

## **Elementary School, Kindergarten through Grade 5**

In primary grades (K-2) the Science and Technology/ Engineering curriculum provides students with experiences so they observe details, record their observations and to investigate to find answers to problems. They are encouraged to develop questions from their observations that investigation or research can answer. There is integration into literacy through the reading of science and technology/ engineering content in non-fiction books, finding science facts in fiction, journal entries recording observations and thinking in both drawings and writing, and connections that integrate mathematics. Students study topics that integrate the strands through the grades, conceptual and procedural schemes unify science disciplines and provide students with powerful ideas to help them understand the natural world.

Student success depends on active learning with time for students to explore, discuss, investigate and think about concepts and skills in science and technology/ engineering. In accordance with the core values of the Newton Public Schools, teachers are expected to provide a curriculum that ensures that every child meets grade level benchmarks, and that every child is challenged at his or her level.

Instructional units have been developed by teachers and the curriculum coordinator at all grade levels. These units provide the guidelines for instruction. Classroom materials, purchased for classroom use, are in the form of kits with living materials ordered for each classroom in the spring that will support instruction.

Professional development is provided through citywide workshops and meetings, which address topics of current interest at specific grade levels. Individual schools may also request specific workshops or discussions focused on topics of particular interest.

## **Middle School, Grades 6, 7 and 8**

In grade 6 the focus is on physical science; the properties and reactions of matter, the nature of energy, and the relationships between matter and energy. In grade 7 the focus is primarily on life science with an emphasis on the variety, intricacy and interrelatedness of life. Earth and space science are the focus of eighth grade where the emphasis is on the formation, arrangement and physical phenomena of Earth and the universe. Each school or team of teachers will decide where and when to supplement these in order to provide further depth and engagement for students.

Technology/Engineering Education is an integral component of the Massachusetts Science & Technology/Engineering Curriculum Framework. Students are introduced to engineering design, the proper use of tools and materials to invent or solve a problem. At this level, technology/engineering is taught in conjunction with the science curriculum by the Technology/ Engineering teachers.

## **High School, Grades 9, 10, 11 and 12**

The High School Science Departments strive for all students to attain scientific literacy - a basic understanding of the natural sciences, mathematics, technology, and their interactions. To graduate from Newton North or Newton South High Schools a student must earn 5 credits through physical science courses and 5 credits through biological science courses. While the graduation requirement is two years, most colleges require at least three years of high school science.

All freshmen at both high schools take Introductory Physics and honors courses are offered beginning in the 10th grade. Students must complete a diagnostic assessment and demonstrate exemplary performance in

their 9th grade Introductory Physics class to be considered for Honors Chemistry in the 10th grade. Technology/ Engineering at the high school level include engineering design, construction technologies and energy and power technology (fluid system). Students develop their ability to solve problems using mathematical and scientific concepts. Innovative course offerings are available at both high schools and information on these is available on the department web sites.