Dover Area School District Curriculum K-U-D
3-5 STEM Makerspace

Subject	Standards	Know	Understand	Do
Collaboration				
	ELA: CC.1.5.3.A Engage effectively in a range of collaborative discussions on grade level topics and texts, building on others' ideas and expressing their own clearly.	Collaborate, communicate and express ideas	Collaborate with others through communication and expression of ideas	Work in groups and partners to discuss and share thoughts and ideas.
	ISTE: 7. Global Collaborator: 7a: Students use digital tools to work with friends and people from different backgrounds or cultures.	Digital Tools Collaborate	Online discussion and video tools can be used to share your creations, as well as to see the creations of others.	Use the tools to see and share the work of grade level peers.
	ISTE: 2. Digital Citizen: 2b: Students practice and encourage others in safe, legal and ethical behavior when using technology and interacting online with guidance from an educator.	Safe, legal and ethical behavior when using technology and interacting online	When sharing information, understand the importance of privacy.	Practice online discussions and encourage others in a positive way online
Coding and Robotics				
	CSTA: 1A-AP-12 Develop plans that describe a program's sequence of events, goals, and expected outcomes.	Code Writing a Program	Writing code is creating a progam that tells a computer what to do.	Use coding apps to learn about coding
	CSTA: 1B-AP-10 Create programs that include sequences, events, loops, and conditionals.	Sequence Loop Conditions Event/Function Types of code (directional, block)	A program needs to include a sequence and can include events, loops and conditionals.	Use coding apps to create programs Create programs to code the robots
	1B-AP-15 Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.	Bug De-Bug Algorithm	When a program has a problem in the order of the code, it needs to be fixed in order for the program to work.	Practice writing and fixing programs in the coding apps
Design Thinking				
	ISTE 4. Innovative Designer: 4C. Students engage in a cyclical design process to develop prototypes and reflect on the role that trial and error plays.	Ask Image Plan Create Improve	The engineering design process helps to break down the necessary steps to solve a problem or answer a question.	Create solutions for the given problem.
	ISTE 4. Innovative Designer: 4d: Students Demonstrate perseverance when working with open-ended problems.	Perserverance	When using the engineering design process, students will need to test and improve their design.	Students will test their design and improve as needed to solve the problem.
	ISTE: 4. Innovative Designer: 4b: Students use digital and non-digital tools to plan and manages a design process	Digital and non-digital tools for planning	The Engineering Desing Process can be used to solve a problem. (Ask, Imagine, Plan, Create, Improve)	Create a plan using the engineering design process using Google suite or a worksheet.
Creative Communicator				
	ISTE 6. Creative Communicator: 6b: Students create digital artifacts to communicate ideas visually and graphically.	Digital Artifacts Communicate Visually Graphics	Students understand how to create and share ideas using digital tools.	Students will create a digital artifact using an online tool in order to communicate an idea visually.
	ISTE 3. Knowledge Constructor: 3a. Students collaborate with a teacher to employ appropriate research techniques to locate digital resources that will help them in their learning process	Collaborate Research Digital Resources	Students understand how to find information online using research techniques.	Students will use the research that they have gathered to inform their design and creation of a digital artifact.

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	ISTE 6. Creative Communicator: 6a: Students recognize and utilize the feature and functions of a variety of creation or communication tools.	A variety of creation and communication tools	Creation and communication tools can be used to show learning.	Know and use the tools to create or communicate to show learning.