**Standards for Technological and Engineering Literacy (STEL) - Technology and Society**

All children, adolescents, and adults need to know more about technology and engineering. A primary reason is to increase society’s overall understanding about an area that impacts all facets of our lives, yet about which few have a deep knowledge. (p. 2)

The importance of educational programs that focus on the study of technology has not waned since the publication of Standards for Technological Literacy in 2000. Then, as now, the primary outcome sought is enhanced technological literacy among all students. The goal is to develop individuals who have a broad, conceptual understanding of technology and its place in society, enabling them to be active participants in the technological world and careful creators and users of technology. All technological systems are embedded within social and environmental contexts and all have, or will have, both intended and unintended consequences. Many of our current global problems were created by our technological choices. This increases the need for technologically literate citizens who participate in decision making. (p. viii)

Technology and engineering are pervasive in all aspects of our lives. Every human activity is dependent upon the products, systems, and processes created to help grow food, provide shelter, communicate, work, and recreate. As the world grows more complex, it is increasingly important for everyone to understand more about technology and engineering. People need to understand technology’s impacts on their lives, society, and the environment, as well as how to use and develop technological products, systems, and processes to extend human capabilities. These understandings are all important elements of technological and engineering literacy. (p. 1)

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Occupations required in a modern society demand people who are critical, transdisciplinary thinkers with the ability to adapt to new technologies. This need can be addressed by expanding technology and engineering education. (p. 3)

Technology and engineering impact even our leisure activities. For example, the sports, games, and recreational activities we engage in are often equipment-intensive. This equipment was developed and continues to evolve through iterative design and the inclusion of new materials and processes. Injuries from these activities are treated through the use of diagnostic and rehabilitative medical technologies. These are examples of the pervasive use of technology and engineering in our society about which people may give little thought. Understanding the relationships between our leisure activities and technology and engineering can make our activities safer and more enjoyable. (p. 3)

The value and importance of technological and engineering literacy is accepted by a wide group of experts. Despite this consensus, formal technology and engineering courses are not available in all schools. Some countries, states/ provinces, and localities have put compulsory technology and engineering education programs in place, but many students receive little or no exposure to the study of technology and engineering, particularly those in Grades PreK-5. They are graduating with minimal understanding of one of the most powerful forces shaping society today. (p. 4)

The goal of technology and engineering education is to develop students with a breadth of knowledge and capabilities who see the interactions between technology, engineering, and society and can use, create, and assess current and emerging technologies. This goal is achieved by focusing teaching and learning across all three domains of learning: cognitive, affective, and psychomotor. (p. 4)

STEL does not attempt to encompass the full spectrum of engineering content. Technological and engineering literacy, with its emphasis on technological products, design, and technology/society interactions, affords a broader base than would a more exclusive focus on engineering and its content subfields (e.g., mechanical, civil, electrical, and so on). Another way this relationship has been expressed is by referring to the disciplinary study of engineering as a noun (Engineering), and the use of engineering design and application of engineering habits of mind as a verb (engineering). (p. 5)

STEL 8 - Influence of Society on Technological Development

STEL examines the use of technology and engineering in a broader context by examining technological effects on human society and the built and natural environments, by exploring how societal factors shape technology and engineering practices, and by tracing the history of technology. (p. 12)

Technology and Engineering Practices

Attention to ethics is at the core of living in society. In technology and engineering education, attention to ethics means focusing on the impact of technological products, systems, and processes on others and the environment. Students should evaluate risks and consider trade-offs in their decision making. (p. 15)

New technologies change the world around us in both expected and unexpected ways. Technological advances build on prior developments and lead to additional opportunities, challenges, and advances in an accelerating spiral of complexity. These advances make modern society vastly different from what was known even as recently as two or three generations ago. (p. 27)

STEL 4 – Impacts of Technology

Many of engineering and technology’s impacts on society and the environment are widely regarded as desirable. However, other impacts are regarded as less desirable. Technological and engineering development can magnify the inequalities among people and societies by creating a situation in which a minority of people and groups control and use a majority of the world’s resources. As the pace of technological change continues to quicken, questions arise as to whether society’s political and social norms can effectively keep up. (p. 41)

One key idea is that technology and engineering have both positive and negative impacts on society and the environment. (p. 41)

Guided discussions, observations, and activities allow young children to become aware of other forms of technologies in their lives, how they are used, and what makes them effective. Young children should come to understand that technology can be helpful and harmful to society and to the environment. Encouraging young children to look at both the positive and negative results of technology use helps them develop the critical-thinking skills that will be important for future decision making about technology. (p. 42)

Additional STEL focused on Technology and Society

STEL 5 - Influence of Society on Technological Development (p. 47)

STEL 6 - History of Technology (p. 51)