CHEMISTRY YEAR 12 - MODULE 8 - LESSON 16

Polymers — Structure, Properties & Applications

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

The Great Pacific Garbage Patch is not just a waste-management story. It is also a chemistry story about strong carbon-based materials, slow breakdown, microplastic formation, and the challenge of designing polymers that are useful in daily life without creating long-term environmental persistence.

- The difference between addition and condensation polymers
- How chain length, branching, cross-linking and intermolecular forces affect polymer properties

2. Success Criteria

By the end, you should be able to:

- The difference between addition and condensation polymers
- The named polymer examples in the course
- The meanings of thermoplastic, thermosetting and microplastic

3. Key Terms

Thermosetting polymers
heavily cross-linked, so they cannot simply be remelted and reshaped once set

Great Pacific Garbage Patch
not just a waste-management story

designing polymers that
useful in daily life without creating long-term environmental persistence

one item
flexible and another is rigid, that must only be because one piece is thicker than the other

Why
that statement chemically incomplete?

The statement
incomplete because

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 difference between addition and condensation polymers". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "The named polymer examples in the course". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Polymers — Structure, Properties & Applications: "The meanings of thermoplastic, thermosetting and microplastic".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Polymers — Structure, Properties & Applications 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 Polymers — Structure, Properties & Applications?

☐ 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 Polymers — Structure, Properties & Applications?

☐ 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 difference between addition and condensation polymers

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: The named polymer examples in the course

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: The meanings of thermoplastic, thermosetting and microplastic

BAND 5 4 MARKS

One thing I still need help with: