Name _____ Date _____ Class _____

Study Guide

CHAPTER 11
Section 1: Basic Patterns of Human Inheritance

In your textbook, read about basic patterns of human inheritance.

Use the terms below to complete the passage. These terms may be used more than once.

albinism	**alleles**	**cystic fibrosis**	**dominant**
heterozygous	**homozygous**	**pedigree**	**recessive**

A (**1**) _____ shows the inheritance of a particular trait over several generations. An organism with two of the same (**2**) _____ for a particular trait is said to be (**3**) _____ for that trait. An organism with two different (**4**) _____ for a particular trait is heterozygous for that trait. When alleles are present in the (**5**) _____ state, the (**6**) _____ trait will be observable. An individual who is heterozygous for a (**7**) _____ disorder is called a carrier. Examples of recessive genetic disorders in humans are (**8**) _____ and (**9**) _____ .

In your textbook, read about recessive and dominant genetic disorders.

Complete the table by writing the disease name for each description.

albinism	**achondroplasia**	**cystic fibrosis**
galactosemia	**Huntington's disease**	**Tay-Sachs disease**

Disease	Description
10.	caused by altered genes; results in lack of skin pigment
11.	recessive genetic disorder; characterized by body's inability to tolerate galactose
12.	recessive genetic disorder; gene found on chromosome 15; characterized by lack of enzyme that breaks down fatty acids
13.	recessive genetic disorder; affects mucus-producing glands, digestive enzymes, sweat glands
14.	dominant genetic disorder; affects the nervous system
15.	autosomal dominant genetic condition; affects height and body size

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In your textbook, read about patterns of inheritance.

For each statement below, write true *or* false.

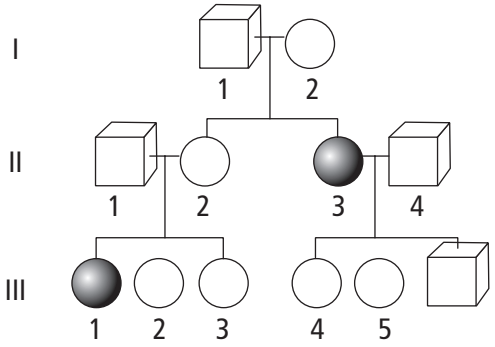
_____ **16.** A scientist uses a pedigree to study family history.

_____ **17.** A pedigree traces the inheritance of a particular trait through only two generations.

_____ **18.** In a pedigree, one who does not express the trait is represented by a darkened square or circle.

_____ **19.** In a pedigree, a horizontal line between two symbols shows that these individuals are the parents of the offspring.

_____ **20.** Individual II1, as shown below, is in generation II.



Refer to the pedigree above. Respond to each statement.

21. Recall if the trait is recessive or dominant based on the following information: In the pedigree, individuals I1 and I2 are unaffected but have an affected child.

_____

22. Specify if parents II1 and II2, who have an affected child, are carriers of the trait.

_____

23. Tell whether there is a dominant gene in the genotype of II4.

_____

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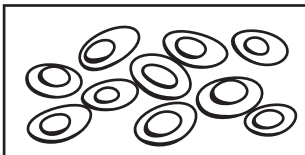
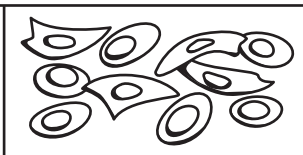
CHAPTER 11

Section 2: Complex Patterns of Inheritance

In your textbook, read about incomplete dominance.

Complete the table by checking the correct column(s) for each description.

Reminder: *R* is dominant (normal red blood cells).
R′ is recessive (sickle-shaped red blood cells).

			
1. ***R′R′***			
2. ***RR′***			
3. ***RR***			

In your textbook, read about sex-linked traits.

Refer to the Punnett square. Respond to each statement.

	X^B	Y
X^B	X^BX^B	X^BY
X^b	X^BX^b	X^bY

Reminder: A female has 2 X chromosomes.
A male has an X and a Y chromosome.
B is dominant (normal color vision).
b is recessive (color blindness).

4. Tell if the father has color blindness.

_____

5. Specify if the father has a recessive allele.

_____

6. State whether the only child that could have color blindness is male or female.

_____

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CHAPTER 11

Section 3: Chromosomes and Human Heredity

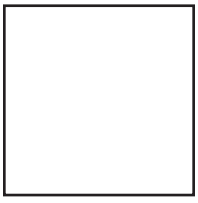
In your textbook, read about chromosomes and human heredity.

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

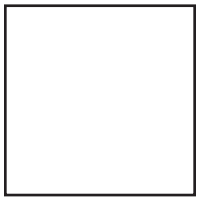
	Column A	Column B
_____	**1.** micrograph of chromosomes	**A.** karyotype
_____	**2.** abnormal number of chromosomes	**B.** Down syndrome
_____	**3.** withdrawal of tissue from the placenta	**C.** telomere
_____	**4.** extra chromosome 21	**D.** nondisjunction
_____	**5.** protective cap at the end of a chromosome	**E.** chorionic villus sampling

In your textbook, read about Down syndrome.

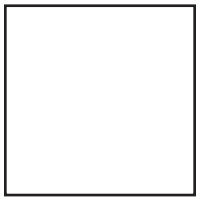
Draw the indicated parts of a karyotype of a child born with Down syndrome and respond to each statement.



6. Chromosome 20



7. Chromosome 21



8. Chromosome 22

9. Tell why this karyotype is called "trisomy."

_____

10. Recall the term for the sister chromosomes failing to separate during cell division.

_____

11. State whether the risk of having a child with Down syndrome is higher in mothers who are younger or older.

_____

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