Rhode Island Engineering and Technology

Grades 3, 4

Adopted 2011

Engineering and technology impacts the world and humankind. ET1

1 (K-4). **Demonstrate and identify reasons for the development of technology and its effects on humankind.** ET1.1 (K-4)

1 (3-4). Students demonstrate an understanding of the nature of technology by: ET1.1 (3-4)

1a. comparing and contrasting life with and without current technology and how technology impacts everyday life.

1b. recognizing that technology has positive and negative outcomes utilizing specific examples.

1c. identifying natural (e.g. wood, fur, stone) vs. human-made objects (e.g. plastic, Styrofoam)

2 (K-4). **Discuss and develop an understanding of technology and its relationship to the natural and designed (human-made) world in the local community.** ET1.2 (K-4)

2 (K-2). Students demonstrate an understanding of the need for technology by: ET1.2 (K-2)

2a. understanding that technology can make life easier (e.g. clothes, telephone, automobile, microwave).

2b. discussing the purpose of technology and its relationship to the natural and designed world

2 (3-4). Students demonstrate an understanding of the need for technology by: ET1.2 (3-4)

2a. understanding that technology is any process or invention that affects society (e.g. impact of the tractor on farming, indoor plumbing).

2b. discussing the purpose of technology and how it has affected humankind. (e.g. interview people from different generations to compare changes in lifestyles due to technological advancements).

Effective design through engineering and technology is the outcome of a problem solving process involving the application of content knowledge, acquired skills, and creativity. ET2

1 (K-4). Explore and recognize the attributes of a design process. ET2.1 (K-4)

1 (3-4). Students demonstrate an understanding of the attributes of a design process by: ET2.1 (3-4)

1a. defining a problem and expressing design ideas for that problem to others.

1b. solving problems through the creation of design solutions.

1c. identifying the characteristics of being an effective team member and working together to complete a task.

2 (K-4). Explore and recognize basic technological products and systems, as well as their tools. ET2.2 (K-4)

2 (3-4). Students demonstrate an understanding of technological products and systems by: ET2.2 (3-4)

2a. identifying and safely using the required tools (e.g. glue, scissors, tape) and information resources for a specific task.

2b. using information to identify patterns within those systems.

2c. following step by step procedures and identifying sequential actions.

2d. identifying the effects of technology and comparing and contrasting tradeoffs (e.g. advantage of using scissors vs. paper cutter or tearing paper).

3 (K-4). Explore the processes of research and development, invention and innovation, experimentation, and troubleshooting in planning practical solutions to problems. ET2.3 (K-4)

3 (3-4). Students demonstrate an understanding of effective design by: ET2.3 (3-4)

3a. exploring a process to solve a real world problem.

3b. using age-appropriate construction materials based on specific properties (e.g. strength, hardness, flexibility) and tools (e.g. pliers, tape measure, hammer, nails) to build a model to solve a specific problem.

3c. testing, troubleshooting, and evaluating a basic design solution.

3d. documenting the advantages and disadvantages of multiple designs (e.g. various designs of can openers).

The designed world community selects and uses appropriate technologies. ET3

1 (K-4). Recognize that there are various areas in engineering and technology. ET3.1 (K-4)

1 (3-4). Students demonstrate an understanding of the areas of engineering and technology by: ET3.1 (3-4)

1a. identifying responsibilities of community workers in the areas of engineering and technology.

1b. specifying and explaining the connections within the areas of engineering and technology.

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2 (K-4). Select and utilize appropriate tools to measure, design, and implement specific technologies. ET3.2 (K-4)

2 (3-4). Students demonstrate an understanding of selecting appropriate tools by: ET3.2 (3-4)

2a. identifying characteristics of appropriate tools within different technologies.

2b. experimenting and selecting the optimal tool for a given task in a specific area of technology.