Name _____ Date _____ Class _____

Key Concept Builder

LESSON 2

Understanding Inheritance

Key Concept What determines the expression of traits?

Directions: *On each line, write the term from the word bank that correctly completes each sentence. Some terms may be used more than once.*

alleles	**chromosomes**	**dominant**	**genes**	**genotype**
heterozygous	**homozygous**	**phenotype**	**recessive**	

1. An organism's _____ are located on threadlike structures called _____.

2. The different forms of _____ are called _____.

3. A trait's _____ is its observable expression in the organism.

4. The observable expression of a trait is determined by its _____.

5. When an organism has two _____ for a certain trait that are the same, the _____ of that trait is said to be _____.

6. When the two _____ are different, the _____ is said to be _____.

7. The _____ genotype *Rr* results in a round pea, because the round pea allele is _____ to the wrinkled pea allele.

8. The wrinkled pea phenotype is _____ and has the _____ genotype *rr*.

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Key Concept Builder

LESSON 2

Understanding Inheritance

Key Concept What determines the expression of traits?

Directions: *The ozmox is a fictional creature with a variety of traits. Study the list of ozmox alleles for the seven traits below. Then look at the genotypes of a particular ozmox named Glork. Using that information, write Glork's phenotype for each trait on the lines provided.*

Ozmox alleles:

Hair—shaggy *(S)*; short-haired *(s)*
Nose—orange *(O)*; green *(o)*
Tail—long *(L)*; stubby *(l)*
Teeth—pointed *(P)*; rounded *(p)*
Claws—curved *(C)*; straight *(c)*
Eyes—red *(R)*; blue *(r)*
Ears—big *(B)*; small *(b)*

Glork's genotypes: *Ss, oo, LL, Pp, cc, rr, BB*

1. Hair: _____

2. Nose: _____

3. Tail: _____

4. Teeth: _____

5. Claws: _____

6. Eyes: _____

7. Ears: _____

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Key Concept Builder

LESSON 2

Understanding Inheritance

Key Concept How can inheritance be modeled?

A Punnett square is a model used to predict the possible outcomes of genetic crosses between organisms when their genotypes are known.

Directions: *Complete the Punnett squares below.*

1. Show a first-generation cross between two true-breeding pea plants—one with purple flowers (genotype *PP*) and one with white flowers (genotype *pp*).

	P	*P*
p		
p		

2. Show a second-generation (hybrid) cross between two of the plants from the first-generation cross.

	P	*p*
p		
p		

Directions: *Answer each question on the lines provided.*

3. What percentage of the offspring from the first-generation cross is likely to have purple flowers? White flowers? _____

4. What percentage of the offspring from the second-generation cross is likely to have purple flowers? White flowers? _____

5. What is the chance, in the form of a ratio, that the offspring from the second-generation cross have purple flowers? _____

6. What is a pedigree? _____

_____

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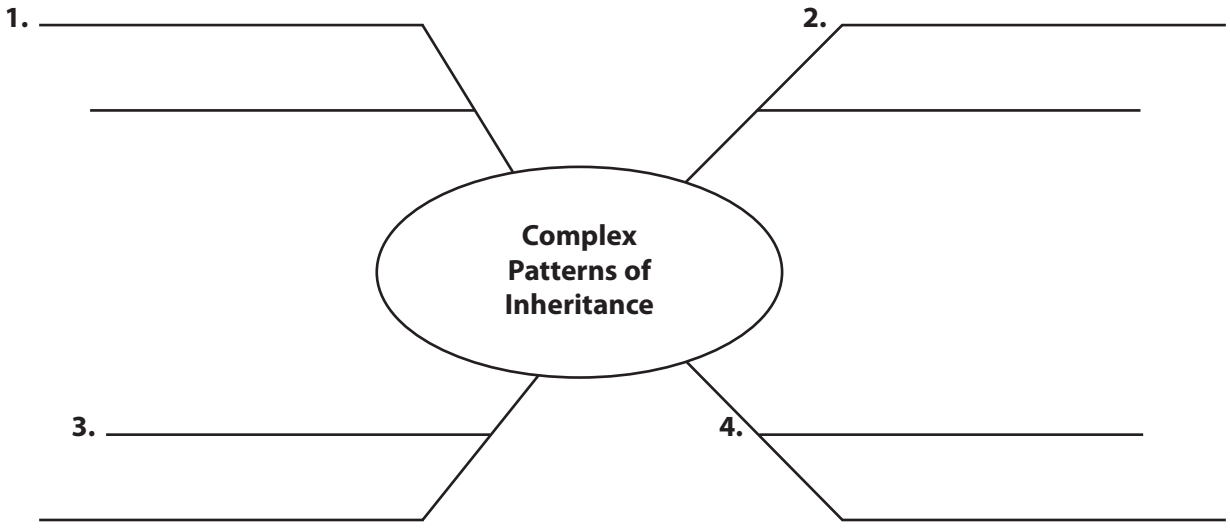
Key Concept Builder **LESSON 2**

Understanding Inheritance

Key Concept How do some patterns of inheritance differ from Mendel's model?

Directions: *Complete this spider map with information about the four kinds of complex patterns of inheritance discussed in the lesson. On each top line, list one of the patterns. On each bottom line, give an example of a trait produced by that type of inheritance.*



Directions: *Answer each question on the lines provided.*

5. What are three environmental factors that can influence plant phenotypes?

6. What causes a Siamese cat to have dark fur on some parts of its body?

7. Which factor determines the wing pattern and coloration of the map butterfly?

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