TEWKSBURY PUBLIC SCHOOLS
SCIENCE CURRICULUM
GRADE 4

Fourth grade students are naturally curious! In order to help them understand their environment, the science curriculum is designed to cater to their natural questioning, observation skills, development of deeper critical thinking, problem-solving skills, directed discussion of their findings, and real-world applications.

The current curriculum directs each student to develop and practice these necessary skills in the areas of electricity, magnets, and electromagnets. This extensive, exploratory unit has a focus on Physical Science with Technology/Engineering components. A second kit focuses on Life Science ecosystems, the food web, and environmental interactions. Our third unit explores the principles of motion, change, force and stored energy. Students will design and create their own vehicles in this Physical Science unit with Technology/Engineering components.

I. Electricity, Magnets, and Electromagnets

Electricity includes the study of various circuit configurations, conductors and insulators, sources of electrical power, and how switches can control the flow of electricity. Lightning, as a form of static electricity, is introduced. In addition, various forms of energy such as sound, heat, and light will be discussed. **Magnets** includes the exploration of attraction and repulsion, positive and negative charges, and temporary magnetic fields. Electrical and magnetic properties are then integrated to produce an electromagnet. Students will learn how to make both electrical and magnetic currents stronger. Throughout this unit, students will work extensively with hands-on materials building their own circuits, switches, and flashlights in order to acquire a more concrete understanding of electricity and magnets.

II. Investigating Ecosystems

In the study of this unit, students will identify their community's ecosystem and various other ecosystems. Students will gain an understanding of how living organisms affect and respond to one another in their ecosystem. They will also study consumers, producers, and decomposers. They will gain an understanding of the need for a balance among all plants and animals within an ecosystem. Students will also gain these understandings through studying their own backyard habitats, participating in hands-on experiments, comparing and contrasting one ecosystem to another, observing, recording, sharing ideas, drawing conclusions, and inquiring further. Students will participate in two types of inquiry – those activities that aid them in DOING scientific inquiry (i.e., the scientific method) and those activities that aid in developing an understanding of scientific concepts.

III. Motion and Design

In this creative, exploratory unit, students begin to explore the major principles involved in motion and energy. They will investigate the interaction among motion, force, and energy. Students will design and create their own vehicles from certain materials, taking into consideration – cost and availability of materials and varying specifications. Students, upon designing and creating these vehicles, will begin to apply these learned principles to real-life experiences.