BIOLOGY YEAR 11 - MODULE 3 - LESSON 8

Molecular Evidence

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

Fossils, anatomy and biogeography reveal patterns, but molecules let scientists compare life at the sequence level. DNA and proteins can show relatedness directly, expose misleading surface similarities, and trace lineages in ways morphology alone cannot.

- Key facts and definitions for Molecular Evidence
- The concepts and principles underlying Molecular Evidence

2. Success Criteria

By the end, you should be able to:

- Key facts and definitions for Molecular Evidence
- Relevant terminology and conventions
- The concepts and principles underlying Molecular Evidence

3. Key Terms

book mode if you
sketching relatedness notes, barcoding steps and evidence comparisons by hand before coming back for the model answers

DNA and protein similarity
used as evidence for relatedness

and mtDNA
useful molecular tools

Explain why DNA barcoding
useful when morphology is unavailable or ambiguous

Natural selection
organisms change because they want or need to

logic of molecular evidence
simple: the more similar the DNA or protein sequence between two species, the more recent their common ancestor is likel

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: "Key facts and definitions for Molecular Evidence". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "Relevant terminology and conventions". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Molecular Evidence: "The concepts and principles underlying Molecular Evidence".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Molecular Evidence 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 Molecular Evidence?

☐ 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 Molecular Evidence?

☐ 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: Key facts and definitions for Molecular Evidence

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: Relevant terminology and conventions

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: The concepts and principles underlying Molecular Evidence

BAND 5 4 MARKS

One thing I still need help with: