



EXPLORE STEM at Home A Dozen Activities for Kids of All Ages

Children are growing up surrounded by more technology than ever, which is great news when it comes to future career opportunities. According to a study from the U.S. Bureau of Labor Statistics, there were nearly 8.6 million STEM jobs in May 2015; seven out of the 10 largest occupations were computer related.

With the popularity of STEM (science, technology, engineering and math) education in school, you might wonder what you can do at home to boost a child's sense of curiosity and ability to problemsolve. Good news: Parents can plant "STEM seeds" early — and there's no need to be a math whiz or science buff to explore STEM topics with kids. Here are ideas for all ages:

Help build STEM language. Encourage little ones to notice surroundings, ask questions and pay attention to details. Observation is a critical science skill, so challenge your child to think about what she's doing or seeing in the world around her.

Watch fun science videos together on YouTube. Some standouts include NatGeo Kids Cool Science Experiments (www.kids.nationalgeographic.com) and

Bayer's Making Science Make Sense videos. Visit www .makingsciencemakesense .com/science-library/answers for videos that give kids the low-down on topics such as What Makes a Curveball Curve?, Why Do Ice Cubes Float?, When Do Fish Sleep? and What Is a Shooting Star?

Builders Clubs at elementary schools and local libraries. Many schools and organizations offer afterschool coding, web development, engineering, and robotics clubs for middle school and high school students. Check out Girls Who Code (www.girlswhocode.com), which offers afterschool and summer programs for girls in grades 3–12.

Challenge kids to teach themselves. Many online opportunities exist to help kids boost technology skills. They can learn to code at www.Code.org and www.Tynker.com; create games and animations at www.Scratch.mit.edu; build a website using WordPress, where they can upload photos and videos; and use the open-source MIT App Inventor to create software applications.

5 Read with your kids. Books open kids' eyes to new ideas and fresh perspectives, and introduce them to unsung heroes/heroines and unfamiliar places.

Find suggestions for awesome STEM-focused books and activities at www.sandiegofamily.com/forthe-kids/book-multimedia-reviews.

Tap into your personal and professional network.
Connect your kids with professionals you know who have STEM-related careers. Invite them

over for casual conversation during a family dinner. Doing so gives your kids a better understanding of career possibilities, such as civil





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engineering, computer programming, financial planning, environmental science or veterinary medicine.

Bring science to life with fun **family outings.** Visit Palomar College Planetarium in San Marcos, Maritime Museum of San Diego, The Fleet Science Center, San Diego Zoo, Mission Trails Regional Park or Palomar Observatory. Explore STEM concepts though hands-on exhibits, demonstrations and interactive experiences. While in nature, take a notebook to record observations or sketch pictures.

More STFM

Bring Science Home

www.scientificamerican.com/ education/bring-science-home At-home science activities for ages

Curiosity Machine Challenges www.curiositymachine.org/ challenges

Hands-on engineering challenges for ages 10 & up

Exploratorium

www.exploratorium.edu/explore/ activities

Hands-on science and math activities for ages 12 & up

Science News for Students www.sciencenewsforstudents.org Teen-friendly science articles and resources

Young Scientist Lab www.youngscientistlab.com Family activities from 3M and Discovery Education

Southern California is rich with educational micro-adventures! Find "8 Fun Spots that Expose Kids to STEM Learning" at www.sandiegofamily .com/things-to-do/out-about.

Encourage your child's interests. Does she enjoy building model rockets or playing with gears?

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Buy a science kit for her birthday. Does she love to cook? Dig into the chemistry of cooking by researching culinary questions such as, why do apples turn brown after they're cut?

Participate in STEM events. Your child's school might hold family math night, science fairs or tech nights. Make it a point to go together, participate in activities and ask questions to help connect your child with STEM concepts. Gaze at the stars at Fleet Science Center with members of the San Diego Astronomy Association. Check the schedule at www.rhfleet.org.

Don't miss the San Diego Festival of Science & Engineering Expo Day on Sat., March 2. See page 42 for details.

Create a "maker box." Stock up on supplies that encourage creativity, building and invention. Some ideas: small cardboard boxes and tubes, PlayDoh, PVC plastic pipes and connectors, Lego bricks, string, wooden building blocks, Duct Tape, Lincoln Logs, pipe cleaners, etc. Learn how to make a box oven or pizza box solar cooker at www.sandiegofamily.com/forthe-kids/family-science.

Assign a tech role. If your child has a knack for technology, ask for her help with your smartphone or to demonstrate how to download photos to your laptop. Dub her your family's tech guru to instill confidence.

Plant a garden. Get down and dirty with your kids as they learn about science and math from gardening. They can calculate how big the garden plot should be, measure the planting depth of seeds, chart the growth of a tomato plant, record the weekly rainfall and predict which plants will yield the most produce. Talk about the life cycle of a plant, discuss photosynthesis and identify parts of a plant from seed to stem. No space for a garden? Learn how to plant a patio garden at www.sandiegofamily.com/forthe-kids/family-science. ❖

Lisa Beach is a freelance journalist.