CHEMISTRY YEAR 11 - MODULE 4 - LESSON 1

Enthalpy & Energy Profile Diagrams

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name _____

Date _____

Class _____

1. Key Ideas

Every reaction either releases or absorbs energy — enthalpy is how chemists measure that energy change, and energy profile diagrams make it visible. Hold a hand warmer and you're feeling a negative ΔH. Crack an instant cold pack and you're feeling a positive one.

- The definition of enthalpy (H) and enthalpy change (ΔH)
- Why exothermic reactions have ΔH < 0

2. Success Criteria

By the end, you should be able to:

- The definition of enthalpy (H) and enthalpy change (ΔH)
- The signs of ΔH for exothermic and endothermic reactions
- The five labelled features of an energy profile diagram

3. Key Terms

Enthalpy change (ΔH)
The heat energy exchanged at constant pressure during a reaction.

Exothermic
A reaction that releases heat to surroundings (ΔH < 0).

Endothermic
A reaction that absorbs heat from surroundings (ΔH > 0).

Activation energy
The minimum energy required for reactant collisions to be effective.

Catalyst
A substance that increases reaction rate without being consumed.

Energy profile diagram
A graph showing energy changes during a reaction pathway.

4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

5. Short Answer Questions

1. Explain this lesson goal in your own words: "The definition of enthalpy (H) and enthalpy change (ΔH)". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "The signs of ΔH for exothermic and endothermic reactions". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Enthalpy & Energy Profile Diagrams: "The five labelled features of an energy profile diagram".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Enthalpy & Energy Profile Diagrams but does not use evidence or reasoning.

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

7. Multiple Choice

1. What is the best first step when answering a question about Enthalpy & Energy Profile Diagrams?

☐ A. Identify the key concept being tested

☐ B. Write every fact from memory

☐ C. Ignore the command word

☐ D. Skip examples and evidence

2. Which answer would show stronger understanding of Enthalpy & Energy Profile Diagrams?

☐ A. An answer with accurate terms and reasoning

☐ B. A copied definition only

☐ C. A single-word response

☐ D. An answer with no example

3. What should you do if a question asks you to explain?

☐ A. Link the idea to a reason or cause

☐ B. List unrelated facts

☐ C. Only draw a diagram

☐ D. Write the shortest possible answer

8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

SUCCESS CRITERION 1

Prove that you can: The definition of enthalpy (H) and enthalpy change (ΔH)

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: The signs of ΔH for exothermic and endothermic reactions

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: The five labelled features of an energy profile diagram

BAND 5 4 MARKS

One thing I still need help with: