BIOLOGY YEAR 11 - MODULE 3 - LESSON 10

Variation and Allele Frequency

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

Natural selection cannot act unless variation already exists. This lesson explains where variation comes from, how allele frequency describes a population genetically, and why selection pressure changes populations over generations rather than transforming individual organisms on demand.

- Key facts and definitions for Variation and Allele Frequency
- The concepts and principles underlying Variation and Allele Frequency

2. Success Criteria

By the end, you should be able to:

- Key facts and definitions for Variation and Allele Frequency
- Relevant terminology and conventions
- The concepts and principles underlying Variation and Allele Frequency

3. Key Terms

What allele frequency
and how it is expressed

Why mutation
the ultimate source of new alleles

Bacteria
living cells; viruses are non-living particles that require host cells to reproduce

Understanding how systems interact
essential for HSC success

Mutation
the ultimate source of all new alleles because it changes the DNA sequence itself

Most mutations
neutral, some are harmful, and only occasionally does a mutation become advantageous in a specific environment

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 Variation and Allele Frequency". 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 Variation and Allele Frequency: "The concepts and principles underlying Variation and Allele Frequency".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Variation and Allele Frequency 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 Variation and Allele Frequency?

☐ 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 Variation and Allele Frequency?

☐ 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 Variation and Allele Frequency

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 Variation and Allele Frequency

BAND 5 4 MARKS

One thing I still need help with: