CHEMISTRY YEAR 12 - MODULE 7 - LESSON 22

Condensation Polymers — Polyesters & Polyamides

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 condensation polymerisation is and that H_2O is always released
- Why condensation polymers are hydrolysable (ester/amide bonds) but addition polymers are not (C-C bonds)

2. Success Criteria

By the end, you should be able to:

- What condensation polymerisation is and that H_2O is always released
- PET monomers (ethylene glycol + terephthalic acid) and Nylon 6,6 monomers (hexane-1,6-diamine + hexanedioic acid)
- Ester linkage (-COO-) vs amide linkage (-CO-NH-)

3. Key Terms

NONE
When a question asks "what is the by-product of polymerising styrene?" → NONE (addition).

Diol
The ester oxygen comes from the diol -OH (minus H); the C=O comes from the diacid (minus -OH).

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.

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 condensation polymerisation is and that H_2O is always released". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "PET monomers (ethylene glycol + terephthalic acid) and Nylon 6,6 monomers (hexane-1,6-diamine + hexanedioic acid)". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Condensation Polymers — Polyesters & Polyamides: "Ester linkage (-COO-) vs amide linkage (-CO-NH-)".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Condensation Polymers — Polyesters & Polyamides 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 Condensation Polymers — Polyesters & Polyamides?

- [ ] 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 Condensation Polymers — Polyesters & Polyamides?

- [ ] 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 condensation polymerisation is and that H_2O is always released

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: PET monomers (ethylene glycol + terephthalic acid) and Nylon 6,6 monomers (hexane-1,6-diamine + hexanedioic acid)

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Ester linkage (-COO-) vs amide linkage (-CO-NH-)

BAND 5 4 MARKS

One thing I still need help with: