Name _____ Date _____ Class _____

Study Guide

CHAPTER 13

Section 1: Applied Genetics

In your textbook, read about selective breeding.

Match the definition in Column A with the term in Column B.

	Column A	Column B
_____	**1.** the process in which two closely related organisms are bred to produce desired traits and eliminate undesired ones in future generations	**A.** test cross
_____	**2.** the process by which desired traits in an organism are selected and passed on to their future generations	**B.** selective breeding
_____	**3.** the method for determining the genotype of an organism	**C.** inbreeding

In your textbook, read about hybridization.

Complete the graphic organizer about hybridization.

Hybridization

4. Definition:

_____

_____

5. Used by:

_____

6. Advantages of Hybridization:

_____

_____

_____

7. Disadvantages of Hybridization:

_____

_____

_____

In your textbook, read about inbreeding.

Use each of the terms or phrases below only once to complete the passage.

Clydesdale **harmful recessive traits** **pure breeds** **recessive allele**

Inbreeding may be used to produce (**8**) _____ . The (**9**) _____ horse is a good example of inbreeding. One disadvantage of inbreeding is that it can lead to (**10**) _____ . Harmful traits can be passed on to future generations if both parents carry the (**11**) _____ .

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CHAPTER 13

Section 2: DNA Technology

In your textbook, read about DNA technology.

Complete the table by using each term in a sentence.

Vocabulary Term	Sentence
1. Genetic engineering	
2. Restriction enzymes	
3. Gel electrophoresis	
4. Recombinant DNA	
5. Plasmids	
6. DNA ligase	
7. Transformation	
8. Cloning	
9. Polymerase chain reaction	
10. Transgenic organisms	

In your textbook, read about genetic engineering.

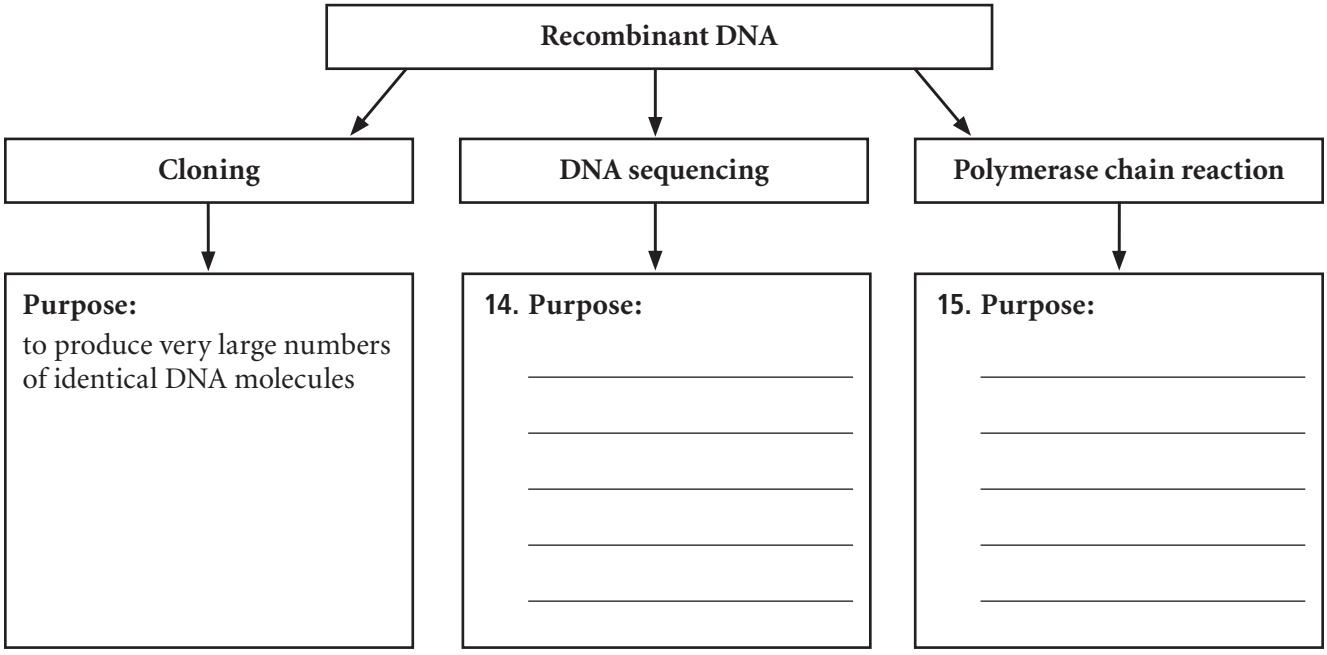
Use each of the terms or phrases below only once to complete the passage.

desired traits **expressed** **gene**

Selective breeding produces organisms with **(11)** _____ , while genetic engineering actually changes how a specific **(12)** _____ is **(13)** _____ in an organism's offspring.

In your textbook, read about DNA tools and recombinant DNA.

Complete the graphic organizer about recombinant DNA.



Write the term or phrase that best completes each statement. Use these choices:

gel electrophoresis **PCR** **recombinant DNA technology** **restriction enzymes**

16. Scientists use _____ to cut DNA into smaller fragments.

17. A process called _____ separates DNA fragments by size.

18. During _____ , DNA fragments move to the positive end.

19. _____ starts with a primer.

20. _____ are bacterial proteins.

21. _____ combines DNA fragments from different sources.

22. A technique called _____ copies a specific region of DNA.

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CHAPTER 13

Section 3: The Human Genome

In your textbook, read about the Human Genome Project.

Use each of the terms or phrases below only once to complete the passage.

cleaved	**DNA fingerprinting**	***Escherichia coli***
Human Genome Project	**noncoding sequences**	**nucleotides**
protein-coding sequences		

The (**1**) _____ was completed in 2003. Its goal was to determine the sequence of all the (**2**) _____ of human DNA. Scientists prepared for the HGP by starting small, using (**3**) _____ . To determine one continuous human genome sequence, each of the 46 human chromosomes was (**4**) _____ . Most of the sequences have no direct function and are called (**5**) _____ , while less than 2 percent of the sequences are (**6**) _____ . The DNA sequences unique to each individual were determined through (**7**) _____ .

In your textbook, read about DNA fingerprinting.

Imagine that you are a detective trying to solve a crime that occurred ten years ago. You have DNA from the crime scene. Write a summary of how you might use DNA fingerprinting to solve your mystery.

8. _____

_____

_____

_____

In your textbook, read about the genome and genetic disorders.

Complete the graphic organizer about SNP.