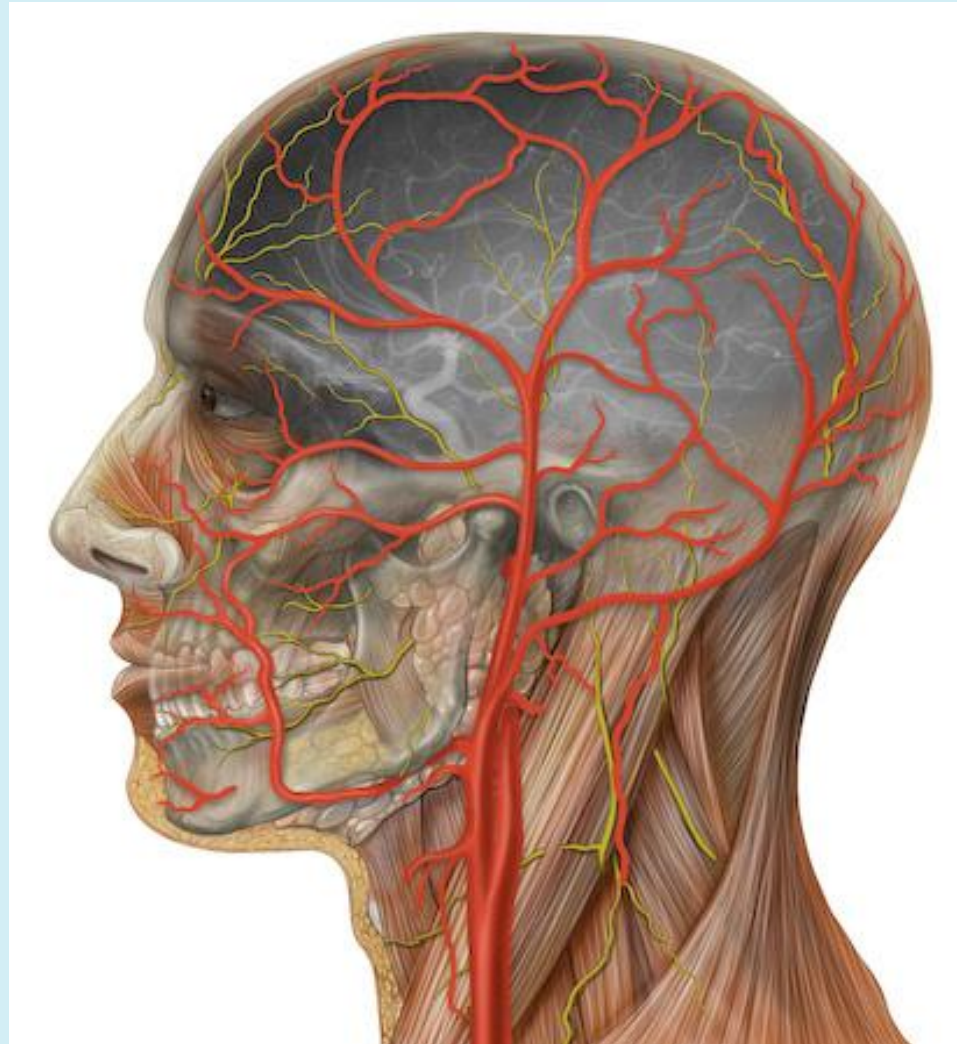


2A/2B FUNCTIONAL ANATOMY



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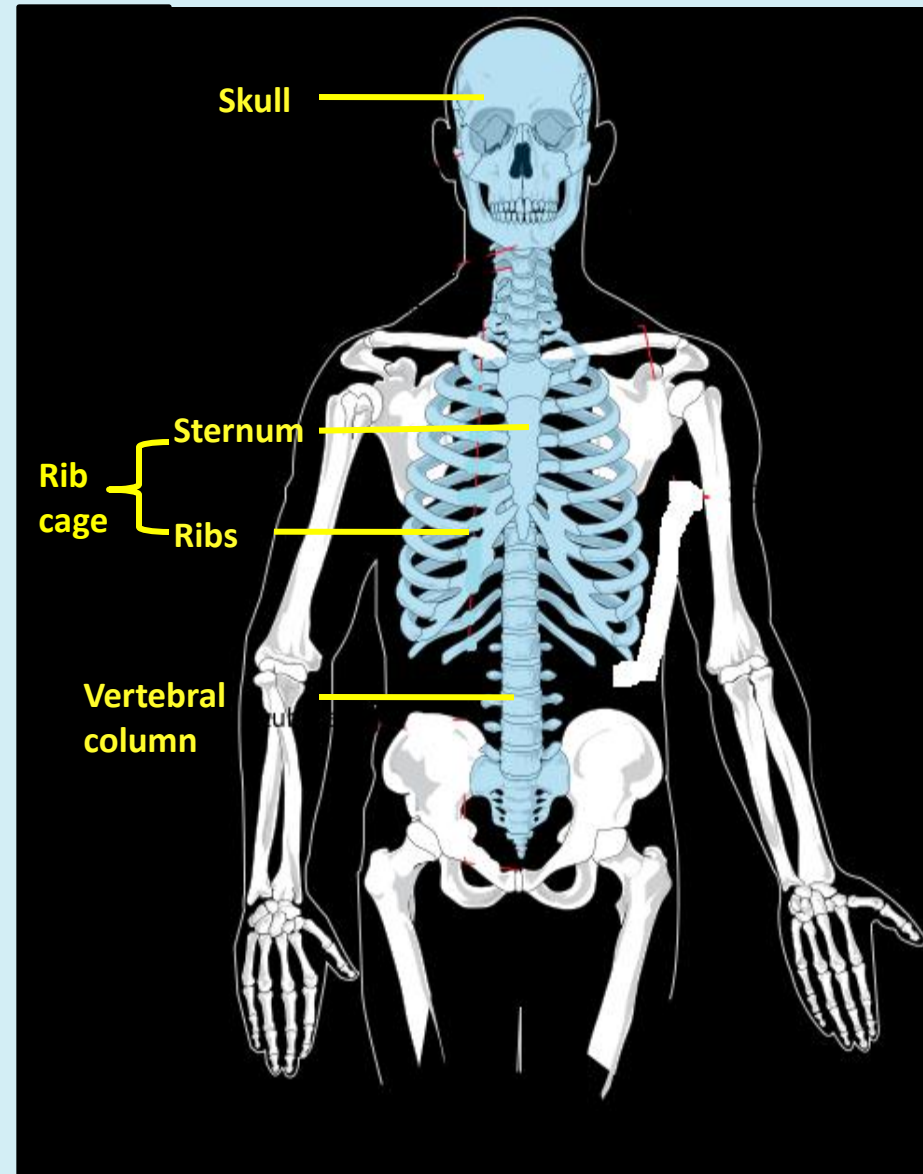
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SKELETAL & ARTICULAR SYSTEMS

AXIAL SKELETON

- Skull
- Vertebral column
 - 7 cervical vertebrae (neck)
 - 12 thoracic vertebrae (chest)
 - 5 lumbar vertebrae (lower back)
 - 5 sacral vertebrae (sacrum)
 - Coccyx
- Thorax
 - 12 pairs of ribs, 10 attaching to the sternum with the other two floating

Axial skeleton forms the basic central structure to support the remainder of the skeleton

