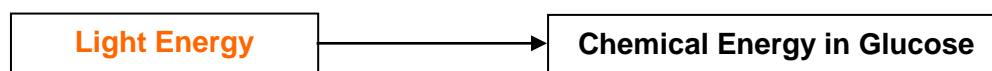
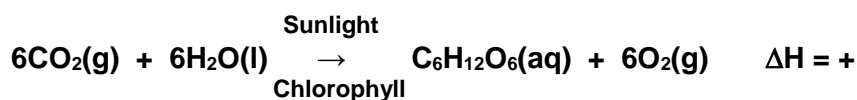


ENERGY FROM FOOD

PHOTOSYNTHESIS: THE ORIGINAL ENERGY AND FOOD SOURCE

- Green plants unlike most organisms are able to make their own food.
- Plants absorb carbon dioxide (CO₂) and water (H₂O) from the air and use the light energy from the sun to convert these 2 compounds into glucose (C₆H₁₂O₆) and oxygen (O₂).
- A green pigment known as chlorophyll is found in all green plants. This assists the plant in collecting the sun's solar energy.
- This whole process is known as **photosynthesis**.
- All of the life giving oxygen in our air comes from photosynthesis.
- During photosynthesis, the plant is acting as an **energy converter** because it converts the light energy from the sun into chemical energy in glucose.



- Photosynthesis is an **endothermic** reaction.

The glucose produced during this process is used by plants as a source of energy.

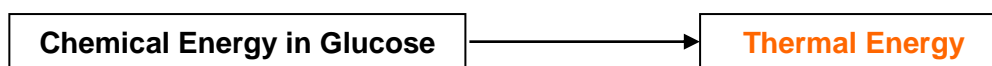
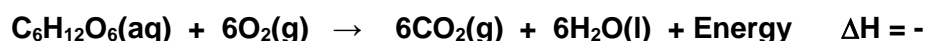
Energy is needed by all living things for movement, growth and many other life functions.

Glucose is a compound that belongs to a group known as the **carbohydrates**. The plant can combine the glucose with other chemicals to produce **lipids (fats)** and **proteins**.

The carbohydrates, lipids and proteins are important for the life functions of all plants and animals on this planet.

Plants are the original and primary producers of these chemicals so all animals whether they be herbivorous, carnivorous or omnivorous are dependant upon the process of photosynthesis.

- When plants and animals obtain energy from glucose, they do so by a process known as **cellular respiration**. This is a controlled **combustion reaction** that occurs in the cells of all plants and animals. The chemical energy in the bonds of the glucose that originated from sunlight is released during cellular respiration.



- Cellular respiration is an **exothermic** reaction.
- During cellular respiration the oxygen is always **reduced** and the other reactant is always **oxidized**.
- Note that cellular respiration is the reverse reaction of photosynthesis.
- Proteins and lipids can also react with oxygen to release energy during cellular respiration.

QUESTION 1

The process of photosynthesis is best described as:

- A An endothermic process
- B An exothermic process
- C A process requiring oxygen
- D A process where the conversion of chemical energy to thermal energy takes place

QUESTION 2

The equation for the cellular respiration of glucose can be represented by:



Which statement regarding this process is INCORRECT?

- A Cellular respiration is an exothermic process.
- B Cellular respiration is a process that is used by green plants to release the chemical energy stored in glucose.
- C Carbohydrates are the only food group capable of undergoing cellular respiration.
- D The cellular respiration of glucose is a reaction where glucose is oxidised.

SOLUTIONS

QUESTION 1 Answer is A

QUESTION 2 Answer is C