BIOLOGY YEAR 12 - MODULE 5 - LESSON 17

DNA Sequencing and DNA Profiling

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

DNA sequencing and DNA profiling are related technologies, but they answer different questions. Sequencing tells us the order of bases. Profiling compares patterns at selected DNA regions to infer similarity, difference and inheritance links in populations.

- What DNA sequencing determines.
- Why sequencing and profiling answer different biological questions.

2. Success Criteria

By the end, you should be able to:

- What DNA sequencing determines.
- What DNA profiling compares.
- Why sequencing and profiling answer different biological questions.

3. Key Terms

DNA sequencing
Determining the order of nucleotide bases in a DNA sequence.

DNA profiling
Comparing patterns at selected DNA regions to distinguish or relate samples.

Base order
The exact sequence of A, T, C and G nucleotides in DNA.

Marker region
A selected DNA region used in comparison rather than full genome reading.

Relatedness
The degree of genetic similarity that can suggest inheritance connections.

Population structure
Patterns of genetic similarity and difference within and between groups.

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 DNA sequencing determines.". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "What DNA profiling compares.". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding DNA Sequencing and DNA Profiling: "Why sequencing and profiling answer different biological questions.".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about DNA Sequencing and DNA Profiling 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 DNA Sequencing and DNA Profiling?

☐ 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 DNA Sequencing and DNA Profiling?

☐ 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 DNA sequencing determines.

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: What DNA profiling compares.

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Why sequencing and profiling answer different biological questions.

BAND 5 4 MARKS

One thing I still need help with: