Unit 1 Crazy Machines

Content Area: **Technology**
Course(s):
Time Period: **October**
Length: **4 Days**
Status: **Published**

Unit Overview

Crazy Machines is a unit that integrates 4th graders learning from science about forces, motion, and energy. Given a series of digital tools, students must solve simple engineering problems of increasing difficulty. Students will work together to use simple machines such as inclined planes, levers, and pulleys, convert thermal energy to electrical or mechanical energy, and other such tasks. During the lesson, students will need to continually refine their creations using the engineering design cycle.

Standards

8.1.5.CS.3	Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.
8.2.5.ED.5	Describe how specifications and limitations impact the engineering design process.
8.2.5.ED.6	Evaluate and test alternative solutions to a problem using the constraints and trade-offs identified in the design process.
8.2.5.ITH.2	Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have.

Materials

- Laptops

Assessment

Formative Assessment

- Teacher Observation
- Checks for Understanding
- Exit Tickets

Summative Assessment

- Performance Tasks & Projects

Accommodations & Modifications

Special Education

- Follow IEP Plan which may contain some of the following examples…
- In class/pull out support with special ed teacher or assistant
- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

504

- In class/pull out support with special ed teacher or assistant
- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

ELL

- Translation device/dictionary
- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

At-risk of Failure

- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

Gifted & Talented

- Independent projects
- Online games
- Extension activities

Interdisciplinary Connections

Asking Questions and Defining Problems

Asking questions and defining problems in grades 3–5 builds on K–2 experiences and

	progresses to specifying qualitative relationships.
PS3.C	Relationship Between Energy and Forces

Career Readiness, Life Literacies & Key Skills

9.4.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).
9.4.2.TL.1	Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1).
9.4.2.TL.6	Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).