

STEM CAMP

Week One: 1st Graders, 14 kids, Storybook STEM Engineering



Concept Focus: Flight and Forces

1. Forces of Flight

- Thrust, Drag, Lift, Gravity

2. Motion and Stability

- Understanding how objects move through the air.
- Predicting and observing how different designs change flight.

3. Scientific Inquiry

- Making predictions, testing, recording results, and concluding.



Week at a glance:

Using the story *The Little Red Fort* as inspiration, students stepped into the role of young engineers. They rotated through building stations where they designed and constructed their own forts and simple structures, learning teamwork, planning, and problem-solving along the way, just like the main character, Ruby.

In the science stations, the book *Maybe* sparked curiosity about flight and possibilities. Students explored the concepts of thrust, drag, and aeronautics through interactive experiments. From paper airplanes to balloon rockets, they discovered how things move through the air—and how they might one day soar themselves.



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Week Two: 2nd and 3rd Graders, 25 kids, robotics stations



Science & Engineering Practices addressed:

- Asking Questions and Defining Problems
- Developing and Using Models (e.g., using robots as models to simulate real-world navigation)
- Planning and Carrying Out Investigations
- Using Mathematics and Computational Thinking
- Constructing Explanations and Designing Solutions
- Engaging in Argument from Evidence (when collaborating and deciding how to fix or adjust code)



Week at a glance:

This week at STEM Camp, our young learners dove into the exciting world of robotics and problem-solving! Students rotated through hands-on stations using Sphero Mini, Bee-Bot, Sphero Indi, and Botley, each offering a unique way to explore early coding and critical thinking skills.

At every station, students were challenged to solve puzzles, navigate mazes, and complete tasks by programming their robots. Whether it was helping Bee-Bot find its way through a story map or guiding Sphero Indi using color-coded tiles, students worked together to test ideas, make adjustments, and celebrate success. The highlight of the week was seeing students collaborate, communicate, and think like engineers—all while having a blast with their robotic teammates!



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Week Three: 4th and 5th Graders: 22 kids: Engineering Towers and Solar Ovens



What is a solar oven?

A solar oven is a simple, eco-friendly device that uses the sun's energy (solar power) to heat and cook food. It's a great hands-on STEM activity for kids perfect for making s'mores, and that is exactly what we built them for! YUM!



Week at a glance:

This week at STEM Camp, our young engineers took on the Tall Tower Challenge and solar oven challenges, two hands-on activities designed to spark creativity, teamwork, and critical thinking.

Working in small groups, students were given a variety of materials, like straws, blocks, paper, and tape—and a set of specific parameters. Their mission? To design and build the tallest free-standing tower they could, all while meeting the challenge rules.

As they worked, students used the engineering design process: planning, testing, improving, and collaborating to overcome design obstacles. It was amazing to see how each team approached the task with different strategies, learning that sometimes the tallest towers come from the strongest teamwork. Through this fun and focused activity, campers explored real-world STEM concepts like stability, balance, and structure, all while building confidence in their ability to solve problems together.



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Week Four: 6th Grade: Carnival Attractions



Physical Science Standards used to prepare for 6th grade science:

- MS-PS2-2: Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
- Students observed how the marble's motion changed based on slope, gravity, and design.
- MS-PS3-5: Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.
- The roller coaster activity demonstrates potential and kinetic energy conversions.



Week at a glance:

Our 6th grade students turned into theme park engineers this week at STEM Camp! Using simple materials like cups, plates, marbles, and popsicle sticks, they took on the exciting challenge of building their own roller coasters and Ferris wheels.

Working in teams, students designed roller coasters that could successfully carry a marble from start to finish using gravity, curves, and drops to test the laws of motion. They also engineered Ferris wheels that could spin smoothly using only craft materials—an exercise in creativity, balance, and problem-solving.

These hands-on builds helped students explore key STEM concepts like force, motion, gravity, and simple machines, while also practicing teamwork, critical thinking, and the engineering design process.

From loop-de-loops to spinning wheels, it was a week full of learning, laughter, and innovation—STEM Camp at its best

