

## Subject Area - 3: Science and Technology and Engineering Education

### Standard Area - 3.4: Technology and Engineering Education

#### Organizing Category - 3.4.E: The Designed World

PDFPrint

[See Grades 8 - 12](#)

	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8
Medical Technologies	<a href="#">3.4.3.E1: Identify the technologies that support and improve quality of life.</a>	<a href="#">3.4.4.E1: Identify tools and devices that have been designed to provide information about a healthy lifestyle.</a>	<a href="#">3.4.5.E1: Identify how technological advances have made it possible to create new devices and to repair or replace certain parts of the human body.</a>	<a href="#">3.4.6.E1: Describe how advances and innovations in medical technologies are used to improve health care.</a>	<a href="#">3.4.7.E1: Investigate recent advancements in medical technologies and their impact on quality of life.</a>	<a href="#">3.4.8.E1: Analyze what technologies are used in genetic engineering and predict how it may change the future of medicine.</a>
Agricultural and Related Biotechnologies	<a href="#">3.4.3.E2: Identify some processes used in agriculture that require different procedures, products, or systems.</a>	<a href="#">3.4.4.E2: Identify the technologies in agriculture that make it possible for food to be available year round.</a>	<a href="#">3.4.5.E2: Understand that there are many different tools necessary to maintain an ecosystem, whether natural or man-made.</a>	<a href="#">3.4.6.E2: Identify how emerging agricultural technologies have an effect on ecosystem dynamics and human/animal food resources.</a>	<a href="#">3.4.7.E2: Examine specialized equipment and practices used to improve the production of food, fiber, fuel, and other useful products and in the care of animals.</a>	<a href="#">3.4.8.E2: Describe how biotechnology applies the principles of biology to create commercial products or processes.</a> <a href="#">3.4.8.E3: Examine power systems are used to drive and provide propulsion to other technological products or systems.</a>
Energy and Power Technologies	<a href="#">3.4.3.E3: Recognize that tools, machines, products, and systems use energy in order to do work.</a>	<a href="#">3.4.4.E3: Identify types of energy and the importance of energy conservation.</a>	<a href="#">3.4.5.E3: Explain how tools, machines, products, and systems use energy in order to do work.</a>	<a href="#">3.4.6.E3: Investigate that power is the rate at which energy is converted from one form to another or transferred from one place to another.</a>	<a href="#">3.4.7.E3: Examine the efficiency of energy use in our environment</a>	
Information and Communication Technologies	<a href="#">3.4.3.E4: Recognize that information and communication technology is the transfer of messages among people and/or machines over distances through the use of technology.</a>	<a href="#">3.4.4.E4: Explain how information and communication systems allow information to be transferred from human to human.</a>	<a href="#">3.4.5.E4: Describe how the use of symbols, measurements, and drawings promotes clear communication by providing a common language to express ideas.</a>	<a href="#">3.4.6.E4: Illustrate how communication systems are made up of a source, encoder, transmitter, receiver, decoder, and destination.</a> <a href="#">Examine how communications technologies are used to help humans make decisions and solve problems</a>	<a href="#">3.4.7.E4: Illustrate how information can be acquired and sent through a variety of technological sources, including print and electronic media.</a>	<a href="#">3.4.8.E4: Describe how the design of the message is influenced by such factors as the intended audience, medium, purpose, and nature of the message.</a>
Transportation Technologies	<a href="#">3.4.3.E5: Understand that transportation has many parts that work together to help people travel.</a>	<a href="#">3.4.4.E5: Recognize that a transportation system has many parts that work together to help people travel and to move goods from place to place.</a>	<a href="#">3.4.5.E5: Examine reasons why a transportation system may lose efficiency or fail (e.g., one part is missing or malfunctioning or if a subsystem is not working).</a>	<a href="#">3.4.6.E5: Demonstrate how transporting people and goods involves a combination of individuals and sub-systems, such as structural, propulsion, suspension, guidance, control, and support.</a>	<a href="#">3.4.7.E5: Explain how processes, such as receiving, holding, storing, loading, moving, unloading, delivering, evaluating, marketing, managing and communicating are necessary for the entire system to operate efficiently.</a>	<a href="#">3.4.8.E5: Describe how governmental regulations influence the design, operation and efficiency of transportation systems.</a>
Manufacturing Technologies	<a href="#">3.4.3.E6: Explain how manufacturing systems design and produce products in quantity.</a>	<a href="#">3.4.4.E6: Identify key aspects of manufacturing processes (designing products, gathering resources and using tools to separate, form and combine materials in order to produce products).</a>	<a href="#">3.4.5.E6: Examine how manufacturing technologies have become an integral part of the engineered world.</a>	<a href="#">3.4.6.E6: Identify key aspects of manufacturing systems that use mechanical processes to change the form of natural materials (e.g., separating, forming, combining, conditioning).</a>	<a href="#">3.4.7.E6: Examine the processes involved in extracting (e.g., harvesting, drilling, mining) raw materials from the earth for use in manufacturing processes.</a>	<a href="#">3.4.8.E6: Analyze the steps involved in the manufacturing process (e.g., design, development, production, marketing and servicing of products and</a>

Construction  
Technologies

**3.4.3.E7:**  
Recognize that people live, work, and go to school in buildings which are different types of structures.

**3.4.4.E7:** Understand that structures rest on foundations and that some structures are temporary, while others are permanent.

**3.4.5.E7:**  
Describe the importance of guidelines when planning a community.

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**3.4.6.E7:** Explain how the type of structure determines the way the parts are put together.

**3.4.7.E7:** Examine subsystems found in the construction of a building.

**systems).**  
**3.4.8.E7:** Analyze factors that determine structural design (e.g., building laws and codes, style, convenience, cost, climate, and function).