International Society for Technology Education
ISTE Standards for Students
K-12

Concept	Indicator	Indicator Statement	Activity
Empowered Learner *Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the teacher*	1a	Students articulate and set personal learning goals, develop strategies leveraging technology to achieve and reflect on the learning process itself to improve learning outcomes.	Career Ready Practices, Engineering Design Process, Robot Technical Design Career Discovery and Goal Setting
	1b	Students build networks and customize their learning environments in ways that support the learning process.	Career Ready Practices Career Discovery and Goal Setting
	1c	Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.	Career Ready Practices, Engineering Design Process, Robot Technical Design Career Discovery and Goal Setting
	1d	Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Community Project
Digital Citizen *Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical*	2a	Students cultivate and manage their digital identity and reputation and aware of the permanence of their actions in the digital world.	Possibility in Community Project Career Discovery and Goal Setting
	2b	Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.	Possibility in Community Project Career Discovery and Goal Setting
	2c	Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	Possibility in Community Project
	2d	Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	Possibility in Community Project
Knowledge Constructor *Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make learning experiences for themselves and others.*	3a	Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign. Career Discovery and Goal Setting
	3b	Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources	Team Plan and Robot Plan
	3c	Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign.
	3d	Students build knowledge by actively exploring real world issues and problems, developing ideas and theories and pursuing answers and solutions.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign.
Innovative Designer *Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions*	4a	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	4b	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.	Team Plan and Robot Plan, Engineering Notebook Rubric
	4c	Students develop, test, and refine prototype as part of a cyclical design process.	Sprint to Compete, Iteration and Redesign, Advanced Automation,

	4d	Students exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.	Career Ready Practices, Sprint to Compete, Iteration and Redesign
Computational Thinker *Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions*	5a	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions	Computational Thinking, Iteration and Redesign, Advanced Computational Thinking
	5b	Students collect data or relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision making.	Computational Thinking, Iteration and Redesign, Advanced Computational Thinking
	5c	Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.	Computational Thinking, Iteration and Redesign, Advanced Computational Thinking
	5d	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.	Computational Thinking, Iteration and Redesign, Advanced Computational Thinking
Creative Communicator *Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, and digital media appropriate to their goals.*	6a	Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication	Engineering Notebook Rubric, Robot Technical Design Rubric Career Discovery and Goal Setting
	6b	Students create original works or responsible repurpose or remix digital resources into new	Community Project Career Discovery and Goal Setting
	6c	Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations	Technical Judging, Community Project, Engineering Notebook
	6d	Students publish or present content that customizes the message and medium for their intended audiences.	Technical Judging, Community Project, Engineering Notebook Career Discovery and Goal Setting
Global Collaborator *Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.*	7a	Students use digital tools to connect with learners from a variety of backgrounds, cultures, engaging with them in ways that broaden mutual understanding and learning.	Advanced Automation, Community Project
	7b	Students use collaborative technologies to work with others, including peers, experts or community members to examine issues and problems from multiple viewpoints.	Iteration and Redesign, Advanced Automation
	7c	Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.	Team Plan Robot Plan, Sprint to Compete, Advanced Automation, Community Project
	7d	Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.	Team Plan Robot Plan, Sprint to Compete, Advanced Automation, Community Project

Concept	Indicator	Indicator Statement	Activity
Career Ready Practices	1	Act as a responsible and contributing citizen and employee.	Career Ready Practices Rubric
	2	Apply Appropriate academic and technical skills.	Career Ready Practices Rubric
	3	Attend to personal health and financial wellbeing.	Career Ready Practices Rubric
	4	Communicate clearly, effectively and with reason.	Career Ready Practices Rubric
	5	Consider the environmental, social and economic impacts of decisions.	Career Ready Practices Rubric
	6	Demonstrate creativity and innovation	Career Ready Practices Rubric
	7	Employ valid and reliable research strategies	Career Ready Practices Rubric
	8	Utilize critical thinking to make sense of problems and preserver in solving them.	Career Ready Practices Rubric
	9	Model integrity, ethical leadership and effective management	Career Ready Practices Rubric
	10	Plan education and career path aligned to personal goals.	Career Ready Practices Rubric
	11	Use technology to enhance productivity	Career Ready Practices Rubric
	12	Work productively in teams while using cultural/global competence	Career Ready Practices Rubric
Architecture& Construction Career Cluster	AC-DES-1	Justify design solutions through the use of research documentation and analysis of data.	Robot Systems
	AC-DES-2	Use effective communication skills and strategies (listening, speaking, reading, writing, and graphic communications) to work with clients and colleagues	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	AC-DES-3	Describe the requirements of the integral systems that impact the design of buildings.	Community Project
	AC-DES-5	Identify the diverse needs, values, and social patterns in project designs, including accessibility standards	Community Project
Information Technology Career Cluster	IT-SUP-1	Provide technology support to maintain service.	-
	IT-SUP-2	Manage operating systems and software applications, including maintenance of upgrades, patches an service packs.	-
	IT-SUP-3	Apply quality assurance processes to maximize information system operation.	Computational Thinking, Advanced Computational Thinking
	IT-PRG-1	Analyze customer software needs and requirements	
	IT-PRG-2	Demonstrate the use of industry-standard strategies and project planning to meet customer specification	Team Plan and Robot Plan
STEM Engineering & Technology	ST-1	Apply engineering skills in a project that requires project management skills, process control and quality assurance.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-2	Use technology to acquire, manipulate, analyze and report data.	Team Plan and Robot Plan, Computational Thinking, Iteration and Redesign
	ST-3	Describe and follow safety, health and environmental standards related to science, technology, engineering and mathematics (STEM) workplaces.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-4	Understand the nature and scope of the Science, Technology, Engineering & Mathematics Career Cluster and the role of STEM in society and the economy.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-5	Demonstrate and understanding of the breadth of career opportunities and means to those opportunities in each of the	Career and Workforce Unit

		Science, Technology, Engineering & Mathematics Career Pathways.	
	ST-6	Demonstrate technical skills needed in a chosen STEM field.	Team plan and robot plan, Robot Systems Career and Workforce Unit
Engineering & Technology Career Pathway	ST-ET-1	Use STEM concepts and processes to solve problems involving design and or production.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-ET-2	Display and communicated STEM information.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-ET-3	Apply processes and concepts for the use of technological tools in STEM.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-ET-4	Apply elements of the design process.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-ET-5	Apply the knowledge learned in STEM to solve problems.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-ET-6	Apply the knowledge learned in the study of STEM to provide solutions to human and societal problems in an ethical and legal manner.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-SM-1	Apply science and mathematics to provide results, answers and algorithms for engineering and technological activities.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-SM-2	Apply science and mathematics concepts to the development of plans, processes and projects that address real-world problems.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-SM-3	Analyze the impact that science and mathematics has on society.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	ST-SM-4	Apply critical thinking skills to review information, explain statistical analysis, and to translate, interpret and summarize research and statistical data.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.

ITEA

Standards for Technology Literacy

Grade 9-12

Concept	Indicator	Indicator Statement	Activity
The Nature of Technology *1. The scope of technology.* *2. The core concepts of technology.* *3. The relationship among technologies and the connections between technology and other fields.* .	1-J	The nature and development of technological knowledge and processes are functions of the setting.	Why FTC, Team Plan and Robot Plan
	1-K	The rate of technological development and diffusion is increasing rapidly.	Computational Thinking
	1-L	Inventions and innovations are the results of specific, goal-directed research.	Team Plan and Robot Plan
	1-M	Most development of technologies these days is driven by the profit motive and market.	Team Plan and Robot Plan
	2-W	Systems thinking applies logic and creativity with appropriate compromises in complex real-life problems.	Robot Systems, Iteration and Redesign
	2-X	Systems, which are building blocks of technology, are embedded within larger technological, social, and environmental systems.	Robot Systems, Computational Thinking
	2-Y	The stability of a technological system is influenced by all of the components in the system, especially those in the feedback loop.	Advanced Computational Thinking
	2-Z	Selecting resources involves tradeoffs between competing values, such as availability, cost, desirability, and waste.	Robot Plan, Iteration and Redesign
	2-AA	Requirements involve the identification of the criteria and constraints of a product or system and the determination of how they affect the final design and development.	Robot Plan, Sprint to Compete, Iteration and Redesign
	2-BB	Optimization is an ongoing process or methodology of designing or making a product and is dependent on criteria and constraints.	Robot Plan, Sprint to Compete, Iteration and Redesign
	2-CC	New technologies create new processes.	Computational Thinking, Iteration and Redesign
	2-DD	Quality control is planned process to ensure that a product, service, or system meets established criteria.	Iteration and Redesign
	2-EE	Management is the process of planning, organizing, and controlling work.	Team Plan and Robot Plan
	2-FF	Complex systems have many layers of controls and feedback loops to provide information.	Advanced automation
	3-G	Technology transfer occurs when a new user applies an existing innovation developed for one purpose in a different function.	Iteration and Improvements.
	3-H	Technological innovation often results when ideas, knowledge, or skills are shared within a technology, among technologies, or across other fields.	Iteration and Redesign
	3-I	Technological ideas are sometimes protected through the process of patenting.	Community Project
	3-J	Technological progress promotes the advancement of science and mathematics.	Community Project
Technology and Society *4.The cultural, social, economic, and political effects of technology.*	4-H	Changes caused by the use of technology can range from gradual to rapid and from subtle to obvious.	Community Project
	4-I	Making decisions about the use of technology involves weighing the trade-offs between the positive and negative effects.	Robot Plan, Robot Systems, Iteration and Redesign
	4-J	Ethical considerations are important in the development, selection, and use of technologies.	Community Project

5.The effects of technology on the environment. *6.The role of society in the development and use of technology.* *7.The influence of technology on history.* *.6-*	4-K	The transfer of a technology from one society to another can cause cultural, social, economic, and political changes affecting both societies to varying degrees.	Community Project
	5-G	Humans can devise technologies to conserve water, soil, and energy through such techniques as reusing, reducing, and recycling.	Community Project
	5-H	When new technologies are developed to reduce the use of resources, considerations of tradeoffs are important.	Community Project
	5-I	With the aid of technology, various aspects of the environment can be monitored to provide information for decision making.	Community Project
	5-J	The alignment of technological processes with natural processes maximizes performance and reduces negative impacts on the environment.	Community Project
	5-K	Humans devise technologies to reduce the negative consequences of other technologies.	Community Project
	5-I	Decisions regarding the implementation of technologies involve the weighing of trade-offs between predicted positive and negative effects on the environment.	Community Project
	6-H	Different cultures develop their own technologies to satisfy their individual and shared needs, wants, and values.	Community Project
	6-I	The decision whether to develop a technology is influenced by societal opinions and demands, in addition to corporate cultures.	Community Project
	6-J	A number of different factors, such as advertising, the strength of the economy, the goals of the company, and the latest fads contribute to shaping the design of and demand for various technologies.	Community Project
	7-G	Most technological development has been evolutionary, the result of a series of refinements to a basic invention.	Community Project
	7-H	The evolution of civilization has been directly affected by and has in turn affected, the development and use of tools and materials.	Community Project
	7-I	Throughout history, technology has been a powerful force in reshaping the social, cultural, political, and economic landscape.	Community Project
	7-J	Early in history of technology, the development of many tools and machines was based not on scientific knowledge but on technological knowledge.	Computational Thinking
	7-K	The Iron Age was defined by the use of iron and steel as the primary materials for tools.	-
	7-L	The Middle Age saw the development of many technological devices that produced long-lasting effects on technology and society.	-
	7-M	The Renaissance, a time of rebirth of the arts and humanities, was also an important development in the history of technology.	-
	7-N	The Industrial Revolution saw the development of continuous manufacturing, sophisticated transportation and communication systems, advance construction practices, an improve education and leisure time.	-
	7-O	The Information Age places emphasis on the processing and exchange of information.	-
Design *8. The attributes of design* *9. Engineering Design* *10. The role of troubleshooting,*	8- H	The design process includes defining a problem, brainstorming, researching and generating ideas, identifying and specifying design constraints, exploring possibilities, selecting an approach, developing a design proposal, making a model or prototype, testing and evaluating the design using specifications, refining the design, creating or making it, and communicating process and results.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign

research and development, invention and innovation, and experimentation in problem solving.9-	8-I	Design problems are seldom presented in a clearly defined form.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	8-J	The design needs to be continually checked and critiqued, and the ideas of the design must be refined and improved.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	8-K	Requirements of a design, such as criteria, constraints, and efficiency, sometimes compete with each other.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	9-I	Established design principles are used to evaluate existing designs, to collect data, and guide the design process.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	9-J	Engineering design is influenced by personal characteristics, such as creativity, resourcefulness, and the ability to visualize and think abstractly.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	9-K	A prototype is a working model used to test a design concept by making actual observations and necessary adjustments.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	9-L	The process of engineering design takes into account a number of factors, safety, reliability, economic, quality control, manufacturing, maintenance, and ergonomics.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	10-I	Research and development is a specific problem-solving approach that is used intensively in business and industry to prepare devices and systems for the marketplace.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	10-J	Technological problems must be researched before they can be solved.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	10-K	Not all problems are technological, and not every problem can be solved using technology.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	10-L	Many technological problems require a multidisciplinary approach.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
Abilities for Technological World *11.Apply the design process.* *12.Use and maintain technological products and systems.* *13.Assess the impact of product and systems.*	11-M	Identify the design problem to solve and decide whether or not to address it.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	11-N	Identify criteria and constraints and determine how these will affect the design process.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	11-O	Refine a design by using prototypes and modeling to ensure quality, efficiency, and productivity of the final product.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	11-P	Evaluate the design solution using conceptual, physical, and mathematical models at various intervals of the design process in order to check for proper design and to note areas where improvements are needed.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign

	11-Q	Develop and produce a product or system using a design process.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	11-R	Evaluate final solutions and communicate observation, process, and results of the entire design process, using verbal, graphic, quantitative, virtual, and written means, in addition to three dimensional models.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	12-L	Document processes and procedures and communicate them to different audiences using appropriate oral and written techniques.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	12-M	Diagnose a system that is malfunctioning and use tools, materials, machines, and knowledge to repair it.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	12-N	Troubleshoot, analyze, and maintain systems to ensure safe and proper function and precision.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	12-O	Operate systems so that they function in the way they were designed.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	12-P	Use computers and calculators to access, retrieve, organize, process, maintain, interpret, and evaluate data and information in order to communicate.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	13-J	Collect information and evaluate its quality.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	13-K	Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	13-L	Use assessment techniques, such as trend analysis and experimentation, to make decisions about the future development of technology.	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
	13-M	Design forecasting techniques to evaluate the results of altering natural systems.	-
The Designed World *14.Medical Technologies* *15.Agricultural and related biotechnologies.* *16. Energy and power technologies.* *17. Information and communication technologies.* *18. Transportation technologies.* *19. Manufacturing technologies.* *20. Construction technologies*	14	Medical technologies.	-
	15	Agricultural and related biotechnologies.	-
	15-N	The engineering design and management of agricultural systems require knowledge of artificial ecosystems and the effects of technological development on flora and fauna.	-
	16-J	Energy cannot be created nor destroyed; however, it can be converted from one form to another.	Iteration and Redesign, Advanced Automation
	16-K	Energy can be grouped into major forms; thermal, radiant, electrical, mechanical, chemical, nuclear and others.	Robot Systems. Iteration and Redesign, Advanced Automation
	16-L	It is impossible to build an engine to perform work that does not exhaust thermal energy to the surroundings.	Iteration and Redesign, Advanced Automation
	16-N	Power systems must have a source of energy, a process, and loads.	Iteration and Redesign, Advanced Automation

	17- L	Information and communication technologies include the inputs, processes, and outputs associated with sending and receiving information.	Computational Thinking
	17-M	Information and communication systems allow information to be transferred from human to human, human to machine, machine to human, and machine to machine.	Computational Thinking
	17-N	Information and communication systems can be used to inform, persuade, entertain, control, manage and educate.	Team Plan Robot Plan, Sprint to Compete, Community Project
	17-O	Communication systems are made up source, encoder, transmitter, receiver, decoder, storage, retrieval, and destination.	Computational Thinking
	17-P	There are many ways to communicate information, such as graphic and electronic means.	Computational Thinking
	17-Q	Technological knowledge and processes are communicated using symbols, measurement, conventions, icons, graphic images, and languages that incorporate a variety of visual, auditory, and tactile stimuli.	Computational Thinking
	18-F	Transporting people and goods involves a combination of individuals and vehicles	-
	18-G	Transportation vehicles are made up of subsystems, such as structural, propulsion, suspension, guidance, control, and support, that must function together for a system to work effectively.	Robot Systems
	19-L	Servicing keeps products in good operating condition.	Iteration and Redesign
	19-P	Interchangeability of parts increases the effectiveness of manufacturing processes.	Iteration and Redesign
	19-R	Marketing involves establishing a product's identity, conducting research on its potential, advertising it, distributing it and selling it.	Community Project
	20	Construction technologies.	Community Project

Concept	Indicator	Indicator Statement	Activity
The Nature of Technology *1. The scope of technology.* *2. The core concepts of technology.* *3. The relationship among technologies and the connections between technology and other fields.*	1-F	New products and systems can be developed to solve problems or to help do things that could not be done without technology.	Team Plan and Robot Plan, Robot Systems, Iteration and Redesign, Advanced Automation, Community Project.
	1-G	The development of technology is a human activity and is the result of individual or collective needs and ability to be creative.	Community Project
	1-H	Technology is closely linked to creativity, which has resulted in innovation.	Why FTC?
	1-I	Corporations can often create demand for a product by bringing in onto a market.	Community Project
	2-M	Technological systems include input, processes, output and, at time, feedback.	Computational Thinking, Advanced Automation, Advanced Computational Thinking
	2-N	Systems thinking involves considering how every part relates to others.	Computational Thinking, Advanced Automation, Advanced Computational Thinking
	2-O	An open-loop system has no feedback path and requires human intervention, while a closed loop system uses feedback.	Advanced Automation, Advanced Computational Thinking
	2-P	Technological systems can be connected to one another.	Robot Systems
	2-Q	Malfunctions of any part of a system may affect the function and quality of the system.	Advanced Automation, Advanced Computational Thinking
	2-R	Requirements are the parameters placed on the development of a product or system.	Robot Plan
	2-S	Trade-off is a decision process recognizing the need for careful compromises among competing factors.	Robot Plan
	2-T	Different technologies involved different sets of process.	Robot Systems, Community Project
	2-U	Maintenance is the process of inspecting and servicing a product or system on a regular basis in order for it to continue functioning properly, to extend its life, or to upgrade its capability.	Iteration and Redesign
	2-V	Controls are mechanisms or particular steps that people perform using information about the system that causes the system to change.	Computational Thinking, Advanced Computational Thinking
	3-D	Technological systems often interact with one another.	Robot Systems
	3-E	A product, system, or environment developed for one setting may be applied to another setting.	Community Project
	3-F	Knowledge gained from other fields of study has a direct effect on the development of technological products and systems.	Robot Systems
Technology and Society *4.The cultural, social, economic, and*	4-D	The use of technology affects humans in various ways, including their safety, comfort, choices, and attitudes about technology's development and use.	Community Project
	4-E	Technology by itself is neither good nor bad, but decisions about the use of products and systems can result in desirable or undesirable consequences.	Community Project

