

**Gene Technology Test
Biology Test: Study Guide**

Vocabulary Matching:

DNA Review

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|-------------------------|--|
| ___ proteins | a. chain together to make a protein |
| ___ nucleus | b. a change in a normal DNA sequence |
| ___ ribosomes | c. where the DNA is found in a plant or animal cell |
| ___ recombinant DNA | d. DNA of an organism that has DNA from another organism added |
| ___ genetic engineering | e. cell part where proteins are made |
| ___ amino acids | f. molecules that build, repair, and give us our traits |
| ___ mutation | g. the process of intentionally altering a DNA sequence |

Genetic Transformation

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|------------------------------------|---|
| ___ transgenic organism | a. gene that makes an organism glow in the dark using black light |
| ___ plasmid | b. (two terms) organisms that have been genetically altered |
| ___ Green Fluorescent Protein Gene | c. gene that makes a bacteria not be killed by antibiotics |
| ___ genetic transformation | d. sugar that turns on the GFP gene |
| ___ arabinose | e. circular DNA found in a bacteria; can be shared between bacteria |
| ___ Antibiotic Resistance Gene | f. the process of moving DNA from one organism to another |
| ___ genetically modified organism | |

Cloning

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|------------------------|--|
| ___ genomic imprinting | a. the genes of two clones will be _____. |
| ___ nuclear transfer | b. Dolly was this type of animal |
| ___ identical | c. cloned organisms are made by the process of somatic cell _____. |
| ___ development | d. when certain genes are turned on or off |
| ___ sheep | e. cloned organism have problems with this |

Number the images below #1-4 to identify the order in which Dolly was created.

- ___ embryo is placed in a surrogate mother sheep
- ___ electric shock fuses nucleus of donor cell with empty egg cell
- ___ donor cell is placed next to empty egg cell
- ___ nucleus of egg cell is removed

Stem Cells

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|-----------------------|---|
| ___ nuclear transfer | a. stem cells can be found in these |
| ___ embryos | b. where some stem cells are collected for research |
| ___ differentiate | c. stem cells that can give rise to any type of cell or tissue |
| ___ totipotent | d. stem cells do not yet have an identity and can _____ into any type of cell |
| ___ fertility clinics | e. one way a stem cell can be made is by somatic cell _____. |

Extended Response

You will choose one of the two questions below to answer. You may use graphic organizer to organize your thoughts before you start. Maybe you can consider both and choose the question you are most confident answering.

- The ethics of cloning an organism has become quite controversial. Explain each of the following topics on cloning:
 - a. Describe one example of when cloning technology can be ethical and beneficial.
 - b. Do you think human cloning should be done?
 - c. Why or why not?

- Most of the food supply in the United States has been genetically modified. Elaborate on the following issues:
 - a. Give two examples of foods that have been genetically modified.
 - b. Describe the traits that each food has been modified to express.
 - c. Describe one danger of genetically modifying food.

