

Study Guide 6.4: Traits, Genes and Alleles

KEY CONCEPT: GENES ENCODE PROTEINS THAT PRODUCE A DIVERSE RANGE OF TRAITS.

VOCABULARY

gene	heterozygous	phenotype
allele	genome	dominant
homozygous	genotype	recessive

MAIN IDEA: The same gene can have many versions.

1. What is the relationship between a gene and a protein?

2. What is an allele?

3. What term describes a pair of alleles that are the same? that are different?

4. Write a definition of homologous chromosomes using the terms “gene” and “allele.”

In the space below, draw a pair of homologous chromosomes. Label the chromosomes with two sets of genes, one with homozygous alleles (Gene A, Gene A) and one with heterozygous alleles (Gene B, Gene b).



MAIN IDEA: Genes influence the development of traits.

5. Write an analogy to show the difference between genotype and phenotype.

6. How are alleles represented on paper?

7. Fill in the table below with the missing genotype, phenotype (dominant or recessive), or alleles (TT, Tt, tt).

Genotype	Phenotype	Alleles
homozygous dominant		
	recessive	
		Tt

8. If an organism has a recessive trait, can you determine its genotype for that trait?

9. What factors besides alleles affect phenotype?

Vocabulary Check

10. What type of alleles are present in an organism with a QQ genotype?

11. What is an alternative form of a gene?

12. What is the opposite of homozygous? of dominant?
