

4.2.1 Aerobic and anaerobic respiration

AQA GCSE Biology (Higher) Question and answer notes

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How to use these notes

These notes cover everything you need to know for this part of the specification. They have been written in question-answer format to make them easier for you to study from.

In order to study successfully, I recommend you do the following for each question and answer:

- Read it carefully and make sure you **understand** it.
- **Memorise** the answer.
- **Practice** applying your understanding to past exam questions.

A good way to memorise information is to use **retrieval practice**. This is when you practise retrieving information from your memory. You could do this by making a flashcard for each question with the question on one side and the answer on the other. Or you could use a flashcard app. Alternatively, use a sheet of paper to cover up the answer so you can only see the question. Try to answer the question and then check how you did.

You should practise retrieving each answer from your memory until you can do it perfectly. Even once you can retrieve the answer perfectly, your ability to retrieve it will probably fade as time passes without practising. Therefore you will need to keep going back to the questions that you have previously mastered and practising them again. However, each time you re-learn the answer, the memory will be stronger and will last longer than the time before.

What is respiration?

Respiration is a chemical reaction that is continuously occurring in all living cells. In respiration, food molecules are broken down to release energy that can then be used for living processes.

Is respiration an endothermic or exothermic reaction? What does this mean?

Respiration is an exothermic reaction. This means that it releases energy.

What is the energy released in respiration used for?

The energy released in respiration is used for almost all living processes, including:

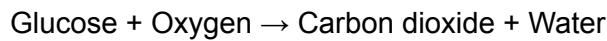
- Chemical reactions to build larger molecules from smaller molecules
- Movement
- Keeping warm

What are the two types of respiration? What are the differences between them?

The two types of respiration are aerobic respiration and anaerobic respiration. Aerobic respiration uses oxygen (O₂), whereas anaerobic respiration does not. Also, aerobic respiration releases more energy than anaerobic respiration.

What is the word equation for aerobic respiration?

The word equation for aerobic respiration is:

**What is the chemical formula for glucose?**

The chemical formula for glucose is C₆H₁₂O₆.

What is the chemical formula for oxygen?

The chemical formula for oxygen is O₂.

What is the chemical formula for carbon dioxide?

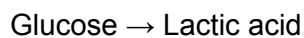
The chemical formula for carbon dioxide is CO₂.

What is the chemical formula for water?

The chemical formula for water is H₂O.

What is the word equation for anaerobic respiration in animals?

The word equation for anaerobic respiration in animals is:

**What is the word equation for anaerobic respiration in plants and yeast cells?**

The word equation for anaerobic respiration in plants and yeast cells is:

**What is yeast?**

Yeast is a single-celled (unicellular) fungus.

What is anaerobic respiration in yeast also known as?

Anaerobic respiration in yeast is also known as fermentation.

How is fermentation used by humans?

Fermentation is used by humans to make alcoholic drinks and bread. The ethanol produced by fermentation is what makes alcoholic drinks alcoholic. The carbon dioxide gas formed is what causes bread to rise (the ethanol evaporates out of the bread when it is cooked).