CURRICULUM AT A GLANCE

Welcome to Engineering and Design, also known as STEM! STEM stands for Science, Technology, Engineering, and Math. In this course, students will be exploring how to solve technological and scientific problems. We will do so through the use of a variety of tools, materials, processes, and systems that will help us to understand how science and technology impact our daily lives.

We will use this course as an opportunity to expand upon what students are learning in their core science courses. Through hands-on learning and challenging projects, students will develop technological literacy and skills necessary for you to succeed in the 21st century world. In 6th grade, we ask students to meet a sample project. We provide a safe space for them to try solutions and problem solve on their own and with peers to get to the sample. This class will allow you to solve real world issues through exploration, inquiry, and problem solving experiences while giving you an opportunity for self discovery and character growth.

E&D, Grade 6

COURSE NAME	
Unit Name	**Learning**
Unit 1: Sled Kite, what's the simplest thing I can get to fly?	Students will: ● Evaluate competing design solutions using a systemic process to determine how well they meet the criteria and constraints of the problem. ● 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.
Unit 2: SketchUp, can I redesign my room?	Students will: ● Evaluate competing design solutions using a systemic process to determine how well they meet the criteria and constraints of the problem. ● Develop a model to generate data for iterative testing and modification of a proposed tool, object, or process that an optimal design can be achieved.

Unit 3: 3D Printing, why I need to think in 3D.	Students will: ● Evaluate competing design solutions using a systemic process to determine how well they meet the criteria and constraints of the problem. ● 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. ● Develop a model to generate data for iterative testing and modification of a proposed tool, object, or process that an optimal design can be achieved.
Unit 4: Knots, math with ropes.	Students will: ● Analyze data from tests 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. ● Evaluate competing design solutions using a systemic process to determine how well they meet the criteria and constraints of the problem. ● Develop a model to generate data for iterative testing and modification of a proposed tool, object, or process that an optimal design can be achieved.
Unit 5: Abacus, using a different way to calculate.	Students will: ● Analyze data from tests 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. ● 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. ● Develop a model to generate data for iterative testing and modification of a proposed tool, object, or process that an optimal design can be achieved.
Unit 6: Continuity Tester, how to light a lightbulb.	Students will: ● Analyze data from tests 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. ● Evaluate competing design solutions using a systemic process to determine how well they meet the criteria and constraints of the problem. ● 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. ● Develop a model to generate data for iterative testing and modification of a proposed tool, object, or process that an optimal design can be achieved.
Unit 7: Scratch, now I can make a computer game.	Students will: ● Evaluate competing design solutions using a systemic process to determine how well they meet the criteria and constraints of the problem. ● 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.

Note: Due to COVID-19 school closures and multiple instructional models (in person, hybrid, and distance learning) have occurred. Grade level curricula may be revised for the 2020-2021 school year to ensure

students spend the majority of their time working toward deep understanding of the most important concepts and skills.