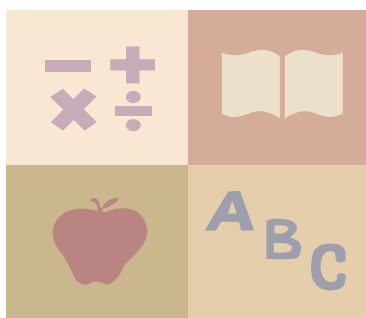


# Harford County Public Schools

## Meeting the Maryland State Department Voluntary State Curriculum Standards for Grades 1-5 Science



### Elementary Science

Welcome to the fascinating and exciting world of science! Throughout the elementary years, students will be provided with hands-on instruction in all areas of science. Active investigations and inquiry will challenge students to collect data, analyze results, and form conclusions in order to construct meaning and understand our natural world. By integrating science with reading, mathematics, and writing, we will build science skills and processes that will prepare students for an increasingly deeper mastery of science content. Visits to our planetarium and environmental center at Harford Glen will enrich the regular classroom instruction.

Jacqueline C. Haas, Ed.D.,  
Superintendent

### Grades 1-5

#### Science

**Skills and Processes:** Science as a process is important in the elementary grades. To construct, apply, and communicate knowledge in science, *students will:*

- gather and question data from many different sources
- design, analyze, and carry out simple investigations
- select and use appropriate tools to measure and compare data
- raise questions about the world around them and seek answers through careful observations
- recognize that clear communication is an essential part of doing science and includes models, tables, and graphs
- design and make things with simple tools and a variety of materials, explaining how one part connects to and affects another

**Earth/Space Science:** The natural forces and cycles that affect our planet Earth, its environment, and its place in the universe will expand student understanding of our natural world. By using the skills and processes of science, *students will:*



- describe and compare properties of a variety of Earth's materials
- describe the processes that cause changes in the Earth's surface
- examine the evidence that living things and their environment have changed over time
- observe and identify natural objects that are visible in the day and night sky and describe the changes in their movement and appearance over time
- recognize the various forms that water can take on Earth and describe how important the water cycle is to life on our planet
- recognize and describe that each season has different weather conditions



**Life Science:** Investigating the dynamic nature of living things is an exciting part of science instruction. Using science skills and processes, *students will:*

- compare a variety of familiar animals and plants to describe how adaptations help them survive in different environments
- explain how animals and plants can be classified according to observable features
- explore the world of microscopic life to determine how they interact with their environment
- describe how all organisms are made of parts (cells, tissues, organs, systems) that help them carry out the basic functions of life
- explain that there are identifiable stages in life cycles of plants and animals
- recognize that all living things have offspring that resemble their parents, but also have variations within populations
- explain that food and energy are needed for all organisms to grow and survive
- explain that organisms can grow and survive in many very different habitats



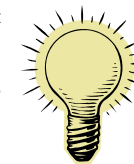
**Chemistry:** The composition and structure of matter and the interaction of matter and energy help students understand the world around them. By using the skills and processes of science, *students will:*

- identify ways to classify objects based on observable properties
- recognize that matter can undergo physical and chemical changes
- describe the effect that changes in temperature have on the properties of materials
- explain that when a new material is made by combining two or more materials, its properties are different from the original materials



**Physics:** By investigating the interactions of matter and energy and the energy transformations that occur, our world becomes more predictable. By using the skills and processes of science, *students will:*

- describe the motion of an object using position and speed
- explain that changes in the ways objects move are caused by forces
- identify and describe ways in which heat can be produced and transferred between objects of different temperature
- identify and describe the sources and uses of electricity in daily life
- demonstrate that electricity requires a closed loop in order to produce measurable effects
- describe the effect magnets have on a variety of objects
- identify and describe the relationship between a sound and the vibrations that produce it
- demonstrate that light travels in a straight line until it is reflected or refracted
- describe how light interacts with different materials



**Environmental Science:** Living and non-living factors influence the interactions of our environment. By using the skills and processes of science, *students will:*



- recognize and explain how Earth's natural resources from the natural environment are used to meet human needs
- distinguish between renewable and non-renewable natural resources
- recognize and describe

how the activities of individuals or groups of individuals can affect the environment in positive and negative ways.