

21. Biotechnology and genetic modification

Starter Quiz · 课前小测

IGCSE Biology

Name: _____ Score: _____

1. Microbes are useful in biotechnology because they:

- ☐ reproduce very fast and are easy to grow
- ☐ are large animals
- ☐ never make useful products
- ☐ cannot be controlled

2. Yeast makes bread rise by producing:

- ☐ carbon dioxide
- ☐ oxygen
- ☐ nitrogen
- ☐ water only

3. A fermenter is used to:

- ☐ grow microbes in large amounts under controlled conditions
- ☐ kill all microbes
- ☐ store finished medicine
- ☐ filter water

4. In genetic modification, a useful gene is cut out using:

- ☐ enzymes
- ☐ heat only
- ☐ water
- ☐ a microscope

5. Genetic modification involves:

- ☐ inserting a gene from one organism into another
- ☐ breeding the best parents
- ☐ cloning by mitosis
- ☐ removing all genes

6. Which medicines are made using microbes? (Select all that apply.)

- ☐ antibiotics
- ☐ insulin

☐ penicillin

☐ sand

Tick every correct option.

7. Which conditions are controlled in a fermenter? (Select all that apply.)

- ☐ temperature
- ☐ pH
- ☐ oxygen supply
- ☐ the colour of the tank

Tick every correct option.

8. GM crops can be made to be: (Select all that apply.)

- ☐ pest-resistant
- ☐ higher-yielding
- ☐ richer in vitamins
- ☐ unable to grow

Tick every correct option.

9. Genetic modification raises ethical and environmental concerns as well as offering benefits.

☐ True ☐ False

10. Microbes can produce enzymes used in washing powders.

☐ True ☐ False

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1. **reproduce very fast and are easy to grow**

Fast reproduction and easy growth make microbes ideal.

2. **carbon dioxide**

CO₂ from yeast respiration makes dough rise.

3. **grow microbes in large amounts under controlled conditions**

Fermenters culture microbes to make products.

4. **enzymes**

Enzymes cut the gene from the DNA.

5. **inserting a gene from one organism into another**

GM transfers a gene between organisms.

6. **antibiotics; insulin; penicillin**

Antibiotics, penicillin and insulin are made using microbes.

7. **temperature; pH; oxygen supply**

Temperature, pH and oxygen matter; tank colour does not.

8. **pest-resistant; higher-yielding; richer in vitamins**

GM improves crops; it would not make them unable to grow.

9. **True**

Both benefits and concerns must be weighed.

10. **True**

These enzymes work at lower temperatures, saving energy.