

Keywords: Autumn 2

Science

Topic Title: Bioenergetics

Introduction to the topic: Why are you learning it and how does it link to what you've learned before?

Because photosynthesis and respiration are vital processes for all life on Earth.

What lessons will you cover during the topic?

- 1 – Photosynthesis**
- 2 – Limiting Factors of Photosynthesis**
- 3 – Photosynthesis Required Practical**
- 4 – Respiration**
- 5 – Exercise and Metabolism**

Keyword	Definition
Chlorophyll	The green chemical inside the chloroplasts of plant cells. It enables photosynthesis to take place.
Photosynthesis	A chemical process used by plants to make glucose and oxygen from carbon dioxide and water, using light energy. Oxygen is produced as a by-product of photosynthesis. Algae subsumed within plants and some bacteria are also photosynthetic.
Glucose	A simple sugar used by cells for respiration.
Limiting Factor	A factor which, if in short supply limits or reduces the rate of photosynthesis, eg temperature, light intensity and carbon dioxide concentration.
Spongy Mesophyll	The plant tissue in a leaf which has loosely packed cells and air spaces between them to allow gas exchange.
Anaerobic	Without oxygen.
Aerobic	Respiration that requires oxygen.
Respiration	The chemical change that takes place inside living cells, which uses glucose and oxygen to release the energy that organisms need to live. Carbon dioxide is a by-product of respiration.
Lactic Acid	A toxic chemical produced during anaerobic respiration.
Oxygen	Gaseous element making up about 20% of the air, which is needed by living organisms for respiration.
Mitochondria	Structures in the cytoplasm of all cells where aerobic respiration takes place (singular is mitochondrion).
Metabolism	All the chemical reactions in the cells of an organism, including respiration.