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**Mendel’s Experiments:**

Gregor Mendel was an Austrian monk who, in the mid-19th century, performed a set of groundbreaking and meticulous experiments on heredity in pea plants. His work is the foundation of modern genetics. Although scientists have recently realized that Mendelian principles of genetics are not universally applicable, Mendel’s ideas are still a powerful framework for understanding heredity and basic patterns of inheritance.

**Seed Shape—Round and Wrinkled**

P generation: purebred round-seed individual is crossed with a purebred wrinkled-seed individual

F1 generation: all seeds are round

1. Which trait do you think is dominant—round or wrinkled?
2. What are the genotypes of the two parental plants?
3. What is the genotype of the F1 generation?
4. If the F1 generation self-fertilizes, what would the Blending Hypothesis predict for the F2 generation?
5. If the F1 generation self-fertilizes, what do you predict the F2 generation will look like?

After self-fertilizing the F1 generation to produce the F2 generation, Mendel found that 5474 seeds were round and 1850 seeds were wrinkled.

1. Was your prediction correct?
2. Do the data from this cross support the Blending Hypothesis? Why or why not?

**Seed Color—Yellow and Green**

P generation: purebred yellow-seed plant is crossed with a purebred green-seed plant

F1 generation: all yellow seeds

1. What trait do you think is dominant—yellow or green seeds?
2. What are the genotypes of the two parent plants?
3. What is the genotype of the F1 generation?
4. If the F1 generation self-fertilizes, what does the Blending Hypothesis predict that the offspring will look like?
5. The F1 generation will self-fertilize to produce the F2 generation. What do you predict the F2 generation will look like?

After self-fertilizing the F1 generation to produce the F2 generation, Mendel found that 6022 seeds were yellow and 2001 seeds were green.

1. Was your prediction correct?
2. What genotypes are present in the F2 generation?
3. Do Mendel’s results support or disprove the Blending Hypothesis? Explain your answer using a specific example from Mendel’s work.