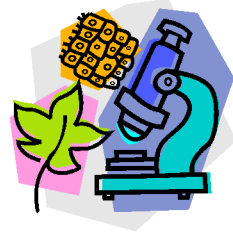


Roland-Story Biology Class

Chapter 8 Study Guide

Mendel and Heredity



Name _____

1. What did T. A. Knight discover?

2. How did Mendel's scientific work differ from the work of T. A. Knight?

3. What are three reasons the garden pea is a good subject for studying heredity?

Complete each statement by writing the correct term or phrase in the space provided.

4. A mating that considers one pair of contrasting traits is called a(n) _____ cross.
5. The first two individuals that are crossed in a breeding experiment are called the _____ generation.
6. In Mendel's experiment, the _____ generation was obtained by cross-pollinating the P₁ generation.
7. The _____ generation in Mendel's experiment showed both forms of the trait in a ratio of 3:1.

8. If the allele for yellow peas is Y , the allele for the contrasting trait, green peas, is _____.
9. If Tt is the genotype of a plant, where T stands for tall and the stands for short, its phenotype is _____.
10. If tt is the genotype of a plant, where T stands for tall and the recessive allele stands for short, its phenotype is _____.
11. In a test cross to determine if an individual with a dominant phenotype is heterozygous or homozygous for the trait, you always cross the individual with a homozygous _____ individual.
12. If the offspring of a test cross all have the dominant trait, then the genotype of the individual being tested is _____.
13. If some of the offspring of a test cross have the recessive trait, then the genotype of the individual being tested is _____.
14. The probability that a gamete from a plant with a Tt genotype will carry a t allele is _____.
15. The probability of homozygous recessive offspring resulting from a cross between two homozygous dominant individuals is _____.
16. The probability of heterozygous offspring resulting from a cross between two heterozygous individuals is _____.
17. Sometimes genes are damaged or are copied incorrectly, resulting in faulty _____.
18. _____ is a genetic disorder caused by a defective gene that makes a protein necessary to pump chloride in and out of cells.

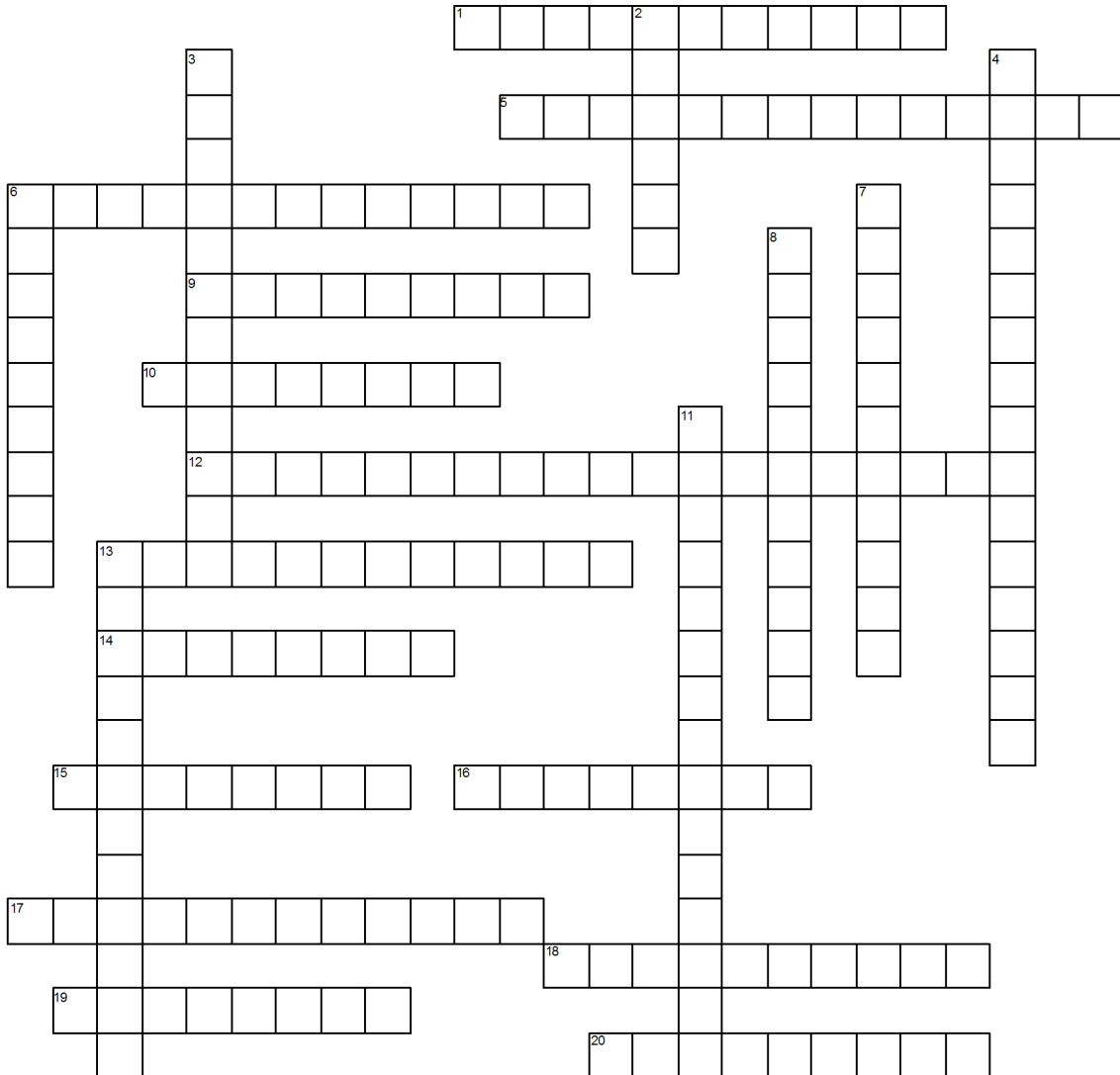
19. What is the law of segregation?
20. What is the law of independent assortment?
21. When studying a pedigree, how do scientists determine if a trait is sex-linked or autosomal?
22. When studying a pedigree, how do scientists determine if a trait is dominant or recessive?
23. Who should go for genetic counseling prior to having children?
24. What is gene therapy?

