Name _____ Date _____ Class _____

Study Guide

CHAPTER 10
Section 2: Mendelian Genetics

In your textbook, read about how genetics began and the inheritance of traits.

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

cross-pollination	**dominant**	**gametes**	**inherited**
recessive	**self-fertilization**	**trait**	

1. Mendel was the first person to succeed in predicting how traits are _____ from generation to generation.
2. In peas, both male and female sex cells, which are called _____, are in the same flower.
3. _____ occurs when a male gamete fuses with a female gamete in the same flower.
4. Mendel used the technique called _____ to breed one plant with another.
5. Mendel studied only one _____ at a time and analyzed his data mathematically.
6. In individuals with a heterozygous genotype, the _____ allele of a trait is hidden by the expression of the other phenotype.
7. In individuals with a heterozygous genotype, the _____ allele of a trait is visible in the phenotype.

In your textbook, read about Punnett squares.

Complete the Punnett square by filling in the missing information.

A student crossed true-breeding pea plants that had purple flowers (*P*) with true-breeding pea plants that had white flowers (*p*). All of the offspring had purple flowers. Then the student crossed two plants from the F_1 generation. The student's Punnett square is shown at right. What information should the student put in each blank? Remember, the dominant allele is always written first.

Possible gametes	**8.** _____	*p*
9. _____	**10.**	**11.**
p	*Pp*	**12.**

In your textbook, read about the inheritance of traits and Punnett squares.

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

dihybrid **gene** **genotypes** **monohybrid** **phenotypic ratio**

A cross between plants that involves one characteristic is called a **(13)** _____ cross. Mendel also performed **(14)** _____ crosses, which involve two **(15)** _____ pairs, with pea plants. When he crossed two pea plants that were heterozygous for both seed shape (*Rr*) and for seed color (*Yy*), he observed a 9:3:3:1 **(16)** _____ among the seeds of the offspring. A Punnett square shows the possible phenotypes and **(17)** _____ of the offspring.

Complete the Punnett square by filling in the missing information.

Possible gametes	***RY***	***Ry***	***rY***	***ry***
RY	*RRYY* round, yellow	**18.**	**19.**	*RrYy* round, yellow
Ry	**20.**	**21.**	**22.**	**23.**
rY	**24.**	*RrYy* round, yellow	**25.**	**26.**
ry	**27.**	**28.**	**29.**	**30.**

In your textbook, read about probability.

Refer to the Punnett square above. Respond to the following statement.

31. Find the probability that a wrinkled, green seed will result. _____