

Unit 4: Genetics

Suggested Pacing: 9–10 weeks

Unit Overview

Similar to the study of cellular systems, many key concepts in genetics can be somewhat abstract for students because they are on a scale that cannot be seen with the eye. Therefore, in order to better visualize genetic processes, such as DNA and protein synthesis, students will engage with models, diagrams, and computer simulations. Students will build on a basic understanding of the passing of traits, from middle school life science, by developing a strong foundational understanding of the molecular processes responsible for the passing of traits. They will also use mathematics and pedigree models to analyze and predict inheritance patterns. Students will also explore current biotechnology associated with the study and manipulation of genes.

Unit 4 Enduring Understandings

Students will understand that ...

- The molecular structure of DNA enables its function of storing life's genetic information. **(GEN-A)**
- Encoded in DNA is the heritable information responsible for synthesis of RNA, which makes gene expression possible. **(GEN-B)**
- Organisms have diverse strategies for passing their genetic material on to the next generation. **(GEN-C)**
- Models can be used to illustrate and predict the inheritance of traits. **(GEN-D)**

Unit 4 Key Concepts

- Structure of DNA
- DNA Synthesis
- Protein Synthesis
- Asexual and Sexual Passing of Genes
- Inheritance Patterns
- Biotechnology