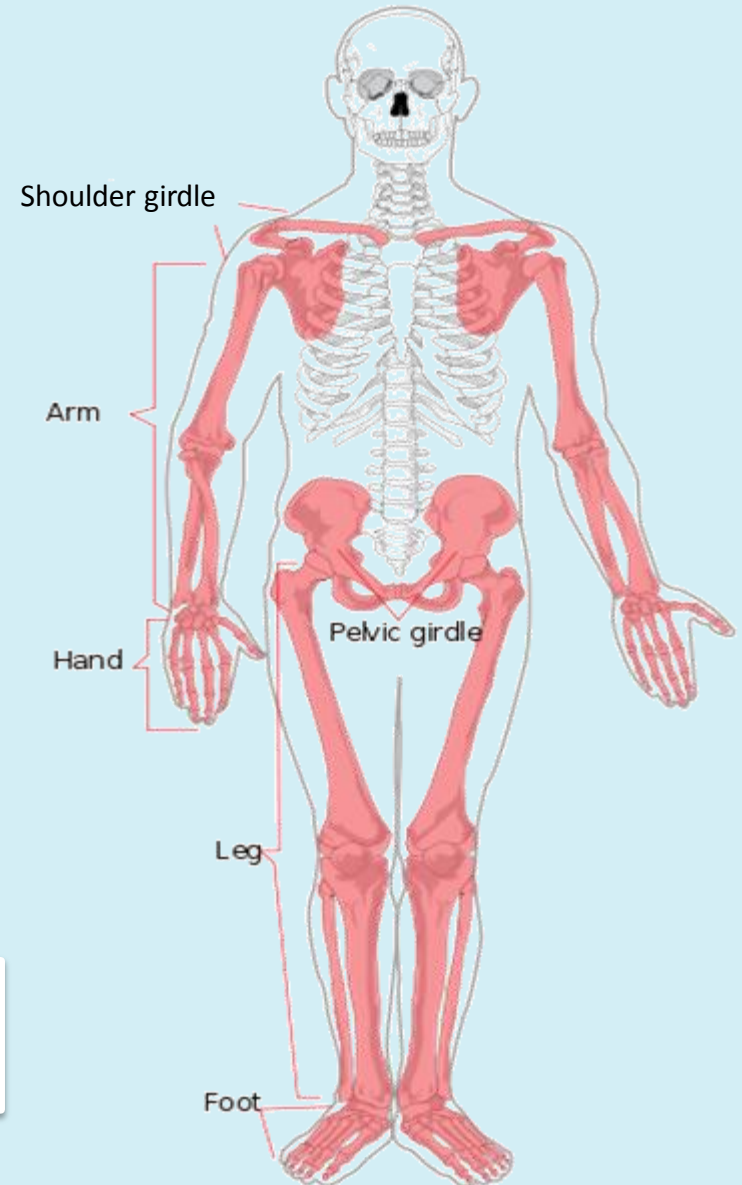


SKELETAL & ARTICULAR SYSTEMS

- **APPENDICULAR SKELETON**

- Shoulder girdle
 - Clavicle
 - Scapula
- Arm
 - Humerus (upper arm)
 - Radius + ulna (forearm)
- Wrist
 - Carpal bones
- Hand
 - 5 metacarpal bones
 - Phalanges (ends of your fingers)

Appendicular skeleton assists with movement and includes all the major limbs



SKELETAL & ARTICULAR SYSTEMS

FUNCTIONS OF THE SKELETON

1. Provides framework for the body and gives it shape
2. Irregularities on bone surfaces provide attachment points for muscles. When a muscle contracts, the bone it inserts into moves, acting as a lever to help create movement.
3. Protects vital organs e.g.;
 - Skull protects the brain
 - Ribs protect the heart, lungs and kidneys
 - Spinal column protects the spinal cord
4. Responsible for storing essential minerals such as calcium and phosphorous which contribute to the health and maintenance of bone tissue.
5. Produces red blood cells (RBC's) in the bone marrow, particularly during high growth years such as childhood and adolescence.

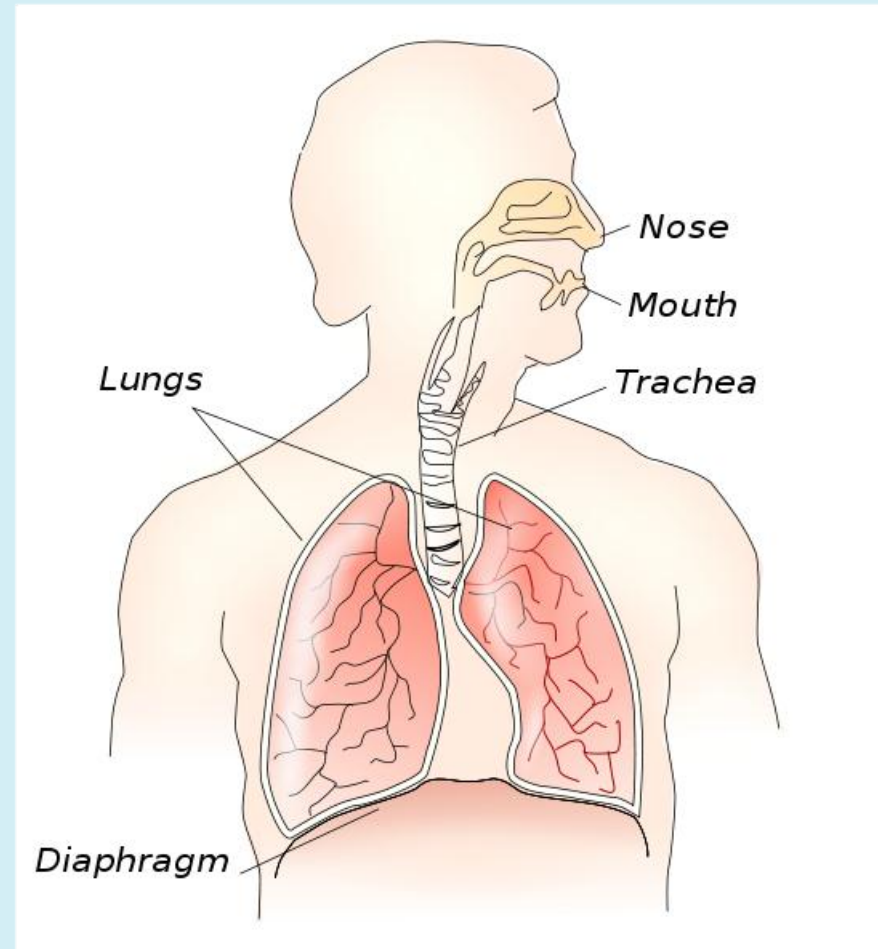


Fibre Type	Slow Twitch (Type 1)	Fast Twitch (Type 2A)	Fast Twitch (Type 2B)
Contraction Time	Slow	Fast	Very Fast
Size of Motor Neuron	Small	Large	Very Large
Resistance to Fatigue	High	Medium	Low
Activity used for	Aerobic	Long term Anaerobic	Short term Anaerobic
Force Production	Low	High	Very High
Capillary Density	High	Intermediate	Low
Oxidative Density	High	Moderate	Low
Glycolitic Capacity	Low	High	High
Major Fuel Source	Triglycerides and glycogen	Creatine phosphate and glycogen	Creatine phosphate and glycogen

RESPIRATORY SYSTEM

FUNCTIONS OF THE RESPIRATORY SYSTEM

1. Deliver oxygen from the atmosphere to the lungs
2. Provide method of gaseous exchange within the lungs
 - Oxygen enters the blood, carbon dioxide exits
3. Create speech as air passes over the vocal cords
4. Facilitate sense of smell



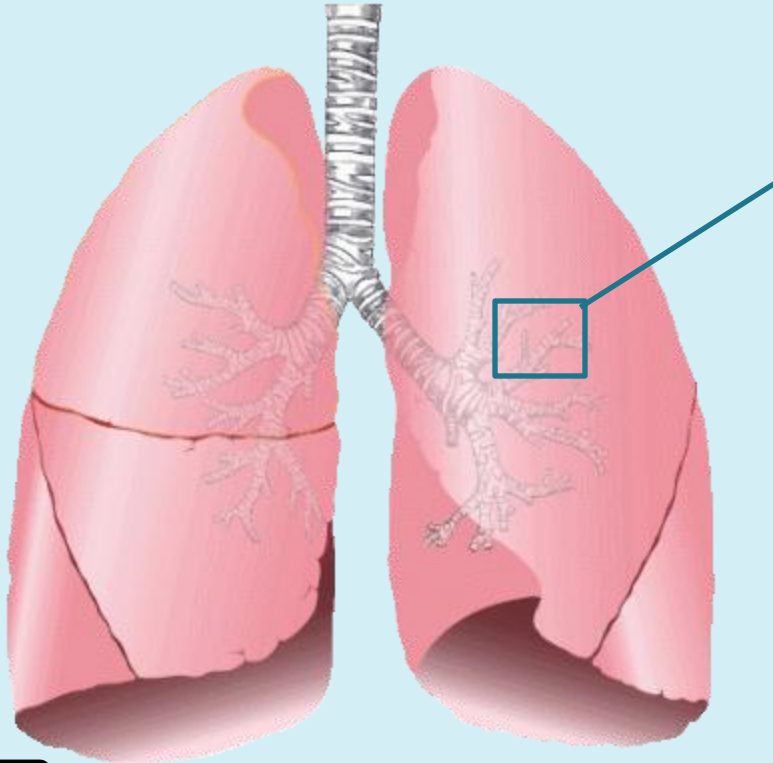
http://commons.wikimedia.org/wiki/File:Respiratory_system.svg



