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Science at the Seed

At the Seed we attempt to follow best practices as recommended by national teaching standards. The National Board for Professional Teaching Standards in Science states that accomplished early childhood teachers engage in the following:

- **Recognize that young children come to school abounding with natural curiosity about the world and how it works.**

In the **Toddler 1s** curious fingers creep into a tub of wet, cold, stiff yet gooey substance. Moments later, two hands dive in to the mixture while another pair of hands retract immediately and chooses a different sense to explore. The miniature stainless steel pan and a matching lid provide a less messy high volume thrill with

big audience participation. In the toddler classroom, science begins with curiosity, exploration and trial. As children enjoy a bucket full of cornstarch mixed with water, the large bin of rice with small containers, spoons, and scoops, the composting worms, or the noises, rhythms, or sounds that a toy makes on the table, they develop their desire to seek answers and explore the world of science.

- **Show a love for science and generate in children curiosity and wonder about the world around them.**

We built a clay volcano in the **Toddler 2s**. The toddlers helped mold the clay into a huge mound and then helped the teacher dig out a hole from which the erupting lava would

escape. We measured vinegar in a measuring cup and baking soda in measuring spoons. Red food coloring created the hot lava's color. With safety glasses on we poured the ingredients into the volcano and watched the erupting action. Ooohs and ahhhs filled the room as the toddlers watched in amazement. We expanded on the activity with our reading buddies by building replica volcanoes on the big playground. Together they carved sand volcanoes and dug holes in the middle. After we measured out the ingredients and poured them into the sandy creations, we watched the spewing lava.

- **Know that they can build on children's ability to use their senses to acquire information by examining, exploring, comparing, classifying, describing, and asking questions about materials and events in their environment.**

A cymbal crashes behind the shelf in the **Preschool 2.5/3s** and every hand in the room shoots to the sky to predict the source of the sound they are hearing. Thoughtful questions are then asked: Is it loud or quiet? Is it a high sound or a low sound? Have you heard this sound before? Through the resulting lively discussion, students quickly learn how to identify the source of the noise without using their eyes and their shared understanding of the human senses builds. Through different experiments like this, the children practice using their senses to gather information about the world around them.

- **Help children test their own questions and ideas about phenomena and materials in their environment.**

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A study of the body took a tangent as the **Preschool 3s** worked at a table containing a simple bubble solution and some straws. The focus that day was the lungs, and what better way to exemplify their function than to make them operate in a way that shows results? Mountains of bubbles towered, then spilled. Students' anticipation fizzed as bubbles clung to the bowls and reached their noses. We performed an open inquiry based on observations and questions: tests were performed. One resulted in a bubble art project, while another helped students discover that if they covered their fingers in the solution, bubbles would not pop when touched.

• Encourage science projects and field experiences that involve community and family.

Exotic painted paper orchids, embellished with twinkle lights, hang from the paper vine under story of the **Preschool 4s** classroom. Children, with the help of family members at home, research the plants and animals of the Amazon rainforest in an immersive study that includes the sights, sounds and tastes of this unique environment. Unexpected facts are presented to fellow classmates by four-year-old experts. Tarantulas are the size of dinner plates, flowers live on trees and the anaconda eats small mammals and grows to thirty feet in length. The line between teacher and student blurs as everyone shares their knowledge and enthusiasm about this far away jungle.

• Have children often work together to generate language experience charts and whole-class journals, individual reports, data sheets, and charts. They may even publish individual and whole class books and newspapers about their experiences in learning science.

The pile of posters grows as **PreK** students discuss their topic of study: a favorite bug. "A black widow has an hourglass on its back to scare away birds," and "Some people like to eat tarantulas: they taste like crunchy peanut butter," are some of the facts they can't wait to share. Each student is given a chance to present their poster project to the class, to

explain what they've learned and to answer questions from their curious classmates. After each is shared, the posters hang in the hallway where the PreK shares their newfound bug knowledge with the entire school. Their bug interests spill over into art projects, graphs, and stories.

• Know that children learn best by working with concrete materials, employing all their senses, and discussing their ideas. Therefore, they help children do science rather than only read about it.

Kindergarteners are typically a hands-on bunch of kids. In one short week of school science was evident through a number of activities. In our classroom we took turns chiseling away at a block of cast sand to expose plastic dinosaur bones. We tried breaking open a giant crystal outside. We touched and tossed fake snow with our buddy readers. We picked and ate beets and lettuce right out of the PreK garden. We saved our banana peels for the compost pile after lunch and filled ice cube trays with colored water using eyedroppers. We predicted if an ice cube would melt faster in cup of water or not in water. We observed and elaborated on our findings, then recorded our results. We watered our sunflowers and sweet peas. Scientists are grown week by week in kindergarten. We "do" science on a regular basis instead of just reading about it.

• Introduce them to methods of investigation that include predicting, observing, gathering, and analyzing data and inferring and generalizing toward their own hypotheses.

1st/2nd Grades

Did you ever reach into a pool or deep puddle to pick up a coin? The coin wasn't where it appeared to be. You probably had to move your hand around to locate it. The **1st/2nd grade** children were asked what would happen if a pencil were placed in a glass of water and held straight up. Most said that the pencil would cause the water to turn a darker color. After drawing what was observed, the children were asked to predict what might happen if the pencil was leaned against the side of the glass. Some said that the pencil would break. Sparkling eyes

stared through side of the glass as the sound of "ooh" rippled across the room. Once again a drawing was done to show a comparison. Each child generalized his/her own hypothesis as to why the pencil looked bent. Working like a scientist, each child learned about refraction.

• Extend projects to connect a series of science experiences often based on unique local circumstances...Teaching science to young children is integrated with other aspects of the curriculum, such as using mathematics, exploring technology, deciphering history, learning about physical health and development, and acquiring language arts skills."

One such example from the past is when the **3rd/4th graders** learned of a rescued desert tortoise that needed a new home. They began by researching necessary criteria of a self-sustaining habitat. The class visited community habitats, taking notes on designs and how they met their standards. Shade structures, water/food sources, and safe burrowing areas were at the top of their lists. Our facilities manager delivered a list of constraints including budget, space and building materials allowed on our playground. Children's sharing of individual designs and discussion rendered three distinct designs. After input from the school community, the collaboration produced a final design resulting in a tortoise habitat that became home to "Air Jordan" for years to come. He now resides where he can receive more special care, but the habitat stands and is used as an art/garden display.

february birthdays

Sophie Harper	Izak Ruiz
Vance Butler	Avyukth Reddy
Tavi Bacon-Hughes	Justin Bones
Alexx Steed	Cade Holbrook
Chloe Mohnach	Eli Querfeld

QUOTE OF THE MONTH

"I learned a walking stick has a stinky smell to warn off predators and their legs falloff when a predator is around for better camouflage." --Zeek Coyle, age 4 (at time of quote)