CHEMISTRY YEAR 12 - MODULE 7 - LESSON 21

Addition Polymers

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

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- What addition polymerisation is and that no by-product is produced
- Why the C=C double bond opens and forms new C-C bonds

2. Success Criteria

By the end, you should be able to:

- What addition polymerisation is and that no by-product is produced
- The 5–6 common addition polymers, their monomers and repeat units
- LDPE vs HDPE — same monomer, different chain architecture

3. Key Terms

Hydrocarbon
An organic compound containing only carbon and hydrogen atoms.

Functional group
A specific atom arrangement determining characteristic chemical reactions.

Homologous series
A family of compounds with the same functional group, differing by CH_2.

Addition polymer
A polymer formed by monomers adding together without loss of atoms.

Condensation polymer
A polymer formed with elimination of a small molecule such as water.

Esterification
A condensation reaction between a carboxylic acid and an alcohol forming an ester.

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: "What addition polymerisation is and that no by-product is produced". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "The 5–6 common addition polymers, their monomers and repeat units". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Addition Polymers: "LDPE vs HDPE — same monomer, different chain architecture".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Addition Polymers 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 Addition Polymers?

☐ 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 Addition Polymers?

☐ 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: What addition polymerisation is and that no by-product is produced

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: The 5–6 common addition polymers, their monomers and repeat units

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: LDPE vs HDPE — same monomer, different chain architecture

BAND 5 4 MARKS

One thing I still need help with: