

## ASA Presentation Notes Lesson 4.3

Unit Name: Unit 4 Cells and Tissues

Lesson Topic: Lesson 4.3 Breathing and Beating

Presentation on: Physiology of Respiration and Circulation

Respiratory System.

- Functions:
  - Gas exchange.
  - Bring oxygen from air into body.
  - Expel carbon dioxide from body into air.
- Internal versus External Respiration.
  - Internal ~ burning of oxygen to produce energy, which is cellular respiration.
  - External ~ exchange of O<sub>2</sub> and CO<sub>2</sub> between lungs and atmosphere.

Breathing.

- Inhalation.
  - Drawing air into the lungs.
  - Diaphragm pushes down into abdomen expanding the area for the lungs.
- Exhalation.
  - Forcing air out of the lungs.
  - Diaphragm contracts pushing on the lungs.

Gas Exchange.

- Air drawn into the lungs has a higher concentration of oxygen.
- Blood in the capillaries of the lungs has a higher concentration of carbon dioxide.
- Diffusion allows the two to exchange places.
- Go to How Stuff Works to see the process of gas exchange in an alveoli:
- <http://health.howstuffworks.com/adam-200022.htm>

Circulatory System.

- Functions:
  - Delivers nutrients, oxygen, and hormones throughout the body through blood.
  - Transfers wastes from cells to be expelled from the body.

The Heart.

- Four-chambered pump.
- Vessels enter the heart from the atria.
- Vessels leave the heart from the ventricles.
- The heart transfers oxygen-poor blood to the lungs to remove carbon dioxide and replenish oxygen levels.
- Go to How Stuff Works to see the flow of blood through a heart:
- <http://health.howstuffworks.com/adam-200083.htm>

#### Pulmonary Circulation.

- Blood flow between the heart and the lungs.
  - The heart sends blood high in CO<sub>2</sub> and low in O<sub>2</sub> to the lungs.
  - Blood returns oxygenated and ready to go to the rest of the body.

#### Systemic Circulation.

- Blood flow to all parts of the body except lungs.
  - Delivers blood rich in oxygen and nutrients to organs.
  - Picks up carbon dioxide and waste from cells.

#### Monitoring the Systems.

- Respiration Rate.
  - Number of times an organism breathes in one minute.
- Heart rate – pulse.
  - The number of times the heart beats in a minute.

# ASA Reflection Page

List 5 key points that are important to remember from this presentation.

- 1.
- 2.
- 3.
- 4.
- 5.

List 3 ideas or concepts that this new information has in common with previous things learned.

- 1.
- 2.
- 3.

List questions or ideas that remain unclear about the information presented that should be asked for clarity at the appropriate time.