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**Unit 4 – Cell Energy Processes**

1. What organelle is responsible for the process of photosynthesis?

Chloroplast

1. What chemical absorbs or traps energy from sunlight?

Chlorophyll

1. What is the purpose of photosynthesis?

Photosynthesis is the necessary life process that transforms light energy into chemical energy. It involves a series of chemical reactions in which the light energy is used to change raw materials (carbon dioxide and water) into products (sugar and oxygen). The energy is stored in the chemical bonds of the glucose (sugar) molecules.

1. Define cellular respiration

The process of breaking glucose molecules to release some energy from the chemical bonds.

1. What organisms perform cellular respiration?

All organisms. Plants perform cellular respiration as well as photosynthesis.

1. How are the sugars produced by plants used by living organisms?

Plants convert the sugars they produce into other raw materials that are used by plants and animals for growth, repair, and energy needs.

Store, use, or transfer energy to other organisms

1. Where does most energy on earth originate?

Sun, Photosynthesizing organisms obtain their energy from the sun

1. Name the needs of life.

Food

Water

Living Space

Homeostasis

1. Why are photosynthesizing organisms called producers? Photosynthesizing organisms obtain their energy from the sun and are often called producers because of their ability to produce glucose (sugar).
2. What type of organism is the foundation for all food webs?

Photosynthesizing organisms are the foundation of virtually all food webs.

1. Write the equation for photosynthesis.

sunlight

CO2 + H2O C6H12O6 + O2

1. Write the equation for cellular respiration.

C6H12O6 + O2 CO2 + H2O + Energy (ATP)

1. Identify and describe the organelle(s) involved with photosynthesis.

Chloroplast with chlorophyll absorb the sun’s energy to do photosynthesis.

1. How do organisms use the energy stored in the sugar molecule produced in photosynthesis?

They break the bonds of glucose to release the energy stored during photosynthesis.

1. Compare and contrast the processes of photosynthesis and cellular respiration.

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| --- | --- |
| Photosynthesis | Cellular Respiration |
| sunlight  CO2 + H2O C6H12O6 + O2  Producers  Chloroplast | C6H12O6 + O2 CO2 + H2O + Energy (ATP)  Producers and consumers  Mitochondria |

1. How does photosynthesis relate to food webs?

Photosynthesis is the foundation of food webs.