



Northern York County School District

Curriculum Overview

Course: Kindergarten Discovery

Grade Level: K

Development/Revision Date:

Length of Time: 30 Days

Course Description:

In this course, students will engage in hands-on, play-based learning to explore how engineering and technology shape the world around them. Through design challenges, creative problem-solving, and collaborative activities, they will apply the engineering design process—identifying problems, imagining solutions, building prototypes, and testing ideas—while also learning how simple machines and everyday technologies meet human needs. Students will investigate innovations past and present, analyze their impact on daily life and the environment, and explore ways to reduce waste, reuse materials, and design sustainable solutions. By connecting creativity with real-world applications, this curriculum fosters curiosity, confidence, environmental responsibility, and the understanding that everyone can design and improve the tools and technologies of the future.

Course Objectives:

- Apply design concepts and processes through hands-on tasks and exploration, using creativity and problem-solving to bring ideas to life.
- Recognize that creativity is for everyone by engaging in collaborative projects where all can contribute ideas and skills.
- Develop foundational maker skills such as measuring, assembling, testing, and refining designs to improve function and appearance.
- Demonstrate safe and proper tool use by selecting and operating age-appropriate tools to complete design tasks successfully and responsibly.
- Compare and evaluate simple technologies to understand how they work and their impact on daily life, communities, and the environment.
- Identify and choose ways to reduce, reuse, and recycle materials in daily life.
- Explain how technology connects to the human experience and affects how people live, work, interact, and relate to the environment.
- Investigate and describe technologies used in the home and community, explaining their purposes and benefits.
- Create and present an original design for a new technology that could improve daily life or benefit others

Related Standards:

Pennsylvania STEELS State Standards

3.5.K-2.D Select ways to reduce, reuse, and recycle.

3.5.K-2.R Draw connections between technology and the human experience.

3.5.K-2.F Investigate the use of technologies in the home and community.

3.5.K-2.Design new technologies that could improve their daily life.

3.5.K-2.S – Apply design concepts, principals, and processes through play and exploration.
 3.5.K-2.AA Demonstrate that creating can be done by anyone.
 3.5.K-2.Q Apply skills necessary for making in design.
 3.5.K-2.K – Safely use tools to complete a task.
 3.5.K-2.I Compare simple technologies to evaluate their impacts.

Units:

- Computer Science Essentials
- Engineering Practices – We Are Engineers

Concepts:

- INTEGRATION OF KNOWLEDGE, TECHNOLOGIES, AND PRACTICES - Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.
- CORE CONCEPTS OF TECHNOLOGY AND ENGINEERING - Effective problem-solving in engineering and technology involves researching before designing, testing solutions under various conditions, considering material constraints, and refining designs through collaboration and failure analysis to best meet specified criteria.
- IMPACTS OF TECHNOLOGY - Historical examples of daily life before modern technologies such as airplanes, computers, modern agriculture, sanitation, and so on will provide opportunities to consider how their lives have been impacted by technology.
- NATURE AND CHARACTERISTICS OF TECHNOLOGY AND ENGINEERING - People use appropriate tools and skills to help them do their work as well as use resources to make things they use every day.
- APPLICATION, MAINTENANCE, AND ASSESSMENT TECHNOLOGICAL PRODUCTS AND SYSTEMS - Effective design requires researching the problem, testing solutions under various conditions, and collaborating with peers to improve ideas.

Competencies:

- Develop design processes, tools, and critical thinking skills.
- Analyze evidence to construct explanations and solutions to problems.

Learning Activities:

- Designing, constructing, testing, and tool use.
- Asking questions and defining problems
- Plan and carry out investigations

Performance Tasks:

- Formative assessments such as student discussion, questioning, peer collaborative activities, reflections, and projects.

<ul style="list-style-type: none">• Developing and using models• Construct explanations and design solutions• Analyzing, designing, and problem solving.	
Other Assessment Measures: <ul style="list-style-type: none">• SeeSaw portfolio	
Textbook/Primary Resource: Engineering is Elementary. (2024). <i>Engineering is elementary (2nd ed.)</i> . Youth Engineering Solutions.	
Supplemental Resource Materials:	