

JANUARY 2023

SCIENCE CURRICULUM NEWSLETTER

Pre-K



In Pre-K, we spent time in the fall exploring our school garden. Through a scavenger hunt, we found different plants growing in our garden such as basil, tomatoes, and sage. We also planted daffodil bulbs in the sidewalk in front of the school, which will bloom in the spring. We dug holes, put the bulbs in roots down, and watered them. In the science classroom, we have been exploring different science stations. The stations include using magnifying glasses, building with blocks, exploring magnets, playing with kinetic sand, and playing with animal toys. We also have been examining different nature artifacts as a class, such as the skull of a gray wolf, the paw print of a coyote, and a geode. We closely examined the objects, asked questions, and shared our ideas about where the objects might have come from and what we think they might be.

Kindergarten/1st Grade



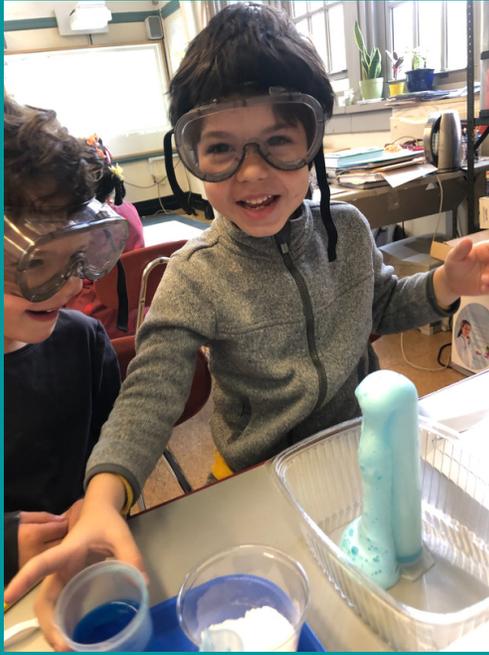
Working on the habitat project.

Planting daffodil bulbs.

In Kindergarten and 1st grade we have been learning about the needs of plants and animals. We began our unit by exploring the differences between living and nonliving things. Students identified what living and nonliving things they could find in our classroom and the garden and recorded their findings. We then explored the question, “What do animals need to live?” and discussed how different habitats provide specific animals with what they need to survive. In groups, students did a mini research project that involved reading a nonfiction book about one specific habitat, taking notes by drawing pictures of what animals and plants live in their habitat, and creating posters to share what they learned.

We then began investigating the question, “What do plants need to live?” We set up an experiment to investigate if lima bean seeds would grow on a windowsill and if another set of seeds would grow in a box in the classroom with no light. We also planted daffodil bulbs on the sidewalk in front of our school and discussed how the bulbs need space, light, and water to grow. By dissecting a lima bean seed, we learned how every seed contains a new baby plant and food for the new plant to use to grow.

Kindergarten/1st Grade



Doing a spooky experiment before Halloween.



Observing the roots of a daffodil bulb.



Pretending to be a pollinator.

Recently, we have been learning about the different parts of a plant and their functions. We learned the song, *Roots, Stem, Leaves, Flower* that helped us learn the function of each part of a plant. We also used magnifying glasses to closely observe the different parts of a plant. For example, we found by closely examining leaves that they contain veins which help carry nutrients and water to the rest of the plant.

We finished up our unit by exploring pollination. We acted out being pollinators by moving around the classroom, using pipe cleaners as our tongues to drink up nectar from flowers while also moving pollen from one flower to another. We also had a pollinator expert guest speaker come share information about different types of pollinators, how pollination works, why some pollinator populations are declining, and what we can do to help them.



Looking at a lily with our guest speaker.

2nd/3rd Grade



Recording observations of the garden.

In 2nd and 3rd grade, we have been exploring the relationship between plants and animals. We began by exploring habitats and how every living thing has a habitat which provides the plant or animal with everything it needs. Then, through reading *My Nature Notebook* we learned about the different ways scientists study habitats and how studying a habitat allows scientists to see if a habitat changes overtime. We then went to the garden to use some of the scientific techniques we read about to study the garden habitat.

2nd/3rd Grade



Measuring the radishes.



Doing a spooky experiment before Halloween.

We then began investigating the question, “How do new plants grow?” We observed different types of seeds, such as marigold, lima bean, and oak seeds to see how they are similar and different. We dissected a lima bean seed and found that a seed has a seed coat, food for the new plant (cotyledon), and a baby plant (embryo). We then set up an investigation to figure out what a plant needs to grow. In groups, students planted radish seeds in two cups. One cup we kept on the windowsill and the other in a dark box with no light. We measured the plants over time and realized that some of the radish seeds in the dark box started sprouting. This led us to discussing how some seeds are able to germinate without light because they already have enough stored food (cotyledon) for the plant to grow. After the seed has used up its stored energy, however, it needs sunlight and water to make more energy for itself through photosynthesis. We also went to the garden before it got too cold to harvest green amaranth seeds and okra seeds, so we can plant them in the spring.

