

KNOWLEDGE ORGANISER

BIG IDEA: ECOSYSTEMS

TOPIC: RESPIRATION

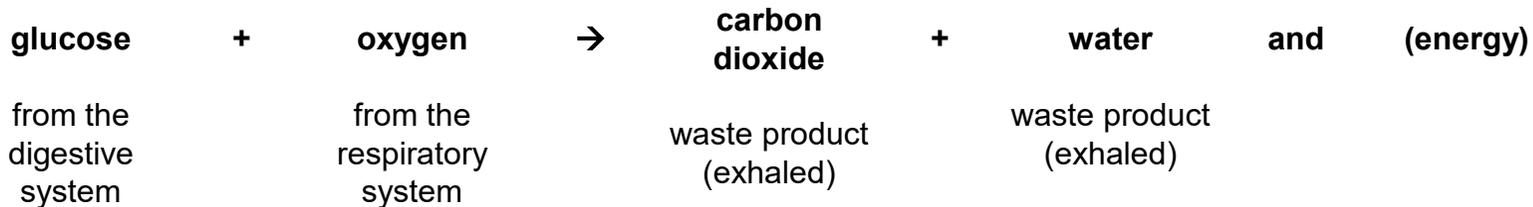
Most living things use **aerobic respiration** but switch to **anaerobic respiration**, which provides less energy, when oxygen is unavailable

Key Word	Definition
respiration	a chemical reaction, in cells, that breaks down glucose to provide energy and new molecules.
aerobic respiration	Breaking down glucose with oxygen to release energy and producing carbon dioxide and water.
anaerobic respiration	Releasing energy from the breakdown of glucose without oxygen, producing lactic acid
fermentation	Releasing energy from the breakdown of glucose without oxygen, producing ethanol and carbon dioxide in plants and microorganisms
mitochondria	The site of respiration in the cell

Anaerobic respiration occurs when there is not enough oxygen present. The build up of lactic acid leads to muscle fatigue, also known as cramp.

The **fermentation** of yeast is used in brewing and bread making. Yeast are unicellular fungi.

Aerobic Respiration



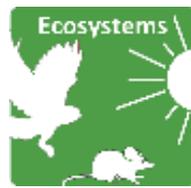
Anaerobic Respiration



Fermentation



Knowledge organiser



Y8 topic: Respiration

I have already learned:

In KS2: (breathing) the impact of exercise on the way their bodies function

Y7: (Cells link) cell structure and function of organelles including mitochondria

This topic links to:

Y8: Photosynthesis

KS4: Bioenergetics

It is important to study about respiration because...

Respiration is one of the seven life processes carried out by all living organisms including us and is essential for releasing energy from our food in the presence of oxygen (aerobic) or without (anaerobic). In this topic you will learn about these chemical reactions in cells and the useful products we can get from them including bread, alcoholic drinks and yoghurts.

Possible careers involving Respiration are...

- Doctor
- Sports scientist
- Biochemist
- Brewing industry
- Environmental scientist