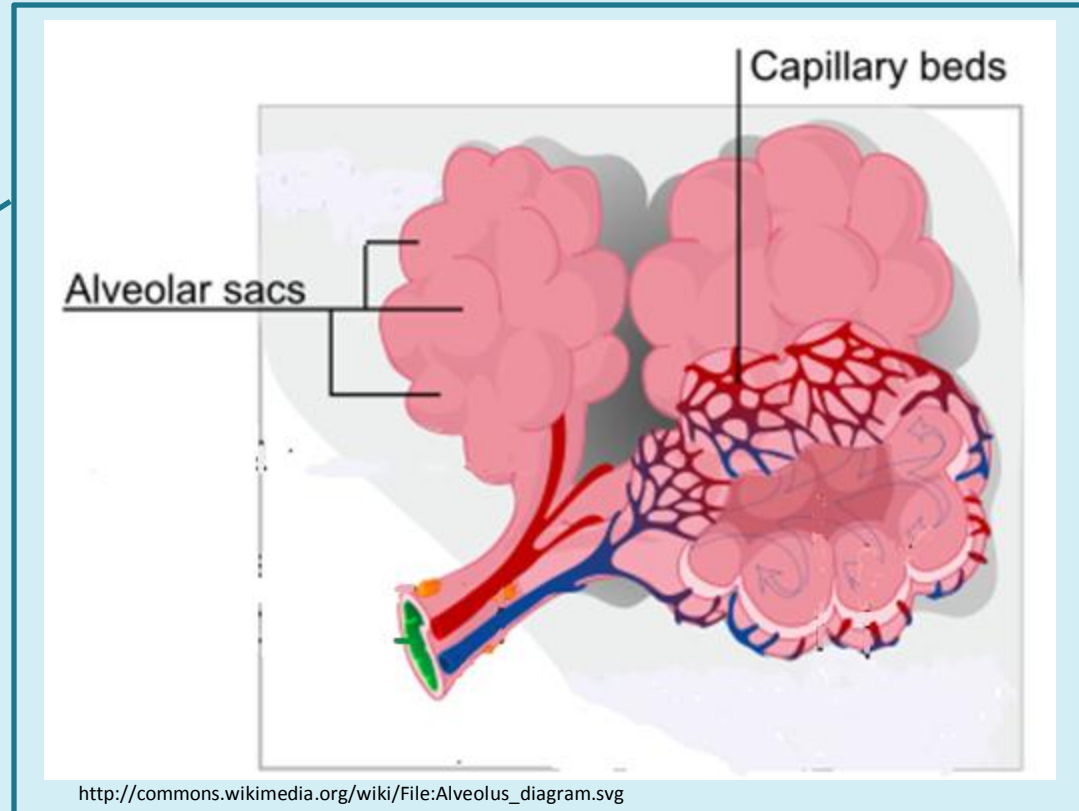
RESPIRATORY SYSTEM

2. THE LUNGS

- Located within the thoracic cavity and protected by the sternum, ribs and vertebral column
- They contain the bronchi, bronchioles and alveoli
- Gas exchange occurs at the site of the alveoli.



<http://commons.wikimedia.org/wiki/File:Lungs.gif>



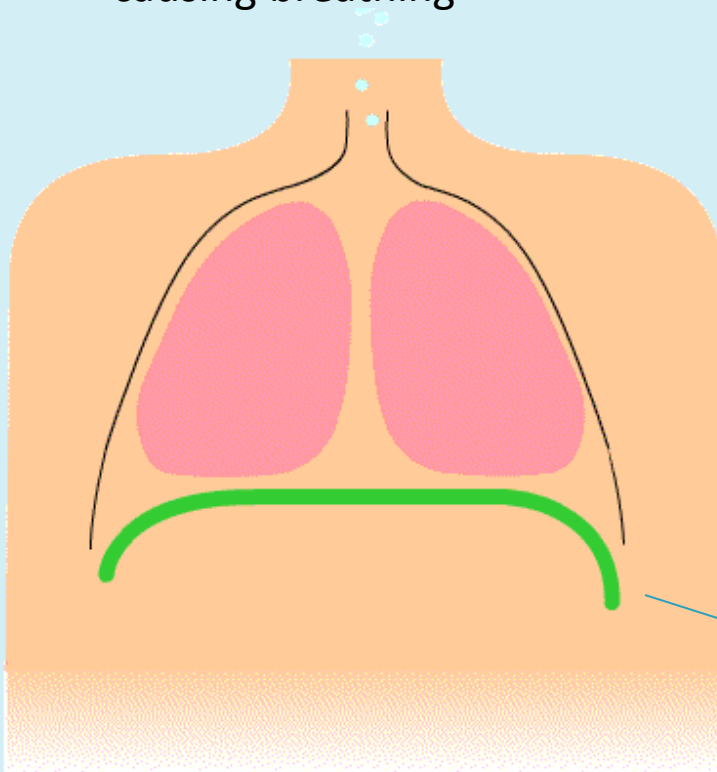
http://commons.wikimedia.org/wiki/File:Alveolus_diagram.svg



