

New Hampshire

**Technology/Engineering
Education
Curriculum Guide**

State of New Hampshire
Department of Education



New Hampshire Technology Education Association

Student Performance Outcomes: K-2

These student performance outcomes relate to the corresponding letter goal found on page fourteen.

The student will be able to:

- A1. Identify various forms and systems of measurement.
- A2. State and practice safety rules related to technology activities.
- A3. Safely use hand tools in a technological setting.
- A4. Identify technological activities in different occupations.
- B1. Define technology and identify that technological systems are made up of subsystems and components.
- B2. Practice basic design principles and processes.
- B3. Use a variety of materials in activities.
- C1. Identify that the collection and organization of information and data is a key component of technological activities.
- C2. Use appropriate terminology in a variety of technical environments.
- D1. Use problem-solving strategies in a technological setting.
- E1. List examples of technology in the classroom and at home.
- F1. Describe the historical evolution of technological inventions.
- G1. Identify ways technology is helpful or harmful to the natural world.
- G2. Identify ways people have adapted the natural world to meet their needs and wants.
- H1. Identify how technological resources are used in the local community.

Student Performance Outcomes: 3-5

These student performance outcomes relate to the corresponding letter goal found on page fourteen.

The student will be able to:

- A1. Identify and accurately use English and metric units of measure.
- A2. State and practice safety rules related to technology activities.
- A3. Safely use hand tools and appropriate power tools under supervision, in a technological setting.
- A4. Identify and describe technological activities related to careers and occupations.
- B1. Define technology and identify components and subsystems that make up technological systems and associated industries.
- B2. Practice design principles and processes in basic technological activities.
- B3. Identify and utilize a variety of materials in activities.
- C1. Use information and data in the design process.
- C2. Use technical terminology used in a technical environment.
- D1. Demonstrate appropriate problem-solving strategies and techniques for solving technical problems.
- E1. List examples of technology in the classroom, at home, and at the parents' workplaces.
- F1. Describe the historical evolution of technological inventions as societies needs and wants change.
- G1. Discuss ways technology is helpful or harmful to the natural world.
- G2. Identify ways people have adapted the natural world to meet their needs and wants or to solve problems.
- H1. Identify how technological resources benefit the local community.

Theme: Exploration of Technology**Program Description:**

Students in the Middle Level (grades 6-8) display a wide variety in development of interpersonal skills due to the rapid changes of adolescence. Students at this stage are intensely involved in grasping their own identities and their place in the community and society. Technology/Engineering Education at this level should respond to the distinct developmental needs of these students as it helps them explore and expand their understanding of technology. Technology/Engineering Education should take advantage of adolescent perspective and provide opportunities for them to develop their ability to design, develop, use, and create technological products, processes, and systems with connections to community and culture. Activities should be designed to help students recognize the relationship between theory and application. Students will continue to investigate personal skills and interests within the technological context; at the same time they will learn basic principles of engineering, architecture, industrial design, and computer science. They should be challenged to apply and integrate knowledge and skills learned in other classes, both in the technology lab as well as in extracurricular activities. Real and simulated activities should be used that require students to learn and apply problem-solving skills, creative techniques, and teamwork. Students will develop their ability to access, manipulate, use, and communicate technical information. Students should become more aware of the developmental nature of technology and its effects on individuals, society and the natural world.

Technology/Engineering Education at this level should be integrated as a core part of the curriculum for all students. It can be taught by a certified individual or by an interdisciplinary team that includes a certified Technology/Engineering Education teacher. Schools may be designed with multiple labs dedicated to one or more technological contexts, or general-use labs. Facilities should be designed for the safe and effective use of the tools, equipment, materials, processes, and techniques within the context of the designed world, including activities in each of the Technology Content Areas (see pp. 19 - 20).

Technology/Engineering Education at the middle school level strives to provide students with literacy about technology and the fields of engineering. Two engineering curricula at this level have been recognized by the Pre-Engineering Technology Advisory Council (PETAC) and the NH Department of Education: Engineering byDesign™ (EbD™) and Gateway to Engineering/Project Lead the Way® (PLTW®). All EbD™ and PLTW® courses at this level provide students with an awareness and exploratory activities which may form a basis for future courses in engineering and/or technology.

Student Performance Outcomes: 6-8

These student performance outcomes relate to the corresponding letter goal found on page fourteen.

The student will be able to:

- A1. Demonstrate the accurate use of appropriate measuring tools to gather, manipulate, and communicate information.
- A2. Demonstrate safe working attitudes and practices.
- A3. Demonstrate basic skills in the safe and proper selection and use of technical equipment, materials, and processes.
- A4. Identify basic skills required in technological careers.
- B1. Recognize the core concepts of a “technological system” which include input, processes, output, and feedback.
- B2. Identify and investigate various types of technology systems (including: medical, agricultural, biological, energy and power, information and communication, transportation, manufacturing, construction and engineering).
- C1. Demonstrate skills needed to find, use, and communicate technical information.
- D1. Apply problem-solving techniques to technological challenges involving materials, processes, and products.
- E1. Apply academic concepts and practices in a technological setting.
- F1. Trace the evolution of technological systems and processes.
- G1. Evaluate technological systems and their impact on people, the environment, culture, and the economy.
- H1. Exhibit responsible individual and cooperative work habits.