We began our exploration of Planet Earth by discovering our place in space. The third planet from the sun, Earth rotates in space as it travels around the Sun, and the Moon orbits the Earth. The children used their bodies to simulate the Earth, Sun, and Moon relationship. Earth is special because it is the only planet that we know where life is supported. Animals and plants are everywhere, on land and in the oceans. We observed photographs of Earth from outer space and noticed that there is more water than land. We represented this fact when creating a tissue paper planet earth. After learning that Earth is made up of mostly rocks, we learned about the layers that make up Earth: the crust, mantle, outer core and inner core. We created a model of planet earth using colored play dough to show the layers that make up planet earth.

Important Notes
- Parent Teacher Conferences: April 17th and April 24th (No school both days)
- Kindergarten Graduation: May 15th at 10:00 AM
- Whole School Celebration Picnic: May 15th 11:00 AM to 1:00PM
In the beginning of our unit, the kindergarten friends learned that there are three main types of rocks on Planet Earth: Igneous, Sedimentary and Metamorphic. Each of these types of rocks are formed in different ways and each type of rock can be changed into each of the other types. Geologists call this process the Rock Cycle, essentially the process that makes and recycles rocks. The children quickly discovered that rocks are constantly changing, although it takes millions of years for a change to occur.

### Igneous Rocks - Made by Fire

The earth is about 4.6 billion years old. The oldest rocks that have been found were created by volcanic eruptions over hundreds of millions of years. These rocks are still being made every time a volcano erupts. They are called igneous rock, meaning “full of fire”. Inside the Earth, it is so hot that rocks melt. The melted rock is called magma. When the magma cools and becomes hard, it forms igneous rocks. Melted rock from inside the Earth sometimes pours out of a volcano as lava. When the streaming river of lava cools, it forms new rocks. The kindergartners replicated the formation of an igneous rock (hard to molten to hard again) by using bits of Starburst candy (the molten rock), simulating heat with the griddle, and the cooling process by removing them from the griddle to cool and harden.

### Sedimentary Rocks - Made by Settling

Over the years, water and wind gradually wear down igneous rocks. The rocks break up into small pieces, called sediments, which are carried down rivers into the sea. The pieces come to rest deep under the sea, along with soil, sand and plant or animal material, forming sedimentary layers. There is enormous pressure from the weight of the water on the sea bed. Under this pressure, the sediments lower down in the sandwich layers are compressed and harden into new rocks, called sedimentary rocks, taking millions of years to form. Limestone, a sedimentary rock, is made from seashells and tiny sea animals. As its name tells us, sandstone is made from grains of sand. In cliffs and canyons, you can see layers of all the different colors. Shale is flat, gray rock made of very fine grains of mud or clay. Shale often contains fossils of plants and animals that lived millions of years ago. To replicate the formation of sedimentary rocks, the children layered sand, pebbles, crushed shells and bits of plants.

### Metamorphic Rocks - Made by Changing

Another group of rocks is created when existing igneous and sedimentary rocks are subjected to great heat and pressure. Such rocks are called metamorphic rocks, because their mineral ingredients have been changed. These altered rocks are usually harder than the rocks they came from. The friends first constructed sedimentary layers (using bits of colored Starburst candy). Next, the friends added pressure by sitting, standing or pressing on their sedimentary rock, which also created some heat(representing the chemical changes). With the heat and pressure, the sedimentary rock was changed into a metamorphic rock.
After learning what makes rocks so unique, the children were instantly fascinated with the beauty of crystals, gemstones, and geodes. The children were excited to grow their own crystals (by mixing Borax and hot water) and then discover the shape and pattern of their crystal using the Zoomy. After learning what a geode is, the children were excited to crack open their very own geode and discover the crystals inside! Geodes are unique rocks that are plain on the outside but can have beautiful crystals on the inside. Geodes form when hollow cavities inside allow water in and that water leaves behind minerals which form crystals over a long period of time. Uncut gems are fairly ordinary looking. It’s only when they are cut and polished that they obtain the brilliance and luster that makes them so valued. To be a gem, a mineral must be beautiful, rare, and durable. Gemstones are minerals used in jewelry. Gemologists from Henne Jewelers visited to explain how gems are found, cut and polished. We used our classroom rock tumbler to smooth and polish rocks to discover the hidden beauty of a rock. Our friend, Josie, visited to create a necklace for each child with their polished rocks. Each kindergartner identified their birthstone and painted using the color of their birthstone. They used a hammer to safely break open a geode, exposing the crystal inside. A visit to the Hillman Hall of Minerals and Gems at the Carnegie Museum of Natural History allowed us to learn more about how rocks, gems, and crystals form and to observe beautiful specimens of each.
**CHANGES ON PLANET EARTH**

Next, we explored the forces that change the shape of the earth’s surface. Erosion (wind, water and ice), temperature and pressure (volcanoes and earthquakes) are some of the natural events that affect Earth. Erosion changes the shape of land. Water, wind and ice can cause erosion. We were fascinated realizing that The Grand Canyon was formed by water erosion that slowly moved pieces of land over millions of years. The kindergartners experimented with water erosion by observing the changing shape to sand and soil when water is introduced. When learning about erosion, we took a closer look at cave formation. Although caves are formed in different ways, we focused on the caves that are formed by groundwater that contains acid, which erodes the rock, leaving hollowed out spaces. Inspired by our cave discussions, we created a kindergarten cave outside our classroom, including stalactites, stalagmites, bats and pictographs. Learning about the earth’s moving plates helped the children understand what happens during an earthquake and what causes a volcano to erupt. Experimenting with erupting volcanoes and earthquake shake tables helped the children understand the concepts behind each natural occurrence.
ROCK EXPLORATIONS

During the unit, we spent time observing, collecting, comparing, weighing and creating with rocks. These explorations allowed us to deepen our mathematical, scientific, artistic and motor skills. Creating pet rocks and pet rock stories was a fun way to practice creative, artistic and literacy skills.
TAKING CARE OF PLANET EARTH

After learning about our amazing Planet Earth, we spent time talking about ways we can help care for our home. Some of the ideas the kindergartners shared were:

• Keep your neighborhood/school clean by picking up trash and putting it in a trash can
• Recycle....cans, bottles and paper which helps reduce waste and promotes reusing or repurposing waste
• Keep the air clean by riding your bike or walking instead of driving a car when possible
• Save water by turning it off while brushing your teeth
• Help save energy by turning off lights when you leave a room
• Plant trees and flowers
• Care for our animals

Emma, Evelyn and Jun draw pictures of ways to care for planet earth.

Aras, Peter and Slava practice recycling by sorting various materials into the appropriate recycling bins.

BERRY THE BEAR TRAVELS PLANET EARTH

Thanks to all of our families that took Berry along on your adventures around Planet Earth and for sharing Berry with your friends and family to do the same. We practiced our mapping skills locating each place on the Map that Berry traveled. Berry visited some amazing places on Earth!
100 DAY FUN

Peter and John make monsters with 100 features.

Kipton, Brandon and Atticus make their 100 pieces of snack.

Lucy Jo greets everyone on 100 day!

Aras, Cam, and Mary make 100 day hats and badges to celebrate.

Maggie’s 100 day shirt.

VALENTINE’S DAY

Brandon and Jamie graph colored candy hearts.

Nicolas, Aras and Max make Valentine cards.

James, Nicolas and Peter play a counting hearts game.

Shreya

Ava

Sylas