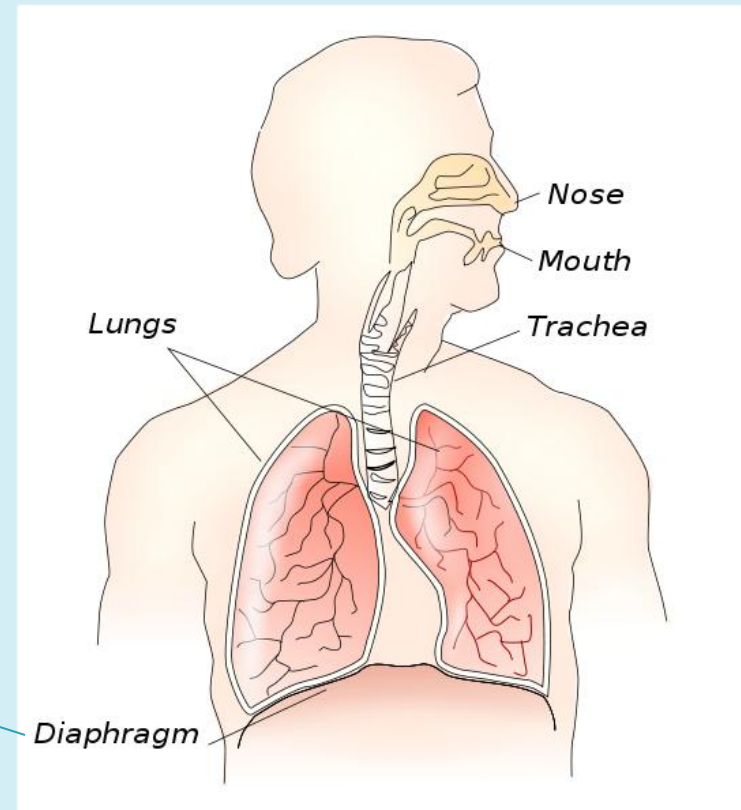
RESPIRATORY SYSTEM

3. THE DIAPHRAGM

- Involuntary or smooth muscle that contracts and relaxes to aid breathing at all times
- As the diaphragm moves up and down, the size of the chest cavity changes, causing breathing



http://commons.wikimedia.org/wiki/File:Diaphragmatic_breathing.gif



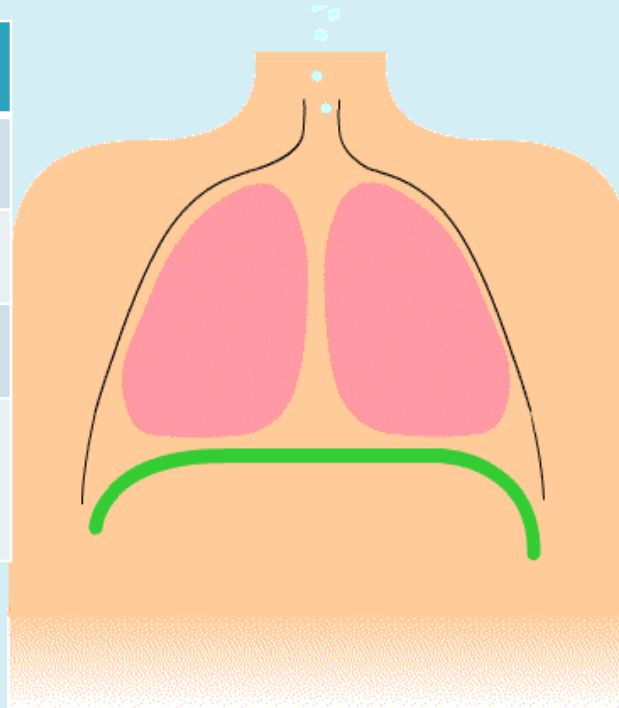
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RESPIRATORY SYSTEM

INSPIRATION

Intercostals	Contract
Diaphragm	Contracts
Lung volume	Increases
Air pressure in lungs	Decreases



http://commons.wikimedia.org/wiki/File:Diaphragmatic_breathing.gif

EXPIRATION

Intercostals	Relax
Diaphragm	Relaxes
Lung volume	Decreases
Air pressure in lungs	Increases

