

# Understanding Cells and DNA

## Introduction:

- Understanding Cells and DNA guides girls to a basic understanding of the structure and function of cells and reinforces the fact that organisms pass inherited traits from one generation to the next through DNA, which is contained within cells. Girls begin this unit by exploring the levels of organization in the human body and coming to an understanding that cells are the basic unit of life. They also learn about the scientists whose contributions led to the discovery of cells and the cell theory. Girls use hand lenses to observe the structure and characteristics of a variety of organisms. They develop their knowledge of the structure and functions of animal cell and plant cells through a reading se and by creating two- and three- dimensional cell models. Girls focus on cell structure, DNA, and heredity during a DNA extraction using strawberries. They conclude the unit by making observations of many of their own inherited characteristics and discussing the differences between inherited and acquired traits. Through history, modeling, experimentation, and first-hand observation, these diverse, complementary activities help girls discover the nature, relationship, and importance of Understanding Cells and DNA.
  
- Age Level
  - Brownies and Juniors
- Activities:
  - Parts That Make Up Parts
    - Discuss structure and function of objects
    - Discuss the levels of organization in the human body
    - Understand the concepts of multi-cellular and unicellular organisms
  - It's a Small World
    - Learn about the history of the discovery of cells and the cell theory
    - Explore magnification of plant and animal organism using a hand lens
    - Observe microscope images of cells and small organisms
  - How is a Cell Like School?
    - Identify the difference between plant and animal cells
    - Identify the organelles of plant and animal cells
    - Communicate the different functions of cell organelles
  - Build a Cell
    - Reinforce the understand of cell organelles and their function
    - Investigate the structure of plant and animal cells through model building
    - Identify and distinguish the organelles of plant and animal cells
    - Compare and contrast the structure and function of plant and animal cells

- Explore the Code of Life
  - Reinforce the understanding that DNA is present in the nucleus of plant and animal cells
  - Learn that DNA carries hereditary information that determines traits
  - Explore DNA by extracting it from strawberries
- The Family Connection
  - Identify heritable characteristics and acquired characteristics
  - Understand that heritable characteristics are passed from one generation to the next
  - Make observations of some of their heritable characteristics
  - Discover that traits are the way in which heritable characteristics are expressed, and that there are different traits to express the same characteristics.