

the

SEED

newsletter

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Mathematics at the Seed

Don't tell me the answers. Let me enjoy the wonder of wondering. -Kim Hix

At the Seed, math is more than memorizing facts and completing worksheets. Math is a dynamic and integrated area of study that invites open-ended exploration and experimentation with an emphasis on the process as well as the product. Seed teachers use an emergent curriculum to teach mathematical concepts and draw from a variety of sources to guide and shape their curriculum from standards set forth by the state to real life experiences and situations.

Goals of the Math program

- To reason and communicate appropriately in mathematics at each grade level

- Knowledge of and skill in the use of mathematical vocabulary, tools and forms
- Ability to define and solve problems
- To promote abstract and critical thinking skills
- Encourage the use of mathematical concepts in daily life

Characteristics of the Math Program

Math lessons occur at the most unexpected times and in the most unlikely places at the Seed. The garden, kitchen and the hallway are just a few locations where math blooms. Toddlers and preschoolers count out cups for snack time, find circles and squares in the environment, dance out patterns and compare real bugs to two dimensional ones. In the hallway, kindergartners count cans for the

school food drive and utilize tools like tape measures and rulers to assess differences between each other. First through fourth graders utilize mathematical thinking to plan their gardens and outdoor spaces and use multiplication and division to measure ingredients for cooking projects that feed a classroom or the entire student body. Math is everywhere!

Toddler 1s

The children sit nestled in a circle, feet touching, eyes wide open as the mystery object is unveiled. Arms reach as five potatoes are passed around to each child. After counting to five, each takes a turn and discusses "next" and "after." The potatoes are carried with exertion, like big heavy rocks. Magically, one potato is divided into two, until all the potatoes are cut. The potatoes line the counter so each child can see the single row. With fingers pointing and heads nodding, the teachers and students count, "One, two, three," all the way to ten. "Again," shouts a child, so the teachers count in Spanish. "Again," they shout. This time, the potatoes are counted in Dutch. Later in the week, plastic potatoes in the kitchen area promote spontaneous counting.

Toddler 2s

The 3rd and 4th grade buddies come armed with clipboards, pencils, unifix cubes, and graph paper. They take their little buddies by the hand and lead them outside to the garden. Toddler hands sink into the earth as they explore the dirt, sticks, and leaves scattered about the garden. Hollyhocks beckon toddlers from the fence line. Questions arise. Are the

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flowers taller? Are they taller than me? Together large hands guide smaller ones as they stack and count cubes until they are as tall as the last hollyhock petal. With pencil in hand the big buddy records the results and their little buddy fills in the squares with a bright red crayon. Math teachers come in all different shapes and sizes.

Preschool 2.5/3s

Spiders, ladybugs and butterflies, oh, my! With pattern cards in hand, little fingers sort through piles of plastic bugs in search of a match. You can hear preschoolers asking their friends for big and little bugs of specific colors to fill their cards. As each pattern card is completed with bugs each child is asked to read their card to a friend. AB and AABB patterns are read aloud and some continue the pattern well beyond the card. A few brave and confident students attempt to start their own pattern and soon others join in the fun searching for the perfect sized red ladybug that comes next.

Pre 3s

Preschoolers are introduced to AB patterns using their whole bodies first. They stand, sit, stand, sit during group time, or jump, twirl, jump, twirl their way to tables for snack until it appears most of the students understand the concept. Next, their movements are narrowed to just their arms, and we use words to name their motions, such as "bridge, line, bridge, line." Using movement to create a pattern is now transferred to images that represent a motion, and is drawn out on a pattern line. Using a pattern line not only creates a visual organizer for young learners, but it also encourages left-to-right pre-reading skills. Eventually, students begin to point out patterns on their clothes (stripes), in their environment (day, night), and in responsibilities (spill, clean it up)!

Pre 4s

With furrowed brows, the preschoolers sift through an array of turtle beans, split peas, limas and lentils as if searching for buried treasure. Beans, drowning in glue on four inch squares of black card stock, are carefully

counted to match numbers from 1 through 10. Some children make patterns (big bean/small bean) while others match beans by color and shape. A few preschoolers select beans randomly, sometimes skip the number 5, count to 3 twice or forget to count at all! In the end, pages are looped onto metal rings for children to point to, rearrange and practice the fine art of counting from 1 to 10.

Pre K

Silently, lips move and fingers jab the air while children count the monstrous plastic bugs lined up on our carpet. Are there more insects with wings or without? How many are there of each? Answers fill the air as comparisons are made. After counting aloud, we translate our real graph on the floor to paper: little fingers press pictures onto a graphing sheet, creating columns representing the bugs in our circle. The children's strategies for interpreting this abstract graph mingle with recently learned facts about bugs from our study. The PreK kids leave the group applying these strategies independently, as they create lines of bugs, rocks and blocks; building their own graphing conversations amongst themselves.

Kindergarten

Patience is not typically considered a crucial part of the math program, but working in teams of two, this skill is fully tested. With measuring tapes in hand, kindergartners help each other wrap them around necks, bellies, wrists, thighs and ankles. The end of the tape becomes twisted like a malfunctioning necktie and quickly turns the measurement of a normal 9-inch neck into an unbelievable 94-inch circumference. As students figure out which end of the tape measure to use, they also determine realistic results and record their findings on paper. These tests of patience, perseverance and measurement are important life-long skills.

1st/2nd Grades

Hands shaking with delight, each child carries his or her envelope to circle. Inside hides quadrilateral pictures from newspapers, magazines or flyers found at home. Looking for quadrilaterals, drawing the shapes, and

labeling them are another part of this assignment. In class each child chooses two of their favorite drawings and cuts out the shapes. We decide together where the pictures should be placed on a bar graph: rectangle, rhombus, square, parallelogram, trapezoid, or kite. Later, children grab a partner and leave circle with shining smiles, eager to practice their new shape skills through a game called Guess My Shape. Practice and practical applications go hand in hand.

3rd/4th Grades

Clutching clipboards and measuring tools, the children excitedly head outside to draw and measure our outdoor classroom. Later, wrinkled maps in hand, we return inside to compile data. Once the area is calculated and divided, the real fun begins. Moving cubes, the children discover that 20 square feet can take on many different shapes. Many are shocked to learn perimeter can change while area remains constant. Collaboratively children design spaces and puzzle piece them together, changing and moving them until all are satisfied. Whether rectangular or "funny shaped", the children are excited to call their space home for the remainder of the year.

december birthdays

Soren Etheridge	Pierce Kennedy
Orion Lucio	Natalia Svoren
Tommy Welker	Alex Thomas
Jeremiah Larson	Marius Bradley
Noah D'Oria	Ahva Ghazanfari
Ashley Nevison	Nico Badding
Arya Sebastian	Harrison Witmer

QUOTE OF THE MONTH

Gavin Kurz, age 4, was enjoying his experience with a new sensory bin in his classroom. He exclaimed, "I could stay and play in that bin for five years!"