

Science Friday

All throughout the natural world, scientists find examples of mathematical patterns and the need for mathematics to explain the world. Using this fact, we design activities that instantly garner students' attention through interesting science. From these science activities, we explore mathematical concepts. This comes to life for the students on Science Fridays where we stress that math is necessary to do good science and interesting mathematical concepts arrive from observing the natural world. Some of our Science Friday projects and their associated math concepts include

- The science of projectiles (like pumpkins!), angles, and rates.
- Biological variation of plants, measurement, division, and averaging.
- Plant competition and diversity, density, area, and perimeter.
- Taking surveys, graphing, and proportions.
- The science of Mt. McKinley, elevation, relief, graphing, and subtraction.
- Biological scaling with pumpkins, weight, circumference, seed number, graphing, and relationships between quantities.
- Animal symmetry
- Insect foraging, experimentation, and graphing and interpreting numbers.
- Jumping crickets, measurement, averaging, and proportionality.
- Properties of water and the water cycle, density, and proportionality.



Pumpkin Biology and Pumpkin Chunkin'

Objectives:

- Teach students about projectile motion
- The distance a projectile travels is determined by its velocity and the angle at which the projectile is forced.
- Have students gain an appreciation for biological variation.
- Introduce students to angles and rates.
- Have students make measurements and work with those numbers.
- Work on basic addition and division skills by having students take averages.
- Familiarize students with relationships between sets of numbers.
- Foster independence and experimental attitudes towards science.

We gave students a set of instructions to make a simple catapult out of popsicle sticks, rubber bands, and aluminum foil. We encouraged students to work as a team to experiment and determine what factors affect the distance their tin foil ball traveled. To enhance the experience, we created a slingshot to "chuck" gourds and measure the distance they travelled in relation to their size.



Native and Invasive Plant Species

Objectives:

- Teach students about native and invasive species.
- Have them explore area, perimeter, and density.
- Learn about competition between plants for resources.
- Remove an invasive species from the school grounds.
- Grow and plant native vegetation from seed in place of the invasive species.



Jumping Crickets

Objectives:

- Have student's learn the usefulness of averages and how to calculate averages.
- Have student's think about proportionality in determining the distance an animal can jump relative to its body size.

Student's were tasked with measuring the body length and the distance that a cricket could jump. They took multiple measurements and were asked to calculate an average. Similarly, they were asked to do the same process with themselves. After jumping and measuring their body length, student's could compare how far they could jump and how far the crickets could jump.

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