



# CTE Courses at DRMS

## Science, Technology, Engineering, & Mathematics (STEM) Courses

The courses below are part of the Project Lead the Way curriculum which is used in the 9<sup>th</sup> through 12<sup>th</sup> grade level Engineering courses at DRFS and DRHS.

### Gateway to Technology I and II

#### **Grade 7                    1 High School Credit**

**Flight and Space:** The excited world of aerospace comes alive as students explore the science behind aeronautics and use their knowledge to design, build, and test an airfoil. Custom-built simulation software allows students to experience space travel.

**Computer Science for Innovators and Makers:** Throughout the unit, students will learn about programming for the physical world by blending hardware design and software development, allowing students to discover computer science concepts and skills by creating personally relevant, tangible, and shareable projects.

**Design and Modeling:** Students apply the design process to solve problems and understand the influence of creativity and innovation in their lives. They work in teams to design a playground and furniture, capturing research and ideas in their engineering notebooks. Using Autodesk design software, students create a virtual image of their designs and produce a portfolio to showcase their innovative solutions.

**Energy and the Environment:** Students are challenged to think big and toward the future as they explore sustainable solutions to our energy needs and investigate the impact of energy on our lives and the world. They use what they've learned to design and model alternative energy sources, as well as evaluate options for reducing energy consumption.

### Gateway to Technology III and IV

#### **Grade 8                    1 High School Credit**

**App Creators:** This unit will expose students to computer science as a means of computationally analyzing and developing solutions to authentic problems through mobile app development, and will convey the positive impact of the application of computer science to other disciplines and to society.

**Automation and Robotics:** Students trace the history, development, and influence of automation and robotics as they learn about mechanical systems, energy transfer, machine automation, and computer control systems. Students use the VEX Robotics platform to design, build, and program real-world objects such as traffic lights, toll booths, and robotic arms.

**Science of Technology:** Science impacts the technology of yesterday, today, and the future. Students apply the concepts of physics, chemistry, and nanotechnology to STEM activities and projects, including making ice cream, cleaning up and oil spill, and discovering the properties of nano-materials.

**Magic of Electrons:** Through hands-on projects, students explore electricity, the behavior and parts of atoms, and sensing devices. They learn knowledge and skills in basic circuitry design, and examine the impact of electricity on the world around them.