

Grades 5, 6

Adopted 2011

Engineering and technology impacts the world and humankind. ET1

1 (5-8). Compare, contrast, and provide evidence of how technology influences history and impacts society. ET1.1 (5-8)

1 (5-6). Students demonstrate an understanding of the impact of technology by: ET1.1 (5-6)

- 1a. researching and displaying how technological advancements have inspired historical events (e.g. Cold War/Sputnik, slavery/cotton gin)
- 1b. listing and describing the importance of technology in daily life and its trade-offs
- 1c. evaluating the many and varying uses of technology within different geographic regions (e.g. geothermal, tidal, and wind power)

2 (5-8). Describe and demonstrate the effects of technological systems on humankind in terms of a national scale. ET1.2 (5-8)

2 (5-6). Students demonstrate an understanding of the outcomes of technology by: ET1.2 (5-6)

- 2a. making connections between technological inventions and their impacts on a nation. (e.g. automobiles and highway systems; computerized machines and manufacturing).
- 2b. researching and analyzing the effects on humankind and the environment that a particular technology has had over a period of time (e.g. landfill, dam on a river, desalinization plant).

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 (5-8). Utilize the attributes of a design process to solve a real world problem. ET2.1 (5-8)

1 (5-6). Students demonstrate an understanding of the attributes of a design process by: ET2.1 (5-6)

- 1a. defining a problem that addresses a scenario with given criteria and constraints.
- 1b. selecting an appropriate design solution for a given scenario or task.
- 1c. fulfilling a specific function as a team member to achieve a desired result.

2 (5-8). Use and maintain technological products and systems, as well as their tools. ET2.2 (5-8)

2 (5-6). Students demonstrate an understanding of technological products and systems by: ET2.2 (5-6)

- 2a. safely using the required tools and organizing information resources for a specific task.
- 2b. incorporating assigned materials and assigned tools throughout the design process.
- 2c. using information to discover, diagnose and troubleshoot problems that arise in the course of the design process.
- 2d. interpreting the accuracy of information for the purpose of developing possible solutions.

3 (5-8). Utilize processes (i.e. research and development, invention and innovation, experimentation, and troubleshooting) in designs that use criteria and constraints leading to useful products and systems. ET2.3 (5-8)

3 (5-6). Students demonstrate an understanding of effective designs of products and systems by: ET2.3 (5-6)

- 3a. given a process, with criteria and constraints, solve a real world problem.
- 3b. utilizing materials provided to construct a working model for a given task (e.g. construct a contraption that utilizes all the simple machines – chain reaction machine).
- 3c. testing, troubleshooting, and evaluating a design solution.
- 3d. presenting final working model for peer review and revision.

The designed world community selects and uses appropriate technologies. ET3

1 (5-8). Explore the various areas in engineering and technology and their interconnections. ET3.1 (5-8)

1 (5-6). Students demonstrate an understanding of the areas of engineering and technology by: ET3.1 (5-6)

- 1a. differentiating among the various engineering and technological careers (e.g. medical technologist vs. biotechnologist).
- 1b. researching the connections within the areas of engineering and technology as they apply to a given product.

2 (5-8). Compare and contrast tools to measure, design, and implement specific technologies. ET3.2 (5-8)

2 (5-6). Students demonstrate an understanding of selecting appropriate tools by: ET3.2 (5-6)

- 2a. comparing and contrasting tools used for the same purpose across different technologies (e.g. linear measurement tools in construction vs. digital measurement tools in biotechnology).
- 2b. researching and selecting the optimal tool for a given task in a specific area of technology.