

Read the exam style question carefully, then fill in each section below.

Question:

Hydrogen gas and oxygen gas are produced when sodium sulfate solution is electrolysed.

Explain how oxygen gas and hydrogen gas are produced in the electrolysis of sodium sulfate solution. **(6)**

Section 1: At first glance

1. What **command words** are used in this question? Circle them clearly.
2. **Underline the key information** in the question above.
2. **How many marks** is this question worth?

Section 2: Thinking ahead

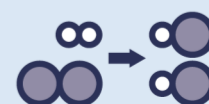
Read the question again.

What do you need to know in order to answer this question really well?

Can you split the question into two or more parts?

Are there any labelled diagrams that might help you to show your answer?

What are the key words that you should include in your answer?

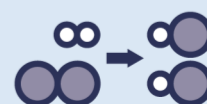




Section 3: Space to plan

Use this space to plan your answer.

Section 4: Answer the question





Section 5: Mark Scheme

Level 0 (0 marks)	No relevant content
Level 1 (1-2 marks)	Points for either oxygen or hydrogen gas formation are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.
Level 2 (3-4 marks)	Relevant points for both oxygen and hydrogen gas formation are identified, and there are attempts at logical linking. The resulting account is not fully clear.
Level 3 (5-6 marks)	Relevant points for both oxygen and hydrogen gas formation are identified, given in detail and logically linked to form a clear account.

Suggested content

- Water molecules break down to produce OH⁻ and H⁺ ions
- OH⁻ ions are attracted to the positive electrode/anode
- OH⁻ ions are oxidised and discharged at the positive electrode/anode because they lose electrons
- This means that molecules of oxygen are produced
- Sodium is more reactive than hydrogen, so hydrogen is produced at the negative electrode/cathode
- H⁺ ions are attracted to the negative electrode/cathode
- H⁺ ions are reduced and discharged at the negative electrode/cathode because they gain electrons
- This means that molecules of hydrogen are produced

