Curriculum Scope & Sequence

School: Pike Creek Charter Middle School Grade or Course 6th Grade Technology Teacher

Unit Order By unit title and/or timeframe	**Learning Targets** Content Standards, Grade Level Expectations, Proficiency Level Expectations, or Grade Cluster Benchmarks	**Theme/Big Idea/Concept**	**Enduring Understandings and/or Essential Questions**
Unit 1: Science, Impact and Evolution of Technology	**M1: Students will recognize the nature, impacts and evolution of technology as they related to the chronological human presence on Earth, as well as recognize the consequential influence of inventions and innovations that extend human capabilities.** **M2: Students will effectively communicate technological solutions by using Technology Education as an Interdisciplinary and Technological Link.**	**Unit Theme(s):** Understand the evolution of technology and society and apply this understanding to predict impacts of current and future technology. Use knowledge from and interactions with other curricular areas as resources that can be used to help solve technological challenges. **Unit Concepts:** Explain and predict the impacts of current and future technology, addressing ethical, cultural, social, economic and political ramifications Research and document technological inventions and their subsequent uses, recognizing that individuals, business and industry or society often create the demand for a particular technological product. Design and use instruments to gather data, analyze and interpret technological trends to ascertain their positive and negative impacts and finally evaluate the accuracy of the gathered information to determine its usefulness. Understand that most interventions evolve through a slow and methodical process, with the specialization of function at the center of many technological improvements. Identify and describe the difference between the positive and negative impacts of past, present and future technology. Recognize and demonstrate an understanding of the cultural and gender diversity reflected in technological inventions and innovations	**Enduring Understandings:** Students will understand the relationship between science and technology. Students will learn and investigate the impact that technology has on society. Students will recognize and utilize various technology resources. Students will recognize that technology can and does extend human capabilities. Students will recognize that technology can have negative impacts. Students will evaluate present-day technology to make decisions regarding the future impact of technology through historical context. Students will understand the political, social and economic effects of technology Students will recognize the ethical dilemmas and environmental concerns related to technology use. Students will recognize technological contributions made by multicultural and gender diverse groups. Students will participate in a technology educational program that integrates itself with other school curricula.

		Demonstrate, through varied media, an understanding of the nature, impacts and evolution of technology. Identify the scientific knowledge on which a technological invention or innovation is typically predicted. Integrate other curricular skills with technological activities Illustrate the interactions between technological systems; the effect that other fields of study have on the technological development of products and systems; and how a product or system developed for one setting can be applied to another. Apply problem-solving skills to enhance learning in other curricular areas. Present technological solutions in an effective manner using skills and knowledge from other curricular areas as resources.	Students will make connections and effectively communicate technological solutions that reflect cross-curricular integration. Students will form solutions that will be enhanced by the integration of knowledge through technological content. Students will understand the relationships between technology and other fields of study.
Unit 2: Technological Resources and Systems	**M2: Students will effectively communicate technological solutions by using Technology Education as an Interdisciplinary and Technological Link.** **M3: Students will develop and apply a practical understanding of the use and management of technological resources and systems.**	**Unit Theme(s):** Use knowledge from and interactions with other curricular areas as resources that can be used to help solve technological challenges. Investigate, design, model and analyze creative solutions to increasingly complex technological challenges. **Unit Concepts:** Integrate other curricular skills with technological activities Illustrate the interactions between technological systems; the effect that other fields of study have on the technological development of products and systems; and how a product or system developed for one setting can be applied to another. Apply problem-solving skills to enhance learning in other curricular areas. Present technological solutions in an effective manner using skills and knowledge from other curricular areas as resources. Differentiate between types of technological resources (e.g., available or scarce, renewable or nonrenewable and natural or synthetic) and examine resources that place environmental and	**Enduring Understandings:** Students will participate in a technology educational program that integrates itself with other school curricula. Students will make connections and effectively communicate technological solutions that reflect cross-curricular integration. Students will form solutions that will be enhanced by the integration of knowledge through technological content. Students will understand the relationships between technology and other fields of study. Students will understand the wide-range of technological resources and systems. Students will identify, explore, manage, evaluate and use technological resources (e.g., people, information, materials, tools and machines, energy, capital and time.) Students will use and maintain technological systems and assess the impacts of these systems.

		economic concerns in direct competition. Describe the possible applications of technological resources to specific problem-solving activities (e.g., illustrate how to use technological resources to repair damage from natural disasters). Demonstrate responsible decision making int eh use of resources and in the operation and maintenance of systems. Use a variety of technological resources to create solutions and systems for different environments. Recognize and identify existing technological resources (e.g., people, information, materials, tools and machines, energy, capital and time). Recognize that waste management as related to technological systems is an important social issue. Demonstrate the effective management of resources in the process of developing, creating and evaluating solutions. Understand the concept of system maintenance and how people use controls as mechanisms to cause system change. Discuss the difference between open and closed-loop systems, as well as how systems can be connected and how malfunctions within a system can affect system quality.	Students will gain knowledge regarding the effects of technology on the environment.
Unit 3: Technological Problem Solving	**M2: Students will effectively communicate technological solutions by using Technology Education as an Interdisciplinary and Technological Link.** **M4: Students will demonstrate technological problem solving by applying the design process and the systems model.**	**Unit Theme(s):** **Use knowledge from and interactions with other curricular areas as resources that can be used to help solve technological challenges.** **Investigate, design, model and analyze creative solutions to increasingly complex technological challenges.** **Unit Concepts:** Integrate other curricular skills with technological activities Illustrate the interactions between technological systems; the	**Enduring Understandings:** Students will participate in a technology educational program that integrates itself with other school curricula. Students will make connections and effectively communicate technological solutions that reflect cross-curricular integration. Students will form solutions that will be enhanced by the integration of knowledge through technological content. Students will understand the relationships between technology and other fields of study.

		effect that other fields of study have on the technological development of products and systems; and how a product or system developed for one setting can be applied to another. Apply problem-solving skills to enhance learning in other curricular areas. Present technological solutions in an effective manner using skills and knowledge from other curricular areas as resources. Evaluate and describe creative strategies that are appropriate to use when solving technological challenges. Investigate and brainstorm potential solutions to a specific technological challenge by employing the Design Process. Demonstrate appropriate use of the design process, giving heed to desired elements and feature, the limits placed on the design and more. Design, model, modify, evaluate, document and present two- and three-dimensional solutions to specific technological challenges. Recognize that not every problem is technological in nature and not every problem can be solved through technology. Recognize that while there is no perfect design, the requirements for a design are made up of criteria and constraints.	Students will use creative technological problem solving, which involves identifying, analyzing, designing, developing, creating and evaluating solutions. Students will refine complex solutions by employing the Design Process and the Systems Model.
Unit 4: Operational Awareness	**M2: Students will effectively communicate technological solutions by using Technology Education as an Interdisciplinary and Technological Link.** **M5: Students will develop an operational awareness of technological concepts through focused invention and subsequent innovation.**	**Unit Theme(s):** Use knowledge from and interactions with other curricular areas as resources that can be used to help solve technological challenges. Recognize how technological concepts are applied to the various systems of a technological solution. **Unit Concepts:** Integrate other curricular skills with technological activities Illustrate the interactions between technological systems; the effect that other fields of study have on the technological development of products and systems; and how a product or	**Enduring Understandings:** Students will participate in a technology educational program that integrates itself with other school curricula. Students will make connections and effectively communicate technological solutions that reflect cross-curricular integration. Students will form solutions that will be enhanced by the integration of knowledge through technological content.

		system developed for one setting can be applied to another. Apply problem solving skills to enhance learning in other curricular areas. Present technological solutions in an effective manner using skills and knowledge from other curricular areas as resources. Recognize, investigate and document how technological concepts are used in various technological systems. Distinguish and describe the technological concepts that comprise the various systems of a solution. Describe strategies to apply technological concepts to a design challenge. Apply and demonstrate technological concepts through the use of appropriate documentation. Describe the difference between invention and innovation.	Students will understand the relationships between technology and other fields of study. Students will develop an operational awareness of various technological concepts in the world, acquiring the ability to identify, analyze and apply these concepts. Students will integrate specific concepts with the design of new solutions for different technological systems.
Unit 5: Leadership through technology	**M2:Students will effectively communicate technological solutions by using Technology Education as an Interdisciplinary and Technological Link.** **M6: Students will explore technology-related skills, leadership skills, personal growth and careers through opportunities provided by active participation in the Technology Student Association (TSA).**	**Unit Theme(s):** **Use knowledge from and interactions with other curricular areas as resources that can be used to help solve technological challenges.** Begin to explore technology related skills and applications through TSA activities. **Unit Concepts:** Integrate other curricular skills with technological activities Illustrate the interactions between technological systems; the effect that other fields of study have on the technological development of products and systems; and how a product or system developed for one setting can be applied to another. Apply problem solving skills to enhance learning in other curricular areas. Present technological solutions in an effective manner using skills and knowledge from other curricular areas as resources. Participate in current competitive events and related programs	**Enduring Understandings:** Students will participate in a technology educational program that integrates itself with other school curricula. Students will make connections and effectively communicate technological solutions that reflect cross-curricular integration. Students will form solutions that will be enhanced by the integration of knowledge through technological content. Students will understand the relationships between technology and other fields of study. Students will have opportunities for personal growth by participating in TSA activities. Students will actively engage in leadership and problem-solving training, competitive events related to the study of technology, parliamentary governance, philanthropic endeavors and social

		at local , state and national levels. Participate in leadership training activities at local, state, and national levels. Interact with each other on current competitive events and related programs in class, during which time they will be encouraged to examine the related political, ethical, cultural and social issues. Engage in, through competitive events and related programs, real-world simulations that incorporate technology, innovation, design and engineering through competitive events and related programs.	gatherings.