

How Are Genes Inherited?

1. Explain why Gregor Mendel is called the "father of genetics".

2. Distinguish between the following pairs of terms:

gene vs. allele

dominant allele vs. recessive allele

genotype vs. phenotype

homozygous vs. heterozygous

3. Make a diagram that shows a monohybrid cross between two pea plants and do the following:

Indicate which gene is dominant and which is recessive (you pick the trait to study).

Explain how the hybrid parents were produced.

Indicate the genotype(s) that are present in the F₂ generation.

Indicate the ratio of phenotypes in the F₂ generation.

Draw a Punnett square that illustrates this cross.

4. You have a pea plant that produces yellow seeds. Explain how you would use a test cross to determine its genotype.

5. Make a diagram (or Punnett square) that shows a dihybrid cross between two pea plants and explain how the cross demonstrates Mendel's law of independent assortment.

6. Be able to recognize the general features (and symbols) of a human pedigree.