BIOLOGY YEAR 12 - MODULE 6 - LESSON 11

Biodiversity Change Caused by Genetic Techniques

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

Genetic techniques can alter biodiversity in more than one direction. They may support conservation and species management, but they may also reduce variation through uniformity or create ecological trade-offs. This lesson evaluates biodiversity effects at genetic, species and ecosystem levels rather than treating biotechnology as automatically beneficial or harmful.

- Biotechnology can increase, decrease or have mixed effects on biodiversity.
- Improved productivity is not the same thing as improved biodiversity.

2. Success Criteria

By the end, you should be able to:

- Biotechnology can increase, decrease or have mixed effects on biodiversity.
- Biodiversity should be evaluated at genetic, species and ecosystem levels.
- Uniformity and conservation support can both be outcomes of genetic techniques.

3. Key Terms

Biodiversity
Variety of life at genetic, species and ecosystem levels.

Genetic diversity
Variation in alleles within a population or species.

Species diversity
Variety of species present in a habitat or ecosystem.

Ecosystem diversity
Variety of ecosystems, communities and ecological interactions.

Monoculture
Large-scale growth of genetically similar or identical crop types.

Conservation genetics
Use of genetic information or technologies to help manage and conserve populations.

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 can increase, decrease or have mixed effects on biodiversity.". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "Biodiversity should be evaluated at genetic, species and ecosystem levels.". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Biodiversity Change Caused by Genetic Techniques: "Uniformity and conservation support can both be outcomes of genetic techniques.".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Biodiversity Change Caused by Genetic Techniques 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 Biodiversity Change Caused by Genetic Techniques?

- [ ] 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 Biodiversity Change Caused by Genetic Techniques?

- [ ] 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 can increase, decrease or have mixed effects on biodiversity.

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: Biodiversity should be evaluated at genetic, species and ecosystem levels.

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Uniformity and conservation support can both be outcomes of genetic techniques.

BAND 5 4 MARKS

One thing I still need help with: