1. Formative Assessment

Let students answer the following multiple choice test questions:

1. In a monohybrid cross between two heterozygous individuals (Rr x Rr), what is the expected genotypic ratio of the offspring?
   A) 1:1
   B) 1:2:1
   C) 3:1
   D) 9:3:3:1

2. What is the phenotype of an organism with the genotype AaBb?
   A) Homozygous dominant
   B) Homozygous recessive
   C) Heterozygous
   D) None of the above

3. In a dihybrid cross between two individuals heterozygous for both traits (RrYy x RrYy), what is the expected phenotypic ratio of the offspring?
   A) 9:3:3:1
   B) 3:1
   C) 1:2:1
   D) 1:1

4. If a trait is controlled by a single gene with two alleles, and one allele is completely dominant over the other, what will be the phenotype of a heterozygous individual?
   A) Same as the homozygous dominant individual
   B) Same as the homozygous recessive individual
   C) A blend of both dominant and recessive traits
   D) None of the above

5. What is the genotype of an individual with the phenotype of a recessive trait?
   A) Homozygous dominant
   B) Homozygous recessive
   C) Heterozygous
   D) Cannot be determined

6. If a pea plant with yellow seeds (YY) is crossed with a pea plant with green seeds (yy), what will be the genotype of the F1 generation?
   A) YY
   B) Yy
   C) yy
   D) Both YY and Yy

7. In a monohybrid cross between two heterozygous individuals (Ss x Ss), what is the probability of producing a homozygous recessive offspring?
   A) 1/4
   B) 1/2
   C) 1/3
   D) 1/8

8. In a dihybrid cross between two individuals heterozygous for both traits (RrYy x RrYy), what is the probability of producing an offspring with the genotype rrYY?
   A) 1/16
   B) 1/8
   C) 1/4
   D) 1/2

9. If a trait is controlled by a single gene with two alleles, and both alleles are expressed equally in the heterozygous condition, what kind of inheritance pattern does it exhibit?
   A) Incomplete dominance
   B) Codominance
   C) Multiple alleles
   D) Polygenic inheritance

10. What is the expected genotypic ratio of the offspring in a dihybrid cross between two individuals heterozygous for both traits (RrYy x RrYy)?
   A) 1:2:1
   B) 1:1:1:1
   C) 9:3:3:1
   D) 3:1

LIVEWORKSHEETS