- x. The allele that exerts a controlling influence on the phenotype in a heterozygote is said to be **dominant**.
- xi. An allele that has no effect on the phenotype when paired with a dominant allele in a heterozygote is said to be **recessive**.
- xii. A **genetic cross** is a controlled mating experiment performed to examine how a trait is inherited.
- xiii. The parents, or **P generation**, are crossed to produce offspring, called the **F**₁ generation.
- xiv. Two individuals from the F_1 generation are then crossed to produce the F_2 generation.
- xv. **True-breeding**, or purebred, individuals have a homogenous genotype.
- xvi. In a **single-trait cross**, the experimenter tracks the inheritance of the two alleles of a *single gene*.
- xvii. If all F₂ offspring are hybrids for that one trait, as they were in all of Mendel's experiments, this type of cross is a **monohybrid cross**.
- xviii. Thus, per Mendel's **law of segregation**, the two copies of a gene are separated during meiosis and end up in different gametes.
- xix. Mendel crossed **dihybrids**, individuals that are heterozygous for two traits.
- xx. He observed two nonparental combinations of phenotypes recombinant
 phenotypes) in the F₂: Round shape; green color (*RRyy* and *Rryy*)
 green color (*RRyy* and *Rryy*)
- xxi. The **law of independent user to ent** states that when gametes form, the two copies of any men likele are sorted integral dently of any two alleles of other general



heterozygot.

- xxiii. **Codominance** occurs when the effect of both alleles is equally visible in the phenotype of the heterozygote.
- xxiv. The situation in which a *single gene* influences two or more distinctly different traits is called **pleiotropy**.
- xxv. The term **epistasis** applies when the phenotypic effect of the alleles of one gene depends on the presence of certain alleles for another, independently inherited gene.
- xxvi. Traits governed by the action of more than one gene are **polygenic traits**.
- xxvii. Geneticists estimate there are more than a dozen genes that control melanin production in our skin, which, when coupled with environmental influences, results in **continuous variation** in the trait.
- xxviii. **Complex traits** are those that cannot be predicted using Mendel's laws of inheritance; complex traits display often display continuous variation in a population.
- c. Chapter Nine Patterns of Inheritance Summary
 - i. 9.1 principles of genetics: an overview
 - 1. Genes- the basic units of inheritance are segments of DNA that help determine an organism inherited characteristics or genetic traits