2nd/3rd Grade



Harvesting green amaranth seeds.



Students' work after dissecting and labeling the parts of a lily.

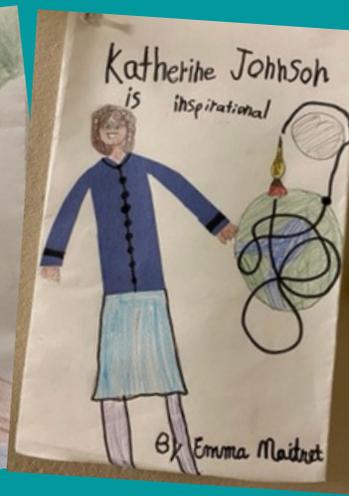
Finally, we investigated the question, how do plants get to the places where their needs can be met without the ability to move on their own? Through the book, *A Seed is the Start*, we read about the many ways seeds travel to new places, such as clinging to an animal's fur, being carried by the wind, or floating on water. We were excited to have a guest speaker join us and share more information about seed dispersal and how there are seed banks that help preserve seeds.

As a culmination to our unit, students have been working on creating a graphic novel about the life of a seed. They named and created their own unique plant, imagined what its seed lookx like, how its seeds are dispersed, one challenge the seed faces in growing, such as not receiving enough sunlight because of a neighboring plant's leaves, and how the plant overcomes the challenge.

4th/5th Grade



Students sharing their zines.



Students' zines.

In 4th and 5th grades, students finished up the scientist biographies unit. Students chose from a list of scientists, researched their person by reading a picture book and article, and created a zine. They included sections on their person's early life, accomplishments, challenges, and their own connection to the scientist. To celebrate everyone's hard work at the end of the unit, we had a celebration, and students shared their zines in small groups.

4th/5th Grade

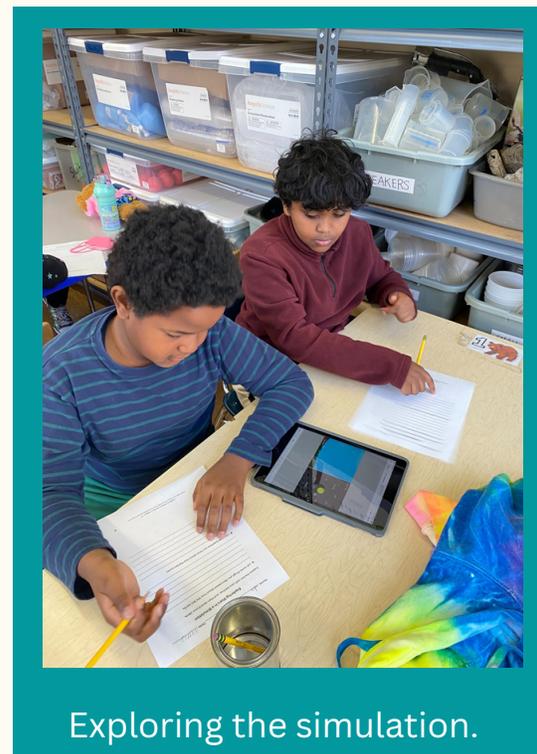
Then, we began our next unit on the patterns of Earth and sky. We have been investigating the question, “Why do we see different stars at different times?” We began our unit by examining different artifacts people have created that demonstrate their observations of the moon, stars, and other objects in space. For example, we looked at the Sky Disc from Nebra, Germany which is 3,600 years old, a 2,000 year old temple painting from Egypt, and Stonehenge.



Artifacts about the moon and stars.

In order to understand how far the stars are from Earth, students collected data from a digital simulation on the distance of the stars in the Great Square of Pegasus from Earth. Then, using 1 cm to represent 1 light year, four students modeled how far the four stars were from Earth. We realized that the sun would be 1/63,000 of a centimeter away from Earth and the stars were much, much further away. This helped us understand that the sun looks bigger and brighter than the other stars because it is much closer to us than the other stars.

We then explored why we see the daily pattern of daytime and nighttime. We used our heads to represent Earth spinning and pretended someone was camping on the top of our nose between our eyes. When we stood in front of the sun (a foam ball on one side of the room), we realized it would be daytime for the camper. As we kept spinning and faced away from the sun, we realized it would be nighttime. Again by exploring a digital simulation and collecting data on what times we see a certain constellation, we understood how Earth spins once each day, and we face the sun in the daytime, and we face away from the sun at nighttime.



Exploring the simulation.