Science of Technology Class Syllabus

Instructor: Sarah Sarton

Contact: ssarton@greenvilleschools.us
Classroom: 505

Course Description:

This STEAM course integrates Science, Technology, Engineering, Arts, and Mathematics to foster creativity, problem-solving, and innovation. Students will work individually and in teams to complete hands-on projects that apply real-world concepts through inquiry-based learning, design thinking, and collaboration.

It is a semester-long course where students get to dive into hands-on activities that really help teach them how to be independent learners in the classroom. This is a progressive course, meaning we add on to their knowledge and skills as we move through each unit.

Course Goals:

Students will:

- Develop critical thinking and problem-solving skills.
- Understand how STEAM connects to them and their world.
- Gain confidence using technology and engineering tools.
- Learn the design process from concept to prototype.
- Practice collaboration, creativity, and communication.

Units & Projects

Unit 1 - Instant Design Challenge (Week1-2)	– Introduce the design process to students – Work in teams using a decision matrix to show their thinking – Reflect on team collaboration to collectively come up with a set of team rules for the year
Unit 2 - Applied Chemistry (Weeks 3-4)	– Properties of matter (states, chemical/physical changes) – Polymer science and reactions (yogurt and ice cream making) – Material science basics – Chemical safety – Project: Oil Spill Clean-up Simulation
Unit 3 - Nanotechnology (Weeks 5–8)	– Introduction to nanoscience – Scales and measurement (macro vs. nano) – Current and emerging nanotechnologies – Scientific modeling –Project: Nanotechnology on Fabrics Experiment
Unit 4 - Applied Physics (Weeks 9-15)	– Study simple machines and different types of energy. – Understand potential and kinetic energy – Build, test, and evaluate models -Project: Rube Goldberg Machine creating

Unit 5 - Careers in the Field	– Identify and reflect on personal strengths, transportable skills, and opportunities for growth. – Identify jobs of interest based on personal strengths and interests – Research career opportunities and complete a career exploration and present findings for the class.

Materials Needed:

- Notebook
- Pencils/pens

Classroom Expectations:

- Be respectful and open to others' ideas.
- Be safe with tools and materials.
- Take risks, make mistakes, and learn from them.
- Stay engaged and contribute to your team.
- Be curious and engaged.
- Collaborate respectfully with peers.
- Complete assignments on time.