Lesson 6.1 Mendel's Experiments

Name

Date

Period

Key Terms		
allele	phenotype	homozygous
genotype	heterozygous	

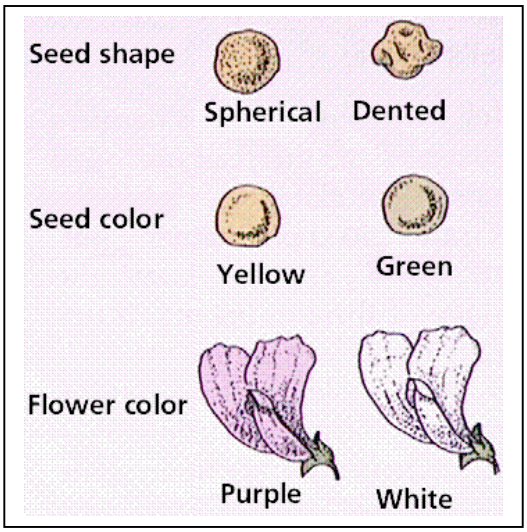
Engage I: Your instructor will show you video to preview the work of Gregor Mendel. As you watch the video (United Streaming 3:43), answer the questions below.

1. What is the great discovery this video is about?

2. Where did Gregor Mendel work?

3. Mendel made the first great discovery in genetics as he found that each inherited characteristic must be decided by a pair of _____ that are contributed by each parent.

4. List two "Mendelian" traits.



Explore I: The picture to the left shows different traits for pea plants.

5. Why do you think some pea plants have yellow seeds whereas other pea plants have green seeds?

6. It was observed that many more pea plants produce purple pea flowers than white pea flowers. What possible explanation can you give for this observation?

7. Some important studies in genetics have been conducted using pea plants and fruit flies. What are some advantages in studying genetics with these organisms versus other organisms such as humans?

Explore II: Your instructor will now present a power point presentation about Gregor Mendel and his experiments. Pay close attention and then answer the questions below.

8. Mendel carefully studied many plants before choosing garden pea plants for his studies. List 4 features of the pea plants which made them suitable for Mendel's genetic studies.

9. Explain the process of cross-pollination (also called *cross-fertlization*).

10. What pea plant trait did Mendel choose to study in his first monohybrid cross experiment? What were the results of this experiment?

11. Give two examples of traits in pea plants that Mendel observed these patterns in.

12. What was Mendel's rule of unit factors? What do we call those factors?

13. What is an allele?

14. In your own words, explain the rule of dominance.

15. Describe Mendel's law of segregation.

16. Where do an organism's two alleles come from?

17. Explain the difference between the terms phenotype and genotype.

18. In Mendel's experiment with pea plants he determined that two of the offspring produced in the second generation were heterozygous and two were homozygous. What do the terms heterozygous and homozygous refer to?

19. After Mendel performed his monohybrid crosses, he performed another set of crosses called a dihybrid cross. What is a dihybrid cross?

20. What is Mendel's second law and what does this law state?

21. In your own words, describe who Gregor Mendel is. Why were his studies important?