



Curriculum – Seventh Grade Science

Capital's science curriculum is aligned with state and national standards. Teachers utilize research-based materials and strategies to provide all students with experiences in the life, earth, and physical sciences while developing critical thinking and problem-solving skills. Students will develop an understanding of important science concepts as they demonstrate process skills such as observing, measuring, predicting, and communicating. The science curriculum engages students in hands-on, inquiry-based, integrated units which serve as a foundation for success in an increasingly-complex scientific and technological world.

This year your child's curriculum will include the following:

Unit One: Diversity of Life

Curricular Materials Utilized: FOSS Diversity of Life Module

Unit Overview: In this unit, students investigate the characteristics of life for single and multi-cellular organisms.

The knowledge and evidence gained in this unit are used to construct explanations for the structures and functions of living organisms.

Essential Questions:

- What characteristics are present in all living organisms?
- How does structure affect and/or define the function of structures in living things (both single and multi-celled).
- What is the source of diversity in living things?

Unit Two: Genetics

Curricular Materials Utilized: SEPUP Our Genes Ourselves

Unit Overview: This unit emphasizes the organizing themes of individuality, continuity, variability in relation to others, variability in time, and adaption. The instructional materials are designed to match the varying levels of cognitive development and social maturity of middle school students.

Essential Questions:

- What is the difference between and the advantages of sexual and asexual reproduction?
- What are genes and how are they passed from parent to offspring?
- How can traits be influenced by both environmental and genetic conditions?

Unit Three: Properties of Matter

Curricular Materials Utilized: STC Properties of Matter Module

Unit Overview: The focus of this module is the physical properties that characterize matter. Students examine characteristic properties including density, solubility, and melting and boiling points. The particle model is utilized to illustrate how materials behave under different conditions (changes in temperature and/pressure). The link is made between the increase/decrease of energy and the behavior of the materials.

Essential Questions:

- What are the differences between solids, liquids and gases in terms of energy and space between particles?
- How can physical properties be used to identify an unknown substance?
- How is the difference between a mixture and a solution?

Unit Four: Watersheds

Curricular Materials Utilized: A coordinated module including publications from It's About Time Publishing, Stroud and Lamotte Chemical companies, the University of Delaware and the Delaware Science Coalition

Unit Overview: Students begin by reviewing concepts of land, water and Earth materials learned in earlier years and use these concepts to build a more comprehensive understanding of Earth systems. Each process involved in the water cycle is investigated and observed, and students use their knowledge of the properties of matter and mixtures and solutions to study the composition of water within a watershed. A virtual watershed is studied in preparation for a full investigation of a local watershed.

Essential Questions:

- What materials can be carried in water as it passes over the through the land toward a body of water?
- What does the elevation of land affect the flow of water?
- What human impacts are detectable in local watersheds?