BIOLOGY YEAR 12 - MODULE 6 - LESSON 15

Cloning - Whole Organism and Gene Cloning

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

Cloning means making a genetically identical copy, but the level matters. Whole-organism cloning and gene cloning are not the same process, do not have the same purpose, and are not equally effective in the same way. This lesson compares both and assesses their effectiveness honestly.

- Whole-organism cloning and gene cloning are different technologies.
- Whole-organism cloning does not guarantee identical phenotype or high efficiency.

2. Success Criteria

By the end, you should be able to:

- Whole-organism cloning and gene cloning are different technologies.
- Whole-organism cloning aims to copy an organism's genotype.
- Gene cloning aims to copy a DNA sequence many times.

3. Key Terms

Clone
A genetically identical copy of DNA, a cell or sometimes a whole organism.

Whole-organism cloning
Production of an organism with a genome intended to match that of a donor organism.

Gene cloning
Making many identical copies of a selected DNA sequence.

Vector
A DNA carrier, such as a plasmid, used to transfer a gene into a host cell.

Host cell
A cell used to replicate inserted DNA or express a product from it.

Effectiveness
How well a process achieves its intended purpose, considering success rate, usefulness and limitations.

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: "Whole-organism cloning and gene cloning are different technologies.". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "Whole-organism cloning aims to copy an organism's genotype.". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Cloning - Whole Organism and Gene Cloning: "Gene cloning aims to copy a DNA sequence many times.".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Cloning - Whole Organism and Gene Cloning 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 Cloning - Whole Organism and Gene Cloning?

☐ 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 Cloning - Whole Organism and Gene Cloning?

☐ 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: Whole-organism cloning and gene cloning are different technologies.

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: Whole-organism cloning aims to copy an organism's genotype.

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Gene cloning aims to copy a DNA sequence many times.

BAND 5 4 MARKS

One thing I still need help with: