Biology Chapter 8: Mendel and Hereditary

Objectives:

The Origins of Genetics

- Mendel's Studies of Characters
- Characters Expressed as Simple Ratios

Mendel's Theory

- The Theory of Heredity
- The Laws of Heredity

Studying Hereditary

- Punnett Squares
- Outcomes of Crosses
- Inheritance of Characters

Complex Patterns of Hereditary

- Complex Control of Characters
- Genetic Disorders
- Treating Genetic Disorders

Vocabulary	***At the end of this unit, you should be able to:***
1. Heredity 2. Genetics 3. Monohybrid Cross 4. True-Breeding 5. P generation 6. F_1 generation 7. F_2 generation 8. Allele 9. Dominant 10. Recessive 11. Homozygous 12. Heterozygous 13. Genotype 14. Phenotype 15. Law of Segregation 16. Law of Independent assortment 17. Punnett Square 18. Test Cross 19. Probability 20. Pedigree 21. Sex-linked Gene 22. Polygenic inheritance 23. Incomplete Dominance 24. Multiple Alleles 25. Codominance	• Identify the investigator whose studies formed the basis of modern genetics. • List characteristics that make the garden pea a good subject for genetic study. • Summarize the three major steps of Gregor Mendel's garden pea experiments. • Relate the ratios that Mendel observed in his crosses to his data. • Describe the four major hypotheses Mendel developed. • Define the terms of *homozygous, heterozygous, genotype, and phenotype.* • Compare Mendel's two laws of hereditary. • Predict the results of monohybrid genetic crosses by using Punnett Squares. • Apply a test cross to determine the genotype of an organism with a dominant phenotype. • Analyze a simple pedigree. • Identify five factors that influence patterns of heredity. • Describe how mutations can cause genetic disorders. • List two genetic disorders, and describe their causes and symptoms. • Evaluate the benefits of genetic counseling.