Test: Genetic Engineering

Part I: True or False

Directions: Write T or F

____ 1. Genetic engineering involves changing an organism's DNA.

____ 2. DNA contains the instructions for an organism's traits.

____ 3. Scientists can use genetic engineering to produce medicines such as insulin.

____ 4. Genetic engineering and selective breeding are exactly the same process.

____ 5. A genetically modified organism (GMO) has had its DNA altered.

____ 6. Genetic engineering can only be used on plants.

____ 7. Genes are segments of DNA that contain instructions for specific traits.

____ 8. Genetic engineering can help make crops more resistant to pests.

____ 9. All scientists agree on every ethical issue related to genetic engineering.

____ 10. Biotechnology often uses genetic engineering techniques.

Part II: Multiple Choice

Directions: Circle the best answer.

1. What is the main goal of genetic engineering?
   - A. To study fossils
   - B. To change an organism's DNA
   - C. To measure population size
   - D. To classify organisms
2. What does GMO stand for?
   - A. Genetically Modified Organism
   - B. General Molecular Organism
   - C. Genetic Mutation Operation
   - D. Gene Mapping Objective
3. Which molecule is modified during genetic engineering?
   - A. Water
   - B. Protein
   - C. DNA
   - D. Oxygen

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4. Which of the following is an example of genetic engineering?
    A. Crossing two dogs through breeding
    B. Inserting a gene into a plant to resist insects
    C. Observing animals in the wild
    D. Recording weather patterns

5. Which product is commonly made using genetically engineered bacteria?
    A. Plastic
    B. Insulin
    C. Salt
    D. Sand

6. Which field involves using living organisms and biological processes to create products?
    A. Astronomy
    B. Geology
    C. Biotechnology
    D. Meteorology

7. Why might scientists genetically modify crops?
    A. To make them more resistant to pests
    B. To decrease growth
    C. To remove all nutrients
    D. To prevent reproduction

8. A gene is:
    A. A type of cell
    B. A segment of DNA that codes for a trait
    C. A type of protein
    D. A body organ

9. Which of the following is a possible benefit of genetic engineering?
    A. Improved crop production
    B. Increased disease treatment options
    C. Production of medicines
    D. All of the above

10. Genetic engineering raises questions about:
    A. Ethics
    B. Safety
    C. Environmental impact
    D. All of the above

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Part III: Fill-in-the-Blank

Directions: Use the words from the word bank to complete each sentence.

Word Bank

DNA gene biotechnology insulin GMO modified
genetic engineering traits crops bacteria

1. _____ is the process of altering an organism's DNA.
2. A _____ is a segment of DNA that contains instructions for a trait.
3. A genetically _____ organism has had its DNA changed.
4. A _____ is an organism whose genetic material has been altered.
5. Scientists often use genetically engineered _____ to produce medicines.
6. The molecule that carries genetic information is _____.
7. Genetic engineering can be used to improve agricultural _____.
8. Human _____ can be produced using genetically engineered bacteria.
9. The characteristics of an organism are called _____.
10. The use of living organisms to develop useful products is called _____.

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