In the space provided, explain how the terms in each pair differ in meaning

25. polygenic trait, multiple alleles.

26. incomplete dominance, codominance

Crossword puzzle of vocabulary words.



www.CrosswordWeaver.com

Clues are on next page

ACROSS

- 1 the likelihood that a possible future event will occur in any
- 5 a trait that is determined by a gene found on one of the sex chromosomes, such as the X chromosome or the Y chromosome in humans
- 6 a graphic used to predict the chances that offspring will inherit an allele for a trait
- 9 describes a trait or an allele that is expressed in the phenotype of the living thing only when two recessive alleles for the same characteristic are inherited
- 10 the passing of genetic traits from parent to offspring
- 12 a condition in which a trait in an individual is intermediate between the phenotype of the individual's two parents because the dominant allele is unable to express itself fully
- 13 the second generation of offspring obtained from an experimental cross of two organisms; the offspring of the F1 generation
- 14 the entire genetic makeup of an organism; also the combination of genes for one or more specific traits
- 15 a diagram that shows the occurrence of a genetic trait in several generations of a family
- 16 the science of heredity and of the ways in which traits are passed from parents to offspring
- 17 describes an individual that has two different alleles for a trait
- 18 describes an individual that has identical alleles for a trait on both homologous chromosomes
- 19 describes a trait or an allele that is fully expressed in the phenotype of the living thing when the trait or allele is carried by only one of a pair of homologous chromosomes
- 20 the crossing of an individual of unknown genotype with a

DOWN

- 2 one of the alternative forms of a gene that determines a characteristic, such as hair color
- 3 describes living things or genotypes that are homozygous for a specific trait and thus always make offspring that have the same phenotype for that trait
- 4 Mendel's law that states that the pairs of homologous chromosomes separate in meiosis so that only one chromosome from each pair is present in each gamete
- 6 a living thing's appearance or other detectable characteristic that results from the living thing's genotype and the environment
- 7 parental generation, the first two individuals that mate in a genetic cross
- 8 a condition in which both alleles for a gene are fully expressed
- 11 a mating in which the parents each display a different form of one character, such as flower color
- 13 the first generation of offspring obtained from an experimental cross of two organisms