

# KNOWLEDGE ORGANISER

**BIG IDEA:** ECOSYSTEMS

**TOPIC:** RESPIRATION

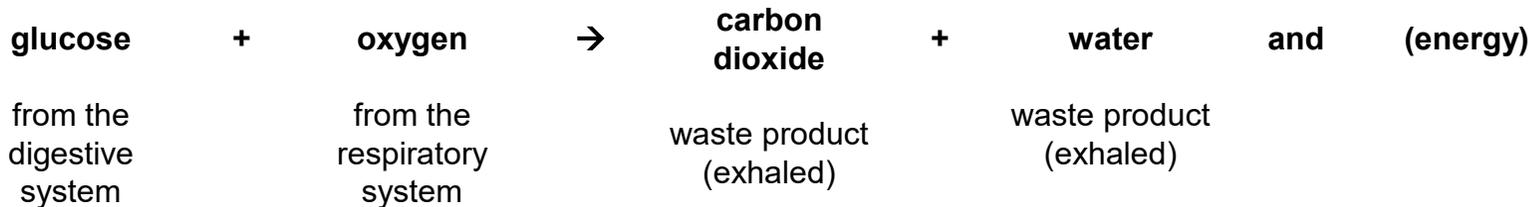
Key Word	Definition
respiration	a chemical reaction, in cells, that breaks down glucose to provide energy and new molecules.
<b>aerobic respiration</b>	Breaking down glucose with oxygen to release energy and producing carbon dioxide and water.
<b>anaerobic respiration</b>	Releasing energy from the breakdown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

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

**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



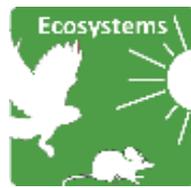
## Anaerobic Respiration



## 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