

4.1.1 Photosynthetic reaction

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 carbon dioxide?

Carbon dioxide is a compound made of carbon and oxygen atoms.

Where is carbon dioxide usually found?

Carbon dioxide is usually found as a gas in the air or as a gas dissolved in water.

What is the chemical formula for carbon dioxide?

The chemical formula for carbon dioxide is CO_2 .

What is water?

Water is a chemical compound made of hydrogen and oxygen atoms.

What is the chemical formula for water?

The chemical formula for water is H₂O.

What is glucose?

Glucose is a sugar made up of carbon, hydrogen and oxygen atoms.

What is the chemical formula for glucose?

The chemical formula for glucose is C₆H₁₂O₆.

What is molecular oxygen?

Molecular oxygen is a molecule made up of two oxygen atoms bonded together. Molecular oxygen is often referred to as simply 'oxygen'.

What is the chemical formula for molecular oxygen?

The chemical formula for molecular oxygen is O₂.

What is photosynthesis?

Photosynthesis is a biological process in which energy from light is used to react carbon dioxide and water to form glucose and oxygen.

What is the word equation for photosynthesis?

The word equation for photosynthesis is:



Sometimes the word 'light' is written over the arrow to indicate that energy from light is used to drive this reaction.

(Note: the oxygen produced is molecular oxygen, O₂)

What types of organisms carry out photosynthesis?

Photosynthesis is carried out by:

- Almost all species of plants
- Almost all species of algae
- Some species of bacteria

Which sub-cellular structures do plants and algae use to carry out photosynthesis?

Plants and algae use their chloroplasts to carry out photosynthesis.

How are chloroplasts adapted to carry out photosynthesis?

Chloroplasts contain pigments, including one called chlorophyll, which they use to absorb light energy. The chloroplasts then use this energy to carry out photosynthesis.

Is photosynthesis an endothermic or exothermic process? What does this mean?

Photosynthesis is an endothermic process. An endothermic process is a process that takes in energy from its surroundings.