**SCIENCE IS Child's Play**

In a brightly colored classroom at Child's Play Preschool in Horseshoe Trails Elementary School, a lively group of preschoolers donning masks and gripping paint brushes artfully create their own versions of what they think plants should look like. A combination of earnestness and innocence plays on their faces as their imaginations come to life in vivid watercolors on the paper before them.

These 3- to 5-year-olds are doing more than having fun; they’re learning a lesson about plant growth, and while they do so, they’re increasing the density of gray matter in their brains and building synapses that will help them become critical, creative thinkers.

For years now, schools have taken advantage of early brain plasticity to give young children a head start in developing their critical thinking and conceptualization skills by finding innovative ways to introduce foreign languages and arts. There is now solid evidence that early and frequent exposure to arts and language builds brain pathways that help children develop advanced abilities to solve problems. Studies show that students who are able to take advantage of these programs score better on verbal and math tests, among other benefits.

Cave Creek Unified School District’s Education and Community Services director Gina Durbin decided to take it one step further and ask, “What about science?”

Durbin found the spark she needed to develop something completely new for CCUSD preschoolers when community member Tom Ensign told her about the Lowell Observatory Curriculum for Kids (LOCKs) program. LOCKs is a monthly camp children attend with their parents that is centered around fun STEAM learning activities.

Her goal has been to provide an out-of-the-world innovative curriculum called Unlocking the Keys to Science to introduce Child’s Play preschoolers to what would otherwise be more advanced science, technology, engineering and math (STEM) concepts.

Durbin found willing and capable partners in preschool teacher Kathy Groomby and in Lowell Observatory’s Samantha Flagg, who worked together to integrate LOCKs concepts into the more traditional preschool curriculums. Lowell Observatory’s Samantha Gormley, deputy director of education, and Kelly Vegarinos, education coordinator, continued development of the program after Flagg relocated to Tucson in fall of 2016.

Lowell Observatory sends the school one to three boxes each month with everything teachers need to put lessons together, from paper to paints, and from styrofoam balls to foam noodles.

Many hours of development are now paying off with more than enough excitement in the classrooms to go around, as well as plenty of behind-the-scenes brain growth and development that will all likely benefit from one day.

In one recent lesson, children were learning to recognize constellations by using toothpicks and marshmallows, training their minds to see images created by alignment of the stars. It was one of the students’ favorite investigations. Another project required the students to move a magnet through paint inside a metal tin by moving another magnet underneath the tin.

These activities form a natural segue into later concepts, but they also instill a fascination for science and technology.

“It’s important to instill a love of learning as early as you can,” Grandprey said. “I hope by exploring our world, their world, it makes them hungry for more.”

With any luck and some critical funding, program advocates hope to bring similar STEM learning to more schools in the district.

“With LOCKs, I think the best way to go is horizontal, introducing the program to as many preschools as possible,” said Ensign who, with his wife Laura, have been working together to develop independent funding for LOCKs within the Cave Creek Unified School District.

“Providing this kind of learning early in a child’s life builds skills and interests that serve children throughout their school years, and later in life,” explained Durbin. “We certainly need more individuals choosing science, technology, medicine and engineering as a career.”

And, based on the looks on the children’s faces when they are given the opportunity to learn, they’ll do just fine.

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