

③ Energy for Life

What You'll Learn:

List the differences between producers and consumers.

Explain how the process of photosynthesis and respiration store and release energy.

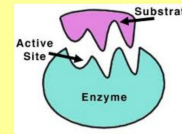
Describe how cell can get energy from glucose through fermentation.

Trapping and Using Energy

*All activities involve chemical reactions.

*Most chemical reactions need enzymes.

*Specific enzymes are used for specific chemical reactions and can be used over and over.



Photosynthesis

*Producers are organisms that make their own food.



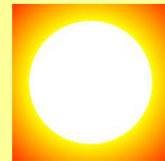
*Consumers cannot make their own food.



*Plants convert light energy into chemical energy during photosynthesis.

Producing Carbohydrates

*Most producers are green because of chlorophyll.



*Chlorophyll captures the light energy.

*The energy is used to drive chemical reactions.

Storing Carbohydrates

*Excess sugar is stored as starches or carbohydrates.

*Carbohydrates are used for growth, maintenance, and reproduction.



*Consumers take in food by eating producers or consumers.

Respiration

*When you move thermal energy is produced.

*Most cells need oxygen to break down food.

Breaking Down Carbohydrates

*Respiration begins in the cytoplasm.

*Carbs are broken down into glucose and moved to the mitochondria.

*As the glucose is broken down energy is released.

*The process uses oxygen and produces carbon dioxide and water.



*When you breathe out carbon dioxide and water are exhaled.

Fermentation

*It begins in the cytoplasm.

*Glucose is broken down and energy released.

*Instead of molecules going to the mitochondria more chemical reactions take place in the cytoplasm.

*The reactions produce lactic acid, alcohol, and carbon dioxide.



*Lactic acid is why your muscles feel stiff/sore.

Related Processes

***Photosynthesis produces sugar and oxygen and respiration uses them.**

***Respiration produces carbon dioxide water and photosynthesis uses them.**