

Answer Key

Chapter 6 Test Study Guide

Lesson 6.1: What is Heredity? (pages 190-195)

- Which European priest is known for his work in the study of heredity and genetics? Gregor Mendel
- What plant did he work with when he did his experiments? peas
- What is the passing of physical characteristics from parents to offspring called? heredity
- Physical characteristics (such as stem height, seed color, eye color, etc.) are called traits.
- The scientific study of heredity is called genetics.
- Mendel called an organism a purebred if it only had one form of a trait.
- Mendel discovered that when he crossed purebred tall plants with purebred short plants, all of the first generation were tall.
- Genes are the factors that control your traits.
- You inherit your genes from your parents.
- All of the different forms of a gene are called the alleles.
- Every organism inherits 2 alleles. One from mother and one from father.
- A Dominant allele is one whose trait always shows up if it is present. We represent them with a capital letter.
- A Recessive allele is hidden in the presence of a dominant allele. We represent them with a lowercase letter.
- If a (*T*) represents a tall allele and (*t*) represents a short allele: (*TT*) tall (*Tt*) tall (*tt*) short
- The only way you express a recessive trait is if you receive both recessive alleles.

Lesson 6.2: Probability and Heredity (pages 196-201)

- A Punnett square shows all of the possible outcomes of a genetic cross.
- The parent alleles go where on a Punnett square? outside
The offspring alleles go where on a Punnett Square? inside
- An organism's genotype is its genetic makeup or alleles.
- An organism's phenotype is its physical appearance or traits.

- An organism that has identical alleles is (homozygous) heterozygous)
An organism that has two different alleles is (homozygous / heterozygous)
- Complete each Punnett Square and answer the Probability questions:
Assume that (*B*) represents black fur and (*b*) represents white fur alleles.

	<i>B</i>	<i>B</i>
<i>b</i>	<i>Bb</i>	<i>Bb</i>
<i>b</i>	<i>Bb</i>	<i>Bb</i>

<u>0</u> % <i>BB</i>	<u>100</u> % black
<u>100</u> % <i>Bb</i>	<u>0</u> % white
<u>0</u> % <i>bb</i>	

	<i>B</i>	<i>b</i>
<i>B</i>	<i>BB</i>	<i>Bb</i>
<i>b</i>	<i>Bb</i>	<i>bb</i>

<u>25</u> % <i>BB</i>	<u>75</u> % black
<u>50</u> % <i>Bb</i>	<u>25</u> % white
<u>25</u> % <i>bb</i>	

- Circle all of the heterozygous genotypes:
BB *Cc* *tt* *Rr* *Dd* *aa* *AA* *Tt*
- Circle all of the homozygous genotypes:
BB *RR* *Rr* *tt* *Dd* *aa* *AA* *Cc*

Lesson 6.3: Patterns of Inheritance (pages 205-207)

- For each trait, identify **Inherited or Acquired**:
acquired Speaking English inherited Eye color
acquired Playing a sport inherited Having dimples
inherited Height acquired Riding a bike
- Environmental factors can influence how your genes are expressed.
- Only changes in sex cells can be passed on to offspring.

Lesson 6.4: Chromosomes and Inheritance (pages 208-211)

- According to the chromosome theory of inheritance, genes are carried from parents to their offspring on chromosomes.
- Human body cells have 46 chromosomes. Human sex cells have 23 chromosomes.
- Meiosis creates sex cells that have half the number of chromosomes as body cells.
- If a skunk has 50 chromosomes in one body cell, how many chromosomes in one sex cell? 25