political effects of technology. *5.The effects of technology on the environment.* *6.The role of society in the development and use of technology.* *7.The influence of technology on history.* *.*	4-F	The development and use of technology poses ethical issues.	Community Project
	4-G	Economic, political, and cultural issues are influenced by the development and use of technology.	Community Project
	5-D	The management of waste produced by technological systems is an important societal issue.	Community Project
	5-E	Technologies can be used to repair damage caused by natural disasters and to break down waste from the use of various products and systems.	Community Project
	5-F	Decisions to develop and use technologies often put environmental and economic concerns in direct competition with one another.	Community Project
	6-D	Throughout history, new technologies have resulted from the demands, values and interest of individuals, businesses, industries, and societies.	Community Project
	6-E	The use of inventions and innovations has led to changes in society and the creation of new needs and wants.	Team Plan and Robot Plan
	6-F	Social and cultural priorities and values are reflected in technological devices.	Community Project
	6-G	Meeting societal expectations is the driving force behind the acceptance of use products and systems.	Community Project
	7-C	Many inventions and innovations have evolved by using slow and methodical processes of test and refinement.	Team Plan and Robot Plan
	7-D	The specialization of function has been the heart of many technological improvements.	Iteration and Redesign
	7-E	The design and construction of structures for service or convenience have evolved from the development of techniques for measurement, controlling systems, and understanding of spatial relationships.	Iteration and Redesign Advanced Automation Iteration and Redesign 2
	7-F	In the past, an invention or innovation was not usually developed with knowledge of science.	Computational Thinking, Advanced Automation
Design *8. The attributes of design* *9. Engineering Design* *10. The role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.*	8- E	Design is a creative planning process that leads to useful products and systems.	Team Plan and Robot Plan
	8-F	There is no perfect design	Team Plan and Robot Plan
	8-G	Requirements for a design are made up of criteria and constraints.	Team Plan and Robot Plan
	9-F	Design involves a set of steps which can be performed in different sequences and repeated as needed.	Team Plan and Robot Plan
	9-G	Brainstorming is a group problem-solving design process in which each person in the group presents his or her ideas in an open forum.	Team Plan and Robot Plan
	9-H	Modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions.	Team Plan and Robot Plan
	10-F	Troubleshooting is a problem-solving method used to identify the cause of the malfunction in a technological system.	Team Plan and Robot Plan Sprint to Compete Iteration and Redesign Advanced Automation Iteration and Redesign 2
	10-G	Invention is a process of turning ideas and imagination into devices and systems. Innovation is the process of modifying an existing product or system to improve it.	Team Plan and Robot Plan Sprint to Compete Iteration and Redesign Advanced Automation Iteration and Redesign 2
	10-H	Some technological problems are best solved through experimentation.	Team Plan and Robot Plan Sprint to Compete Iteration and Redesign Advanced Automation Iteration and Redesign 2

Abilities for Technological World *11.Apply the design process.* *12.Use and maintain technological products and systems.* *13.Assess the impact of product and systems.*	11-H	Apply a design process to solve problems in and beyond the laboratory-classroom.	Team Plan and Robot Plan Sprint to Compete Iteration and Redesign Advanced Automation Iteration and Redesign 2
	11-I	Specify criteria and constraints for the design.	Team Plan and Robot Plan Sprint to Compete Iteration and Redesign Advanced Automation Iteration and Redesign 2
	11-J	Make two-dimensional and three-dimensional representations of the designed solution.	Team Plan and Robot Plan Sprint to Compete Iteration and Redesign Advanced Automation Iteration and Redesign 2
	11-K	Test and evaluate the design in relation to pre-established requirements, such as criteria and constraints, and refine as needed.	Team Plan and Robot Plan Sprint to Compete Iteration and Redesign Advanced Automation Iteration and Redesign 2
	11-L	Make a product or system and document the solution.	All
	12-H	Use information provided in manuals, protocols, or by experienced people to see and understand how things work.	Team Plan and Robot Plan Robot Systems Iteration and Redesign Advanced Automation Iteration and Redesign 2
	12-I	Use tools, materials, and machines safely to diagnose, adjust and repair systems.	Team Plan and Robot Plan
	12-J	Use computers and calculators in various applications.	All
	12-K	Operate and maintain systems in order to achieve a given purpose.	Iteration and Redesign Advanced Automation Iteration and Redesign 2
	13-F	Design and use instruments to gather data.	Computational Thinking
	13-G	Use data collected to analyze and interpret trends in order to identify the positive or negative effects of a technology.	All
	13-H	Identify trends and monitor potential consequences of technological development.	Computational Thinking
	13-I	Interpret and evaluate the accuracy of the information obtained and determine if it is useful.	Test and Evaluate in All Units
The Designed World *14.Medical Technologies* *15.Agricultural and related biotechnologies.* *16. Energy and power technologies.* *17. Information and communication technologies.* *18. Transportation technologies.* *19. Manufacturing technologies.*	14-G	A wide range of specialized equipment and practices is used to improve the production of food, fiber, fuel, and specialized animal care equipment	Community Project
	16-E	Energy is the capacity to do work	Robot Systems
	16-F	Energy can be used to do work using many processes.	Robot Systems Advanced Automation
	16-G	Power is the rate at which energy is converted from one form to another, or the rate at which work is done.	Robot Systems Advanced Automation
	16-H	Power systems are used to drive and provide propulsion to other technological products and systems.	Robot Systems Advanced Automation
	16-I	Much of the energy used in our environment is not used efficiently.	Robot Systems Advanced Automation
	17-H	Information and communication systems allow information to be transferred from human to human, human to machine, and machine to human.	Robot Systems

20. Construction technologies.	17-I	Communication systems are made up of a source, encoder, transmitter, receive, decoder, and destination.	Computational thinking
	17-J	The design of a message is influenced by such factors as the intended audience, medium, purpose, and nature of the message.	Community Project
	17-K	The use of symbols, measurements, and drawings promotes clear communication by providing a common language to express ideas.	Computational thinking, Robot Plan
	18-F	Transporting people and goods involves a combination of individuals and vehicles	-
	18-G	Transportation vehicles are made up of subsystems, such as structural, propulsion, suspension, guidance, control, and support, that must function together for a system to work effectively.	-
	19-F	Manufacturing systems use mechanical processes of separating, forming, combining, and conditioning.	-
	19-H	Manufacturing process includes the designing, development, making and servicing of products and systems.	-
	20-J	Infrastructure is the underlying base or basic framework of a system.	Robot systems
	20-K	Structures are constructed using a variety of processes and procedures.	Robot systems
	20-L	The design of structures includes a number of requirements.	Robot systems
	20-M	Structures require maintenance, alteration or renovation period	Robot systems, Advanced Automation, Iteration and Redesign, Sprint to Compete

FIRST TECH CHALLENGE

CSTA Standards Alignment

Computer Science Standards

Grade 6-8

Concept	Indicator	Indicator Statement	Activity
Algorithms & Programming	2-AP-10	Use flowcharts and/or pseudocode to address complex problems as algorithms.	Computational Thinking, Advanced Computational Thinking
	2-AP-11	Create clearly named variables that represent different data types and perform operations on their values.	Computational Thinking, Advanced Computational Thinking
	2-AP-12	Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.	Computational Thinking, Advanced Computational Thinking
	2-AP-13	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.	Computational Thinking, Advanced Computational Thinking
	2-AP-14	Create procedures with parameters to organize code and make it easier to reuse.	Computational Thinking, Advanced Computational Thinking
	2-AP-15	Seek and incorporate feedback from team members and users to refine a solution that meets user needs.	Computational Thinking, Advanced Computational Thinking
	2-AP-17	Systematically test and refine programs using a range of test cases.	Computational Thinking, Advanced Computational Thinking
	2-AP-18	Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.	Computational Thinking, Advanced Computational Thinking
	2-AP-19	Document programs in order to make them easier to follow, test, and debug.	Computational Thinking, Advanced Computational Thinking
Computing Systems	2-CS-01	Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.	Community Project Computational Thinking, Advanced Computational Thinking
	2-CS-02	Design projects that combine hardware and software components to collect and exchange data.	Robot Systems Computational Thinking, Advanced Computational Thinking
	2-CS-03	Systematically identify and fix problems with computing devices and their components.	Robot Systems Computational Thinking, Advanced Computational Thinking
Impacts of Computing	2-IC-20	Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.	Community Project
	2-IC-21	Discuss issues of bias and accessibility in the design of existing technologies.	-
	2-IC-22	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.	Community Project
	2-IC-23	Describe tradeoffs between allowing information to be public and keeping information private and secure.	-
Networks & the Internet	2-NI-04	Model the role of protocols in transmitting data across networks and the Internet.	-
	2-NI-05	Explain how physical and digital security measures protect electronic information.	-
	2-NI-06	Apply multiple methods of encryption to model the secure transmission of information.	-

FIRST TECH CHALLENGE

CSTA Standards Alignment

Computer Science Standards

Grade 9-10

Concept	Indicator	Indicator Statement	Activity
Algorithms & Programming	3A-AP-13	Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.	Computational Thinking, Advanced Computational Thinking
	3A-AP-14	Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.	Computational Thinking, Advanced Computational Thinking
	3A-AP-15	Justify the selection of specific control structures when tradeoffs involve implementation, readability, and program performance, and explain the benefits and drawbacks of choices made.	Computational Thinking, Advanced Computational Thinking
	3A-AP-16	Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.	Computational Thinking, Advanced Computational Thinking
	3A-AP-17	Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.	Computational Thinking, Advanced Computational Thinking
	3A-AP-18	Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.	Computational Thinking, Advanced Computational Thinking
	A-AP-19	Systematically design and develop programs for broad audiences by incorporating feedback from users.	Computational Thinking, Advanced Computational Thinking
	3A-AP-20	Evaluate licenses that limit or restrict use of computational artifacts when using resources such as libraries.	-
	3A-AP-21	Evaluate and refine computational artifacts to make them more usable and accessible.	Computational Thinking, Advanced Computational Thinking
	3A-AP-22	Design and develop computational artifacts working in team roles using collaborative tools.	Computational Thinking, Advanced Computational Thinking
	3A-AP-23	Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.	Computational Thinking, Advanced Computational Thinking
Computing Systems	3A-CS-01	Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.	Computational Thinking, Advanced Computational Thinking
	3A-CS-02	Compare levels of abstraction and interactions between application software, system software, and hardware layers.	Computational Thinking, Advanced Computational Thinking
	3A-CS-03	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.	Computational Thinking, Advanced Computational Thinking
Data & Analysis	3A-DA-09	Translate between different bit representations of real-world phenomena, such as characters, numbers, and images.	Computational Thinking, Advanced Computational Thinking
	3A-DA-10	Evaluate the tradeoffs in how data elements are organized and where data is stored.	Computational Thinking, Advanced Computational Thinking
	3A-DA-11	Create interactive data visualizations using software tools to help others better understand real-world phenomena.	Community Project

	3A-DA-12	Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.	Computational Thinking, Advanced Computational Thinking
Impacts of Computing	3A-IC-24	Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.	Computational Thinking
	3A-IC-25	Test and refine computational artifacts to reduce bias and equity deficits.	Community Project
	3A-IC-26	Demonstrate ways a given algorithm applies to problems across disciplines.	Computational Thinking, Advanced Computational Thinking
	3A-IC-27	Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.	All
	3A-IC-28	Explain the beneficial and harmful effects that intellectual property laws can have on innovation.	Community Project
	3A-IC-29	Explain the privacy concerns related to the collection and generation of data through automated processes that may not be evident to users.	Community Project
	3A-IC-30	Evaluate the social and economic implications of privacy in the context of safety, law, or ethics.	Community Project
Networks & the Internet	3A-NI-04	Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing.	Robot Systems
	3A-NI-05	Give examples to illustrate how sensitive data can be affected by malware and other attacks.	-
	3A-NI-06	Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.	-
	3A-NI-07	Compare various security measures, considering tradeoffs between the usability and security of a computing system.	-
	3A-NI-08	Explain tradeoffs when selecting and implementing cybersecurity recommendations.	-

Next Generation Science Standards

Middle School Engineering Design

***Grade* 6-8**

Concept	Indicator	Indicator Statement	Activity
Engineering Design	MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	Team plan and robot plan, Iteration and Redesign
	MS-ETS1-2	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	Team plan and robot plan, Sprint to Compete, Iteration and Redesign
	MS-ETS1-3	Analyze data from test to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.	Team plan and robot plan, Sprint to Compete, Iteration and Redesign
	MS-ETS1-4	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	Team plan and robot plan, Sprint to Compete, Iteration and Redesign
Forces and Interactions	MS-PS2-1	Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.	Robot Systems, Iteration and Redesign, Advanced Automation
	MS-PS2-2	Plan an investigation to provide evidence that the change in an object's motion depends on the sum of forces on the object and the mass of the object.	Robot Systems, Iteration and Redesign, Advanced Automation
	MS-PS2-4	Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.	Robot Systems, Iteration and Redesign, Advanced Automation

FIRST TECH CHALLENGE

Next Generation Science Standards

High School Engineering Design

Grade 9-12

Concept	Indicator	Indicator Statement	Activity
Engineering Design	HS-ETS1-1	Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.	Robot Systems, Iteration and Redesign, Advanced Automation
	HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.	Robot Systems, Iteration and Redesign, Advanced Automation
	HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural and environmental impacts.	Robot Systems, Iteration and Redesign, Advanced Automation
	HS-ETS1-4	Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.	Robot Systems, Iteration and Redesign, Advanced Automation
Forces and Interactions	HS-PS2-1	Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among net force on a macroscopic object, its mass, and its acceleration.	Robot Systems, Iteration and Redesign, Advanced Automation
	HS-PS2-2	Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.	Robot Systems, Iteration and Redesign, Advanced Automation
	HS-PS2-3	Apply science and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision,	Robot Systems, Iteration and Redesign, Advanced Automation
	HS-PS2-6	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.	Robot Systems, Iteration and Redesign, Advanced Automation

Social and Emotional Learning Standards Alignment

Student Standards

This alignment covers the CASEL Core SEL Competencies and the Ohio K-12 Social and Emotional Learning Standards. The Ohio standards were used because they provided grade level learning standards aligned to the CASEL core competencies.

Middle Grades

Cluster	Indicator	Indicator Statement	Addressed
Self-Awareness	A1	Demonstrate an awareness of personal emotions	*Career Ready Practices Rubric*
	A1. 1.c	*Identify, recognize and name personal complex emotions*	*Career Ready Practices Rubric*
	A1. 2.c	*Explain that emotions may vary based on the situation, including people and places*	*Career Ready Practices Rubric*
	A1. 3.c	*Utilize appropriate time and place to safely process emotions, independently, with a trusted adult or with peers*	*Career Ready Practices Rubric*
	A1. 4.c	*Explain how others' responses to current events can impact emotions*	*Career Ready Practices Rubric*
	A2	Demonstrate awareness of personal interests and qualities, including strengths and challenges	*Career Ready Practices Rubric*
	A2. 1.c	*Describe how personal interests, qualities and strengths may help with decision making to accomplish personal goals*	*Career Ready Practices Rubric*
	A2. 2.c	*Investigate a potential career path that builds on personal strengths and addresses challenges*	*Career Ready Practices Rubric*
	A3	Demonstrate awareness of and willingness to seek help for self or others	*Career Ready Practices Rubric*
	A3. 1.c	*Seek appropriate support from a trusted adult when help is needed academically, socially or emotionally*	*Career Ready Practices Rubric*
	A3. 2.c	*Develop and implement a plan of action, based on support or constructive feedback, that addresses challenges and builds on strengths*	*Career Ready Practices Rubric*
	A3. 3.c	*Identify and utilize appropriate processes for reporting unsafe behaviors or situations for self and others*	*Career Ready Practices Rubric*
	A4	Demonstrate a sense of personal responsibility, confidence and advocacy	*Career Ready Practices Rubric*
	A4. 1.c	*Describe how personal responsibility is linked to being accountable for one's choices and behavior*	*Career Ready Practices Rubric*
	A4. 2.c	*Recognize the importance of confidently handling tasks and challenges, while reframing negative thoughts and engaging in positive self-talk*	*Career Ready Practices Rubric*
	A4. 3.c	*Demonstrate basic self- advocacy academically and socially*	*Career Ready Practices Rubric*
Self-Management	B1	Regulate emotions and behaviors by using thinking strategies that are consistent with brain development	*Career Ready Practices Rubric*
	B1. 1.c	*Describe the relationship between thoughts, emotions and behavior and apply strategies to regulate response*	*Career Ready Practices Rubric*
	B1. 2.c	*Analyze positive and negative consequences of expressing emotions in different settings*	*Career Ready Practices Rubric*
	B1. 3.c	*Apply productive self- monitoring strategies to reframe thoughts and behaviors*	*Career Ready Practices Rubric*
	B2	Set, monitor, adapt and evaluate goals to achieve success in school and life	*Career Ready Practices Rubric*
	B2. 1.c	*Recognize the importance of short and long-term goals for success in school and life*	*Career Ready Practices Rubric Team Plan Robot Plan, Project Management Sprints*
	B2. 2.c	*Identify school, family and community resources that may assist in achieving a goal*	*Career Ready Practices Rubric Community Project*

	B2. 3.c	*Set a short-term school or life goal with action steps to achieve success*	*Career Ready Practices Rubric Careers Unit*
	B2. 4.c	*Monitor progress toward a specified goal by developing checkpoints and adjusting the plan or action steps as needed*	*Sprint to Compete, Iteration and Redesign 1 &2*
	B3	Persevere through challenges and setbacks in school and life	*Career Ready Practices Rubric*
	B3. 1.c	*Utilize strategies for persevering through challenges and setbacks*	*Career Ready Practices Rubric Robot Technical Design*
	B3. 2.c	*Reframe a challenge or setback into an opportunity, with assistance*	*Career Ready Practices Rubric Robot Technical Design*
Social Awareness	C1	Recognize, identify and empathize with the feelings and perspective of others	*Career Ready Practices*
	C1. 1.c	*Determine if verbal and nonverbal cues correspond to the feelings expressed by others*	*Career Ready Practices*
	C1. 2.c	*Demonstrate respect across school, community, face-to- face and virtual settings, when viewpoints or perceptions differ*	*Career Ready Practices*
	C1. 3.c	*Demonstrate empathy through understanding of others' feelings and acknowledgement of their perspective*	*Career Ready Practices*
	C2	Demonstrate consideration for and contribute to the well-being of the school, community and world	*Career Ready Practices*
	C2. 1.c	*Explain the importance of civic mindedness*	*Career Ready Practices*
	C2. 2.c	*Pursue opportunities to contribute to school or the broader community*	*Career Ready Practices Community Project*
	C2. 3.c	*Explore a school or community need and generate possible solutions*	*Community Project*
	C2. 4.c	*Engage in an activity to improve school, home or community*	*Community Project*
	C3	Demonstrate an awareness and respect for human dignity, including the similarities and differences of all people, groups and cultures	Career Ready Practices
	C3. 1.c	*Discuss how positive or negative stereotypes of an individual or group can be unconscious and may lead to discrimination and prejudice*	Career Ready Practices
	C3. 2.c	*Participate in cross-cultural activities and demonstrate respect for individuals from different social and cultural groups*	Career Ready Practices
	C3. 3.c	*Demonstrate respect for human dignity virtually and in- person*	Career Ready Practices
	C4	Read social cues and respond constructively	Career Ready Practices
	C4. 1.c	*Generate positive responses to various social situations*	Career Ready Practices
	C4. 2.c	*Recognize that social cues are based on rules and expectations and can change based upon context*	Career Ready Practices
	C4. 3.c	*Recognize that personal and group needs can differ and identify positive actions to balance the needs of all*	Career Ready Practices
Relationship Skills	D1	Apply positive verbal and non-verbal communication and social skills to interact effectively with others and in groups	Career Ready Practices
	D1. 1.c	*Demonstrate the ability to actively listen and understand multiple perspectives*	Career Ready Practices
	D1. 2.c	*Offer and acknowledge constructive feedback to strengthen connections and improve communication outcomes with others*	Career Ready Practices
	D1. 3.c	*Interact on social and digital media responsibly and understand the potential impact on reputation and relationships*	Career Ready Practices
	D2	Develop and maintain positive relationships	Career Ready Practices
	D2. 1.c	*Participate in a healthy network of personal and school relationships*	Career Ready Practices
	D2. 2.c	*Demonstrate inclusiveness in relationship building*	Career Ready Practices
	D2. 3.c	*Utilize strategies to manage social pressures*	Career Ready Practices
	D3	Demonstrate the ability to prevent, manage and resolve interpersonal conflicts in constructive ways	Career Ready Practices Sprint to Compete
	D3. 1.c	*Recognize and acknowledge different perspectives of others to*	Career Ready Practices

		prevent conflict	
	D3. 2.c	*Use a non-judgmental voice during conflict resolution to maintain safe relationships*	Career Ready Practices
	D3. 3.c	*Exchange ideas and negotiate solutions to resolve conflicts, seeking support when needed*	Team Plan and Robot Plan, Sprint to Compete, Iteration and Redesign
Responsible Decision-Making	E1	Develop, implement and model effective decision and critical thinking skills	Team Plan and Robot Plan, Sprint to Compete, Community Project Iteration and Redesign
	E1. 1.c	*Demonstrate critical thinking skills when solving problems or making decisions, recognizing there may be more than one perspective*	Team Plan and Robot Plan, Sprint to Compete, Community Project Iteration and Redesign
	E1. 2.c	*Gather evidence to support and solve academic and social challenges*	*Community Project*
	E2	Identify potential outcomes to help make constructive decisions	Team Plan and Robot Plan, Sprint to Compete, Community Project Iteration and Redesign
	E2. 1.c	*Generate ideas for recognizing when something may be getting in the way of making a responsible decision and ways to possibly reduce or limit its influence*	Team Plan and Robot Plan, Sprint to Compete, Community Project Iteration and Redesign
	E2. 2.c	*Identify reliable sources of adult help in various settings and actively seek adults for support*	Team Plan and Robot Plan, Sprint to Compete, Community Project Iteration and Redesign
	E2. 3.c	*Utilize knowledge of outcomes to inform future decisions*	Team Plan and Robot Plan, Sprint to Compete, Community Project Iteration and Redesign
	E3	Consider the ethical and civic impact of decisions	Career Ready Practices
	E3. 1.c	*Apply honesty, respect and compassion to the decision-making process*	Career Ready Practices
	E3. 2.c	*Demonstrate safe practices to guide actions for self and toward others*	Career Ready Practices
	E3. 3.c	*Research opportunities for participation in civic-minded activities that contribute to the larger community*	Career Ready Practices
	E4	Explore and approach new situations with an open mind and curiosity while recognizing that some outcomes are not certain or comfortable	Team Plan and Robot Plan, Sprint to Compete, Community Project Iteration and Redesign
	E4. 1.c	*Engage in new opportunities to expand one's knowledge and experiences*	Team Plan and Robot Plan, Sprint to Compete, Community Project Iteration and Redesign
	E4. 2.c	*Recognize that new opportunities or unfamiliar situations may require productive struggle*	Team Plan and Robot Plan, Sprint to Compete, Community Project Iteration and Redesign
	E4. 3.c	*Demonstrate ability to manage transitions and adapt to changing situations and responsibilities in school and life*	Team Plan and Robot Plan, Sprint to Compete, Community Project Iteration and Redesign

High School

Cluster	Indicator	Indicator Statement	Addressed
Self-Awareness	A1	Demonstrate an awareness of personal emotions	Career Ready Practices
	A1. 1.d	*Identify complex emotions as an indicator of personal state of well-being*	Career Ready Practices
	A1. 2.d	*Analyze ways emotions impact the social environment*	Career Ready Practices
	A1. 3.d	*Utilize appropriate time, place or support systems to reflect on personal emotions, independently, with a trusted adult or with peers*	Career Ready Practices
	A1. 4.d	*Analyze why current events may trigger an emotional reaction and identify ways to regulate a response*	Career Ready Practices
	A2	Demonstrate awareness of personal interests and qualities, including strengths and challenges	Career Ready Practices
	A2. 1.d	*Practice using personal strengths in pursuit of post-secondary goals*	*Careers Unit*
	A2. 2.d	*Take proactive steps toward implementing a plan for post-secondary goals by building on personal strengths and addressing challenges*	*Careers Unit*
	A3	Demonstrate awareness of and willingness to seek help for self or others	Career Ready Practices
	A3. 1.d	*Utilize support from trusted adults, as well as resources and agencies that provide academic, social, emotional or health-related support*	*Advanced Automation*
	A3. 2.d	*Reflect on actions that are based on constructive feedback, address personal challenges and build on personal strengths*	Career Ready Practices
	A3. 3.d	*Access community resources and safety networks for self or others*	*Community Project*
	A4	Demonstrate a sense of personal responsibility, confidence and advocacy	Career Ready Practices
	A4. 1.d	*Demonstrate internalization of personal responsibility and being accountable as one prepares for post- secondary life*	Career Ready Practices
	A4. 2.d	*Set post-secondary and life goals with confidence in the ability to be successful, while positively addressing challenges*	Career Ready Practices
	A4. 3.d	*Demonstrate self-advocacy in context- specific situations*	Career Ready Practices
Self-Management	B1	Regulate emotions and behaviors by using thinking strategies that are consistent with brain development	Career Ready Practices
	B1. 1.d	*Utilize self-management strategies to regulate thoughts, emotions and behaviors within the context of the situation*	Career Ready Practices
	B1. 2.d	*Evaluate how emotions expressed in different settings impact the outcome of a situation*	Career Ready Practices
	B1. 3.d	*Apply productive self-monitoring strategies to process emotions and reframe thoughts and behaviors*	Career Ready Practices
	B2	Set, monitor, adapt and evaluate goals to achieve success in school and life	*Careers Unit*
	B2. 1.d	*Develop a plan that demonstrates an understanding of how to set and reach goals that contribute to lifelong success*	*Careers Unit*
	B2. 2.d	*Utilize school, family and community or varied resources that may assist in achieving a goal*	*Community Project* *Careers Unit*
	B2. 3.d	*Set a post-secondary life goal with action steps, timeframes and criteria for evaluating achievement*	*Careers Unit*
	B2. 4.d	*Evaluate progress toward achieving a specified goal and re-evaluate or adapt the plan or action steps, as needed*	*Sprint to Compete*
	B3	Persevere through challenges and setbacks in school and life	Career Ready Practices
	B3. 1.d	*Demonstrate the ability to persevere through challenges for long-term rewards or success*	Career Ready Practices
	B3. 2.d	*Reframe a current challenge or setback, by reflecting on successes*	*Sprint to Compete*

Social Awareness	C1	Recognize, identify and empathize with the feelings and perspective of others	Career Ready Practices
	C1. 1.d	*Evaluate verbal, behavioral, environmental and situational cues that may influence the feelings of others*	Career Ready Practices
	C1. 2.d	*Demonstrate ways to encourage mutual respect across all settings when viewpoints or perceptions differ*	Career Ready Practices
	C1. 3.d	*Demonstrate empathy through compassion in self and encourage in others*	Career Ready Practices
	C2	Demonstrate consideration for and contribute to the well-being of the school, community and world	Career Ready Practices
	C2. 1.d	*Demonstrate an awareness of responsibilities as an involved citizen in a democratic society*	Career Ready Practices
	C2. 2.d	*Engage in civic duties and opportunities within the broader community*	*Community Project*
	C2. 3.d	*Implement a strategy to address a need in the broader community or world as change agents*	*Community Project*
	C2. 4.d	*Evaluate the impact of personal involvement in an activity to improve school, home, community and world*	*Community Project*
	C3	Demonstrate an awareness and respect for human dignity, including the similarities and differences of all people, groups and cultures	Career Ready Practices
	C3. 1.d	*Examine and address explicit or implicit personal biases toward an individual or group*	Career Ready Practices
	C3. 2.d	*Participate in cross-cultural activities, identify unique contributions and perspectives of various groups, and how the experience may change personal perspective*	Career Ready Practices
	C3. 3.d	*Analyze how one can build community that respects all human dignity virtually and in-person*	*Team Plan and Robot Plan Community Event*
	C4	Read social cues and respond constructively	Career Ready Practices
	C4. 1.d	*Evaluate how societal and cultural norms influence personal interactions*	Career Ready Practices
	C4. 2.d	*Respond to social cues that differ depending on the societal and cultural norms of the environment*	Career Ready Practices
	C4. 3.d	*Use positive problem-solving skills to balance personal and group needs and foster respectful group interactions*	Career Ready Practices
Relationship Skills	D1	Apply positive verbal and non-verbal communication and social skills to interact effectively with others and in groups	Career Ready Practices
	D1. 1.d	*Actively engage in positive interactions to make connections with peers, adults and community to support and achieve common goals*	Career Ready Practices
	D1. 2.d	*Apply constructive feedback to strengthen connections and achieve common goals*	Career Ready Practices
	D1. 3.d	*Demonstrate responsible use of social and digital media and understand the potential impact on post-secondary goals*	Career Ready Practices
	D2	Develop and maintain positive relationships	Career Ready Practices
	D2. 1.d	*Establish and actively participate in a healthy network of personal, school and community relationships*	Career Ready Practices
	D2. 2.d	*Incorporate compassionate and inclusive practices in relationships*	Career Ready Practices
	D2. 3.d	*Develop techniques to empower, encourage and affirm oneself and others, maintaining positive, healthy relationships*	Career Ready Practices
	D3	Demonstrate the ability to prevent, manage and resolve interpersonal conflicts in constructive ways	Career Ready Practices
	D3. 1.d	*Demonstrate an ability to co-exist in civility in the face of differing perspectives to prevent conflict*	Career Ready Practices
	D3. 2.d	*Apply conflict management skills and strategies to manage intimidation, avoid and escape violence, and maintain personal safety*	Career Ready Practices

	D3. 3.d	*Utilize problem solving resources and supports to facilitate conflict resolution, recognizing that seeking help is a strength*	Career Ready Practices
Responsible Decision-Making	E1	Develop, implement and model effective decision and critical thinking skills	Career Ready Practices
	E1. 1.d	*Demonstrate critical thinking skills to select an appropriate decision-making process, recognizing there are multiple perspectives*	Career Ready Practices
	E1. 2.d	*Implement a decision-making process to solve complex situations including academic and social challenges*	Career Ready Practices
	E2	Identify potential outcomes to help make constructive decisions	Career Ready Practices
	E2. 1.d	*Implement strategies for reducing influence of stressors that limit your ability to make the most-informed decisions when at school, at home or in the community with peers*	Career Ready Practices
	E2. 2.d	*Independently seek reliable adult mentors in various settings*	Career Ready Practices Community Project Advanced Automation
	E2. 3.d	*Integrate prior experience and knowledge of outcomes to inform future decisions*	Career Ready Practices
	E3	Consider the ethical and civic impact of decisions	Career Ready Practices
	E3. 1.d	*Demonstrate respect and integrity in all settings during the decision-making process*	Career Ready Practices
	E3. 2.d	*Engage in safe practices in my personal behavior choices and habits for self and toward others*	Career Ready Practices
	E3. 3.d	*Seek and engage in civic-minded activities that contribute to the larger community*	Career Ready Practices
	E4	Explore and approach new situations with an open mind and curiosity while recognizing that some outcomes are not certain or comfortable	Career Ready Practices
	E4. 1.d	*Actively seek out new opportunities to expand personal knowledge and experiences*	Career Ready Practices *Careers Unit*
	E4. 2.d	*Embrace productive struggle as an opportunity for personal growth*	Career Ready Practices
	E4. 3.d	*Anticipate and plan for transitions in post-secondary life*	*Careers Unit*