BIOLOGY YEAR 12 - MODULE 6 - LESSON 9

Social Implications and Ethical Uses of Biotechnology

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

Biotechnology can improve food supply, disease treatment and productivity, but usefulness does not remove ethical complexity. This lesson evaluates biotechnology through stakeholder perspectives, using plant and animal examples to examine food security, welfare, ownership, consent, equity and environmental effects.

- Biotechnology affects many stakeholder groups differently.
- Ethical analysis must include welfare, ownership, equity and environment.

2. Success Criteria

By the end, you should be able to:

- Biotechnology affects many stakeholder groups differently.
- Plant and animal examples raise distinct ethical issues.
- Benefit alone is not enough for full ethical evaluation.

3. Key Terms

Stakeholder
A person or group affected by a biotechnology, such as farmers, consumers, companies, researchers, regulators or communities.

Ethical use
Use judged in relation to values such as fairness, welfare, harm, autonomy, environmental responsibility and justice.

Food security
Reliable access to sufficient, safe and nutritious food.

Equity
Fairness in access to benefits, risks and decision-making power.

Ownership
Control of technology, products, patents or biological material.

Animal welfare
Consideration of suffering, stress and quality of life in animals used or altered by biotechnology.

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: "Biotechnology affects many stakeholder groups differently.". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "Plant and animal examples raise distinct ethical issues.". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Social Implications and Ethical Uses of Biotechnology: "Benefit alone is not enough for full ethical evaluation.".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Social Implications and Ethical Uses of Biotechnology 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 Social Implications and Ethical Uses of Biotechnology?

☐ 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 Social Implications and Ethical Uses of Biotechnology?

☐ 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: Biotechnology affects many stakeholder groups differently.

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: Plant and animal examples raise distinct ethical issues.

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Benefit alone is not enough for full ethical evaluation.

BAND 5 4 MARKS

One thing I still need help with: