

STEAM Science Technology Engineering Arts and Mathematics

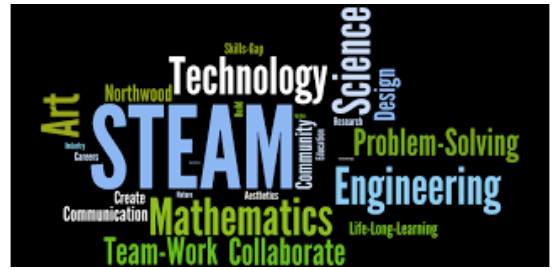
Overview

This two-year program is a comprehensive program of study that exposes all students to the real-world application of technological, computational and design skills.

Students will take part in hands-on/project-based experiences that focus on key computer applications, computer programming, three-dimensional printing, robotics, engineering, design, and systems integration with a mathematics focus.

Students who choose the STEAM path will build on their computational thinking skills, technological application and innovation, key engineering and robotic problem solving, and an overarching emphasis on the impact of future technology for a more connected world. Our goal is to help students lay the foundation for careers in computer sciences, engineering and design fields of study.

At the end of the two-year course of study, students will demonstrate their learning in a capstone event called a “Maker Fair” to show their proposed solutions to a real-world problem.



Course Offerings

7th Grade

Computer Science (CS) Applications – one semester



In the (CS) applications class students will take part in the exploration of current and future computer science applications, programming, and systems communication and integration techniques. Students will utilize technology to keep an efficient organization of their workflow while using animation, circuitry, and game design to explore the world of coding. Students will also gain exposure to 3D CAD design in preparation for the critical thinking based engineering projects as the different courses progress.

Computer Science (CS) Programming – one semester

In connection with the previous course, but also its very own entity, the (CS) programming class students will learn basic, intermediate, and possibly advanced computer coding and programming languages to better understand how computing software is connected with computer hardware. In a collaborative team-based environment, students will complete curriculum from CODE.org, CS First, Makecode, and Scratch. Students work independently and collaboratively in multiple rotations using their coding skills frequently to solve problems creatively. We utilize the 4C’s (critical thinking, creativity, collaboration, and communication) along with the Engineering Design Cycle in order to work on multiple rotations related to coding and CAD design applications. Students will also be able to test both skills up against their engineering skills, in relation to applied coding.



8th Grade

Engineering – one semester

A brand new look for the STEAM cycle for the first semester of 8th grade year. Students will utilize the organizational, coding, critical thinking, collaboration, and CAD design skills they have gained over the course of 7th grade to address novice, intermediate, and complex engineering projects in the classroom. Considerations such as 3D prints, woodwork, laser engravings, and coded stitching aide the students to visualize their success. However, even though this is a continuation course from 7th grade, it can be differentiated to help students quickly understand skills if they have only joined us for 8th grade.

Robotics – one semester



This is a beginning course in robotics utilizing a combination of Lego Mindstorms, physical crafting tools and materials, and 3D printing. The custom robotics kits along with various programming applications will give this semester another connected yet unique experience. The objective of this course is to frame robotics around the Engineering Design Cycle and 4C’s in order to bring a multitude of student skills together. Multiple stations will rotate students around a coding, engineering, torque, distance, ratios, and more in order to emulate such concepts as retrieving objects with a rover on Mars! As a capstone experience, students will create an idea, solution, and creation that will aid the local community, classroom, or world at large. Welcome to the culmination of your multi-faucet STEAM journey, you are ready for the next level.

Art – Production Design Lab – one semester

Students begin this class by learning the elements and principles of design. Utilizing this design approach, technology is integrated as students learn drafting techniques, Auto Cad, and 3-D printing. Using skills from the engineering class, students create finished products to solve structural needs on campus and in the community for their capstone “Maker Faire” projects



STEAM careers are truly “helping” professions that build communities and transform nations. As future professionals, kids will be in charge of solving the complex world problems like global warming, cancer, hunger, disappearing habitats, outdated infrastructure and water crises in an interdependent world economy. They will make up the STEAM teams of researchers and engineers building state-of-the-art equipment for businesses working with cutting-edge technologies.