Growing Curiosity

Want to give your kids a love of science or tech? It's easier than you might think.

BY MICHELLE MEYERS

Amaya Hollins, 11, was feeling happy. Friends and parents had just praised her for a computer game shed built for her Techbridge science and technology after-school program.

"One day, I may end up being a software engineer," Amaya told everyone in the room.

You might say she's hooked on tech—the natural offshoot of being constantly exposed to science, technology, engineering and math. Amaya's family, for instance, loves going to interactive science exhibits, like those at San Francisco's Exploratorium or the Chabot Space and Science Center across the bay in Oakland.

It's these everyday experiences that pique kids' interest in STEM in the first place and keep them engaged as they get older. The trick, say the experts: Capture their curiosity by elementary school age—without making it obvious.

"You don't want to stuff the math and science down their throats," says Karen Panetta, associate dean for graduate education at Tufts University and a recipient of the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring. "Follow their interests, then connect the math and science."

The Obama administration agrees. It has put together tips for parents and teachers of toddlers and preschoolers called "Let's Talk, Read and Sing about STEM!," which suggests everyday activities to hook kids on the sciences.

Think of it as a kind of intellectual osmosis where life's tasks...
Actress and neuroscientist Mayim Bialik says she often uses cooking and baking to introduce her two young sons to "the notion of chemistry, numbers, fractions and true real-world applications of science and math."

It’s easier than you might think.

You can, for example, let your kids microwave marshmallows and then discuss what makes them expand. Or you might talk about what pickles, yogurt, bread and cheese have in common. (Hint: It’s fermentation.)

Making pancakes? That’s chemistry. As you combine the wet and dry ingredients, explain that you’re mixing acid (butter-milk and baking powder) with a base (baking soda), creating the chemical reaction we see as the bubbles that make the pancakes light and fluffy.

Tricia Berry, director of the Women in Engineering Program at the University of Texas at Austin, uses the microwave to help her son understand the concepts of mass — like thickness and density — and energy. "We talked about a tortilla, which is thin and won’t take a lot of energy to heat up, then compared that to a slab of meat, which we need to heat longer," says Berry.

Child’s play
Spatial thinking, or the ability to mentally rotate 3D objects, plays a critical role in science and engineering. With it, engineers and architects can design buildings, surgeons can visualize patients’ anatomy, mapmakers create maps and chemists see a molecule’s structure through their minds’ eye.

Spatial skills can be learned. One of the easiest ways is by letting young children build with blocks, Legos, Lincoln Logs or other 3D construction and modeling toys.

Kids in elementary grades can hone their skills with jigsaw puzzles and old-school games like checkers, chess and tangrams puzzles.

Does your daughter love sports? That’s your opportunity to chat with her about the aerodynamics of a soccer ball and how it was redesigned for the last World Cup.

You can also ask your budding court star to suss out why a tennis ball’s fuzzy surface helps control the bounce, speed and lift of a shot.

Marta Peña, a program manager for Techbridge, even challenges her three daughters to figure out the structural purpose of the shapes they see when they drive by construction sites.

And then there’s Minecraft, the incredibly popular video game that encourages kids of all ages to construct machines and even whole worlds from different building blocks. Educators around the globe now include Minecraft in their lesson plans, in part to improve kids’ spatial reasoning.

Natural wonder
The outdoors is a place of wonder and exploration, especially for young children, says Jeanne McCarty, CEO of Real School Gardens, which designs so-called learning gardens that help students with math, science and language.

"Sometimes a rollie pollie [ pillbug] in a yard can be more interesting than going to see a tiger at the zoo," says McCarty. "Go with that curiosity. Let them ask questions. Let them get messy."

And allow them to fail.

It’s not just part of the scientific process; it’s how we learn, say experts.

So chill if that experiment in the kitchen burns, tastes salty or looks just plain awful. Go ahead and let them plant the tomatoes in the shade.

But please don’t feed them the answers. You want your kids to ask "why," "If we answer for them, we’re not getting them to critically think and problem solve," says Berry.

For Adam Savage, former co-host of the “Mythbusters” television series, the search for "why" is what makes science — and scientists — special.

"Science is a deeply creative field," says Savage. "If you keep asking 'why,' eventually you get to the answer ‘we don’t know.’" Any discipline you choose, the answer at the end of every line of questioning is, ‘we don’t know.’ And in that space lies a [place] where we can all contribute. That’s beautiful."

My 3-year-old twin daughters aspire, at the moment, to being fairies, puppies and princesses. They already have the imagination and inquisitiveness of a scientist. My job is to make sure they keep it.

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