

# Benefits of Genetic Technologies in Agricultural, Medical and Industrial Uses

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

This lesson is about evaluation, not slogan-writing. Genetic technologies can be highly beneficial, but the type of benefit depends on the domain. Agriculture, medicine and industry do not gain in exactly the same way, and agricultural benefit must be weighed against biodiversity trade-offs.

- Genetic technologies can provide benefits in agriculture, medicine and industry.
- Benefits depend on the application domain and the comparison being made.

## 2. Success Criteria

By the end, you should be able to:

- Genetic technologies can provide benefits in agriculture, medicine and industry.
- Agricultural benefits can include yield, resistance and nutritional modification.
- Medical and industrial uses often involve biological production systems.

## 3. Key Terms

### Agricultural application

Use of genetic technologies to influence crop or livestock performance and management.

### Medical application

Use of genetic technologies to produce medicines, support treatment or improve diagnosis.

### Industrial application

Use of biological systems or products in manufacturing, processing or large-scale production.

### Nutritional modification

Changing a food organism so its nutritional profile is improved.

### Biological manufacturing

Using cells or organisms to produce useful compounds at scale.

### Biodiversity trade-off

A situation where a gain in one area is linked to a possible cost in diversity or resilience.

## 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: "Genetic technologies can provide benefits in agriculture, medicine and industry.". Use one specific example from the lesson.

**BAND 3** **2 MARKS**

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2. Apply this idea to a new example: "Agricultural benefits can include yield, resistance and nutritional modification.". Show your reasoning clearly.

**BAND 4** **3 MARKS**

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3. Analyse why this idea matters for understanding Benefits of Genetic Technologies in Agricultural, Medical and Industrial Uses: "Medical and industrial uses often involve biological production systems.".

**BAND 5** **4 MARKS**

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## 6. Extend: Apply the Idea

BAND 5/6

5 MARKS

**A student gives a memorised answer about Benefits of Genetic Technologies in Agricultural, Medical and Industrial Uses 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.

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## 7. Multiple Choice

1. What is the best first step when answering a question about Benefits of Genetic Technologies in Agricultural, Medical and Industrial Uses?

- 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 Benefits of Genetic Technologies in Agricultural, Medical and Industrial Uses?

- 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: Genetic technologies can provide benefits in agriculture, medicine and industry.**

**BAND 3** 2 MARKS

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### SUCCESS CRITERION 2

**Prove that you can: Agricultural benefits can include yield, resistance and nutritional modification.**

**BAND 4** 3 MARKS

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### SUCCESS CRITERION 3

**Prove that you can: Medical and industrial uses often involve biological production systems.**

**BAND 5** 4 MARKS

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**One thing I still need help with:**

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