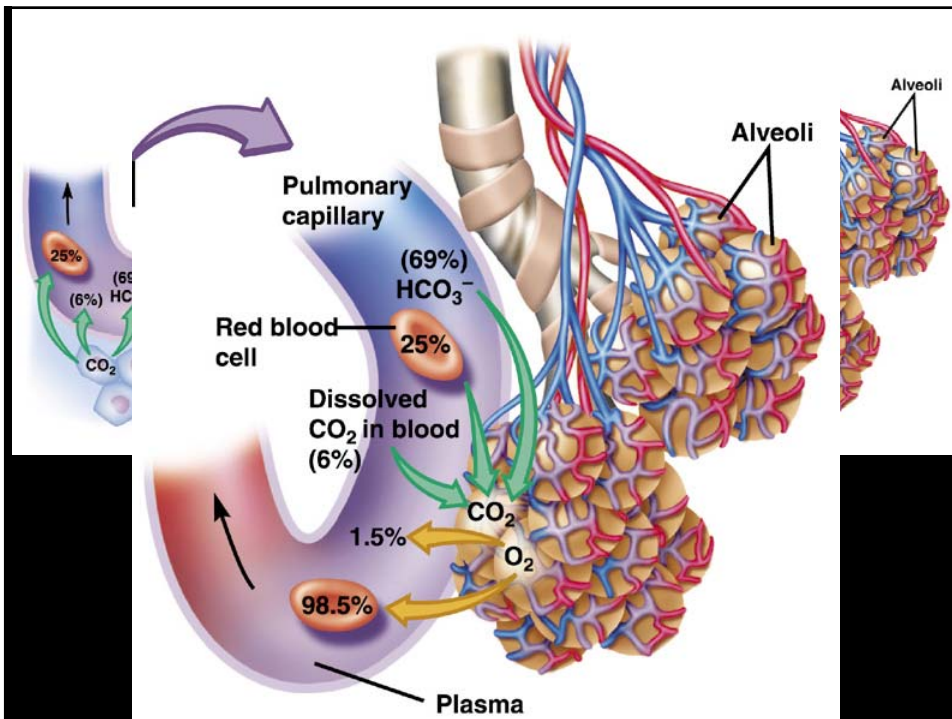
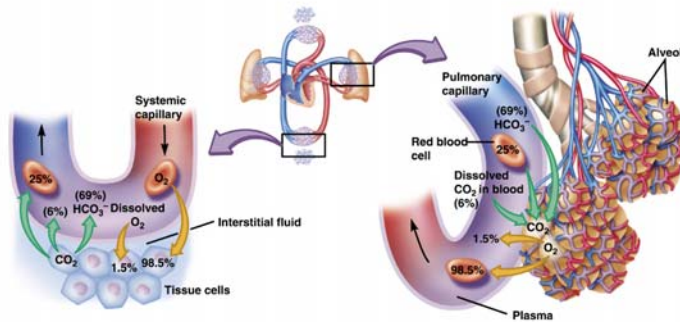


Exchange of Oxygen & Carbon Dioxide

- Oxygen-rich air is delivered to alveoli with inspiration.
- Oxygen diffuses into the blood.
- The body does not use all the inhaled oxygen.



Control of Breathing

- Brain stem controls breathing.
 - Increases breathing rate if the carbon dioxide level in blood becomes too high
- Hypoxic drive is a “backup system.”
 - Activates when oxygen levels fail to stimulate breathing

Normal Breathing Characteristics

- Normal rate and depth
- Regular rhythm
- Good breath sounds in both lungs
- Regular rise and fall movements in the chest
- Easy, not labored

Normal Breathing Rates

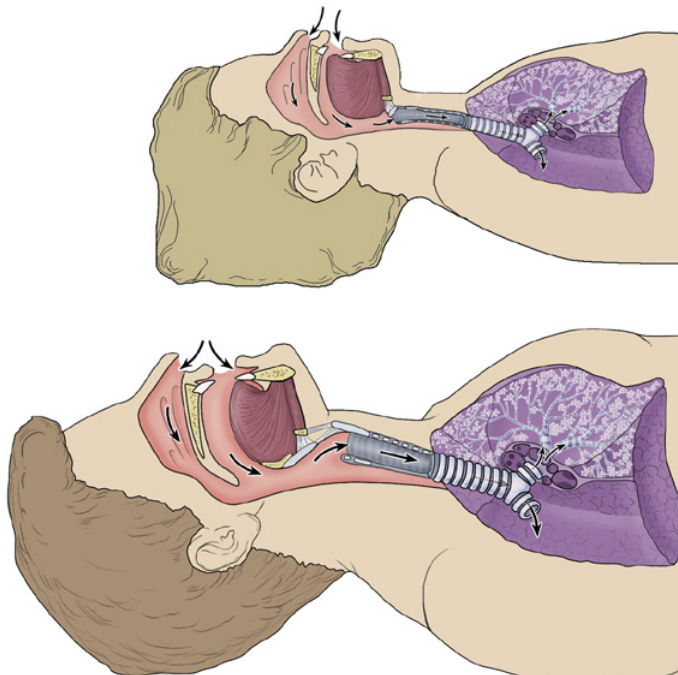
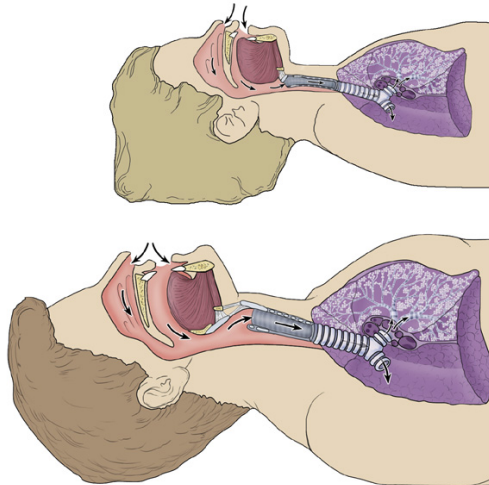
Adults	12 to 20 breaths/min
Children	15 to 30 breaths/min
Infants	25 to 50 breaths/min

Recognizing Inadequate Breathing

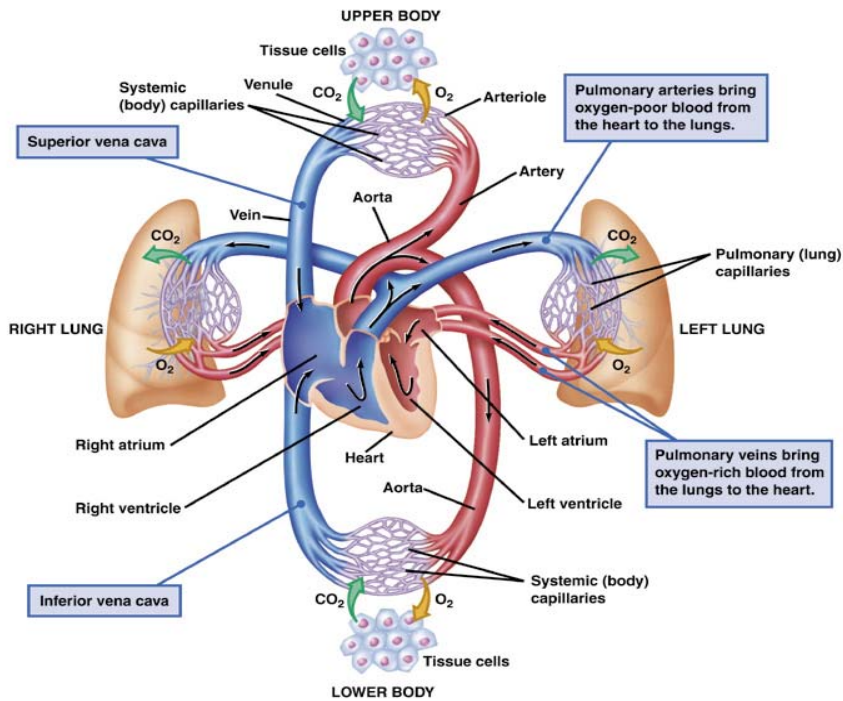
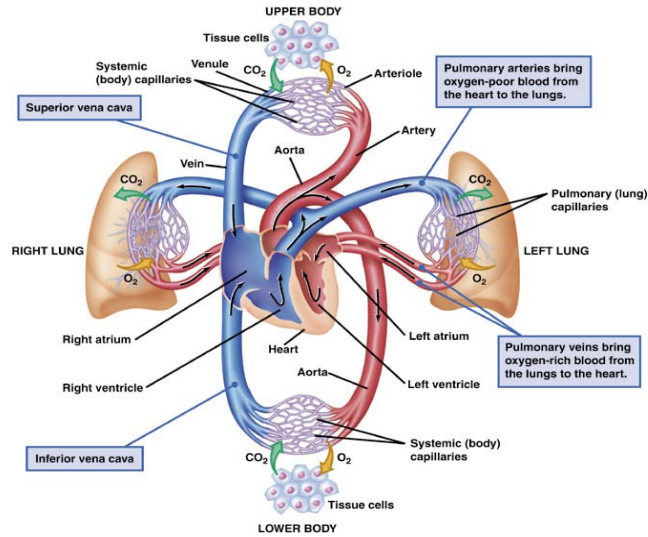
- Irregular rhythm
- Labored breathing
- Muscle retractions
- Pale or blue skin
- Cool, clammy skin
- Faster respiratory rate

Infant and Child Anatomy

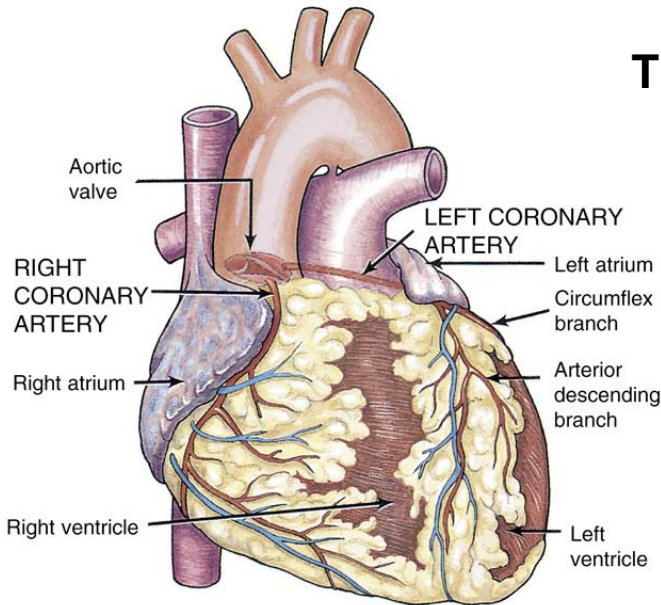
- Structures less rigid
- Airway smaller
- Tongue proportionally larger
- Dependent on diaphragm for breathing



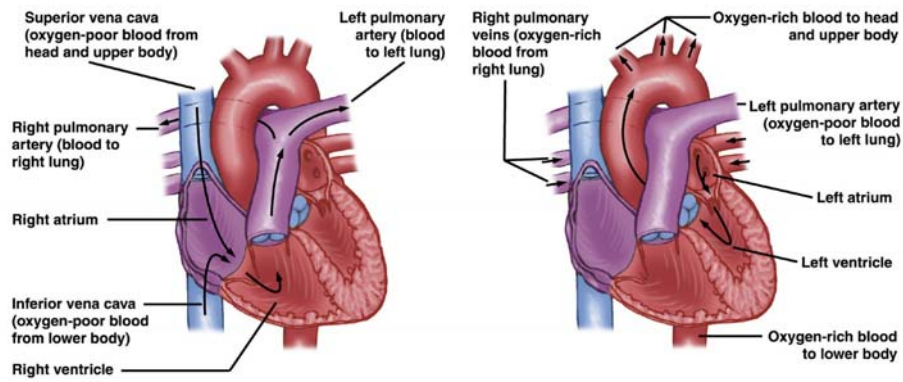
The Circulatory System

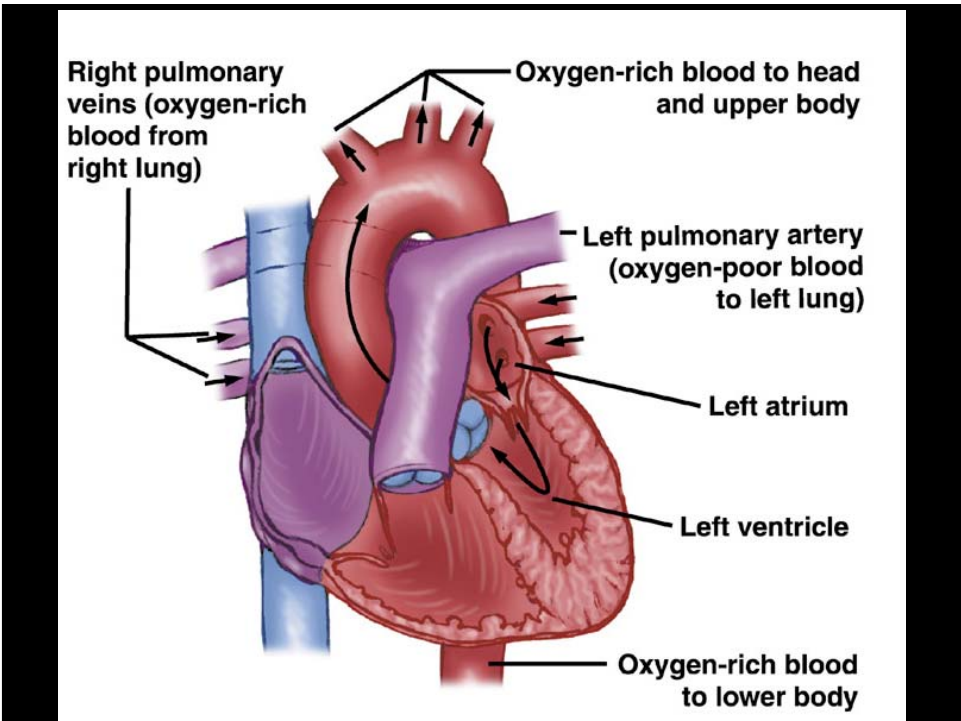
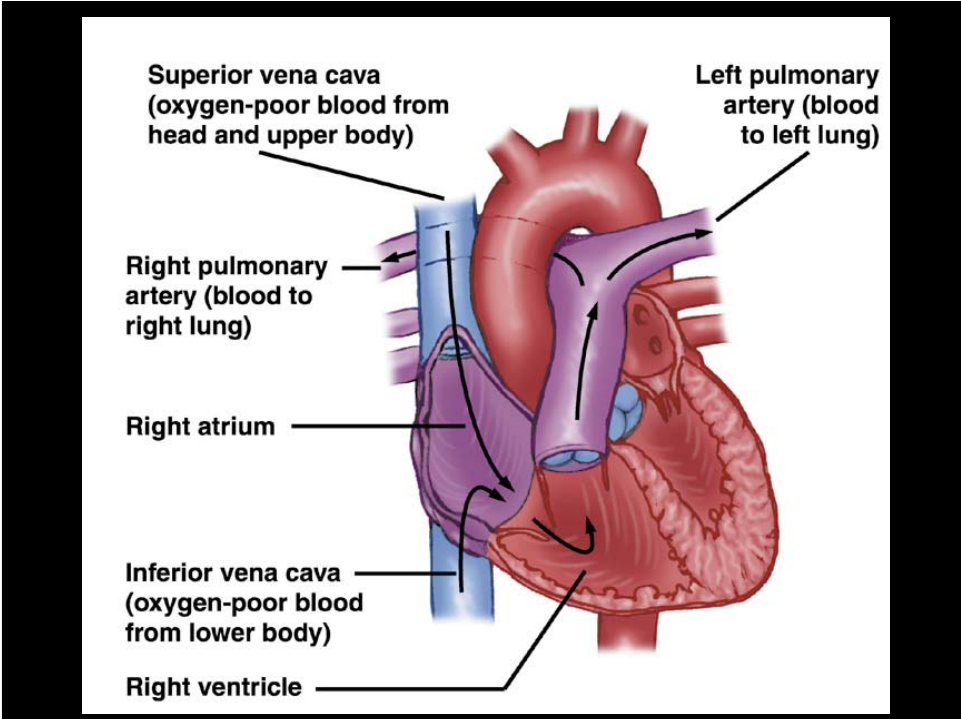


The Heart



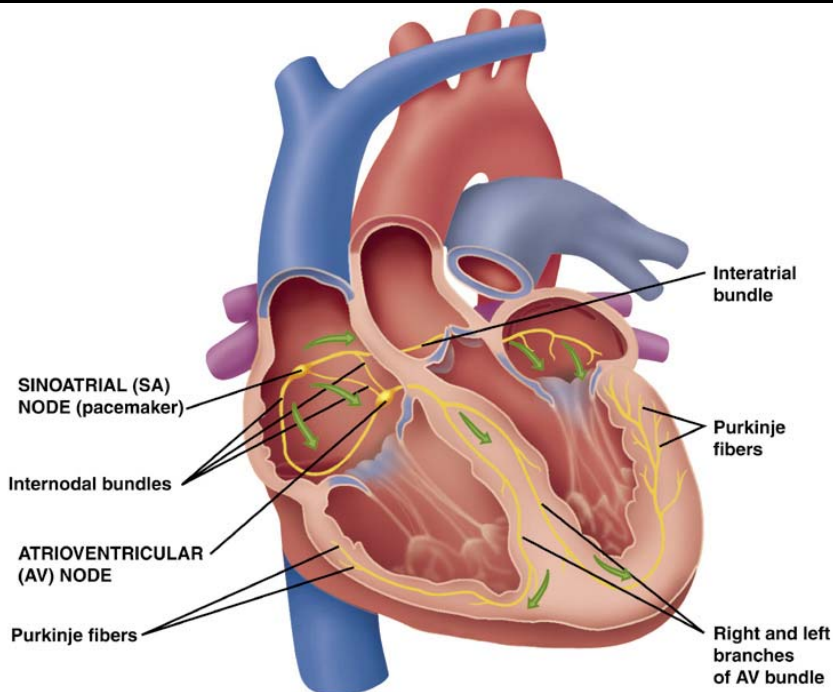
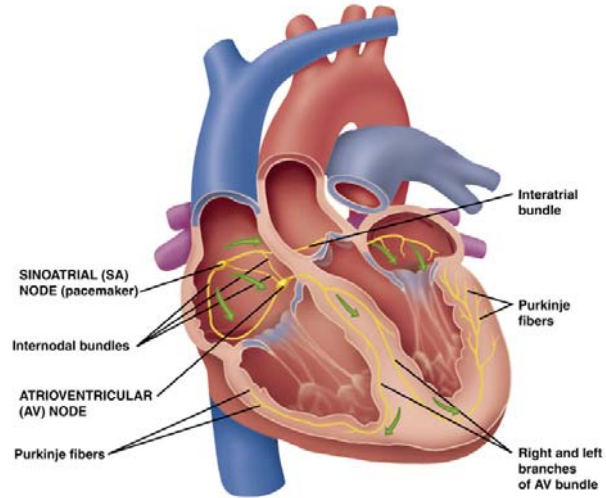
Blood Flow Through the Heart





Electrical Conduction System

- SA node
- AV node
- Purkinje fibers



Normal Heart Rates

Adults	60 to 100 beats/min
Children	70 to 150 beats/min
Infants	100 to 160 beats/min

Major **Arteries** and **Veins**

- Aorta
- Pulmonary
- Carotid
- Femoral
- Brachial
- Radial
- Superior vena cava
- Inferior vena cava
- Pulmonary

Components of Blood

- Plasma
- Red blood cells
- White blood cells
- Platelets

Physiology of the Circulatory System (1 of 2)

- Pulse
 - The wave of blood through the arteries formed when the left ventricle contracts
 - Can be felt where an artery passes near the skin surface and over a bone