

## ASA Presentation Notes Lesson 4.1

Unit Name: Unit 4 Cells and Tissues

Lesson Topic: Lesson 4.1 Units of Life

Presentation on: Cell Respiration

Notes from Presentation:

Metabolism.

- Many physical and chemical processes in living cells extract energy from raw materials, such as atmospheric gases and dissolved carbohydrates.

Respiration as a Function of Metabolism.

- One type of metabolic process commonly associated with cells is respiration.

Respiration Defined.

- A chemical process that takes place in living cells.
- Food is “burned” to release energy and waste products.
  - Food = fats, carbohydrates, and proteins.
  - Waste products = carbon dioxide and water.

Why is Respiration Essential?

- Living things use energy produced through respiration to drive vital life processes, such as growth and reproduction.

Types of Cellular Respiration.

- **Aerobic** – Occurs in the presence of oxygen.
  - e.g., Living plants and animals.
- **Anaerobic** – Occurs in the absence of oxygen.
  - e.g., Fermentation of plant tissue and components.

For Animal Growth Purposes.

- **Aerobic respiration is the goal!**

Respiration is similar to combustion...

- When a log is burned in the fireplace carbon dioxide, heat, and water are produced.

With respiration...

- Carbohydrates, such as sugars are “burned” in the animal cells.

$C_6H_{12}O_6 + 6H_2O + 6O_2 \rightarrow 6CO_2 + 12H_2O + \text{energy}$ .

Glucose + Water + Oxygen → Carbon + Water + Energy

(sugar)

Dioxide

- The result is the release of carbon dioxide, water, and in this case, energy.

Factors Affecting the Rate of Respiration.

- Temperature.
- Level of oxygen.
- Use of energy.

Temperature.

- The rate of respiration increases as the temperature increases.

Oxygen and Energy.

- Animals use energy by walking, running, digesting food, and so forth.
- The more exercise or metabolic functions animals experience, the more cells respire to provide energy for body functions.

Animal Hibernation.

- Slows metabolism and body functions down.
  - Bears.
- This is essentially slowing cell respiration to the minimum level for sustaining life.

## 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.