Why we need to make math relevant to kids

Plus, 5 ideas to use at home to get kids thinking numerically.

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Employers are projected to add more than 9 million STEM jobs between 2012 and 2022. Will your child be prepared for a math-related career? (Photo: wavebreakmedia/Shutterstock)

In recent years, STEM education (science, technology, engineering and math) has become a key focus in K-12 education. According to data from the U.S. Bureau of Labor and Statistics, STEM jobs are projected to grow to more than 9 million between 2012 and 2022, and students prepared for these disciplines will benefit in related careers — which is why the National Science Foundation calls for all students to have a strong STEM foundation to be able to participate in the 21st-century economy.

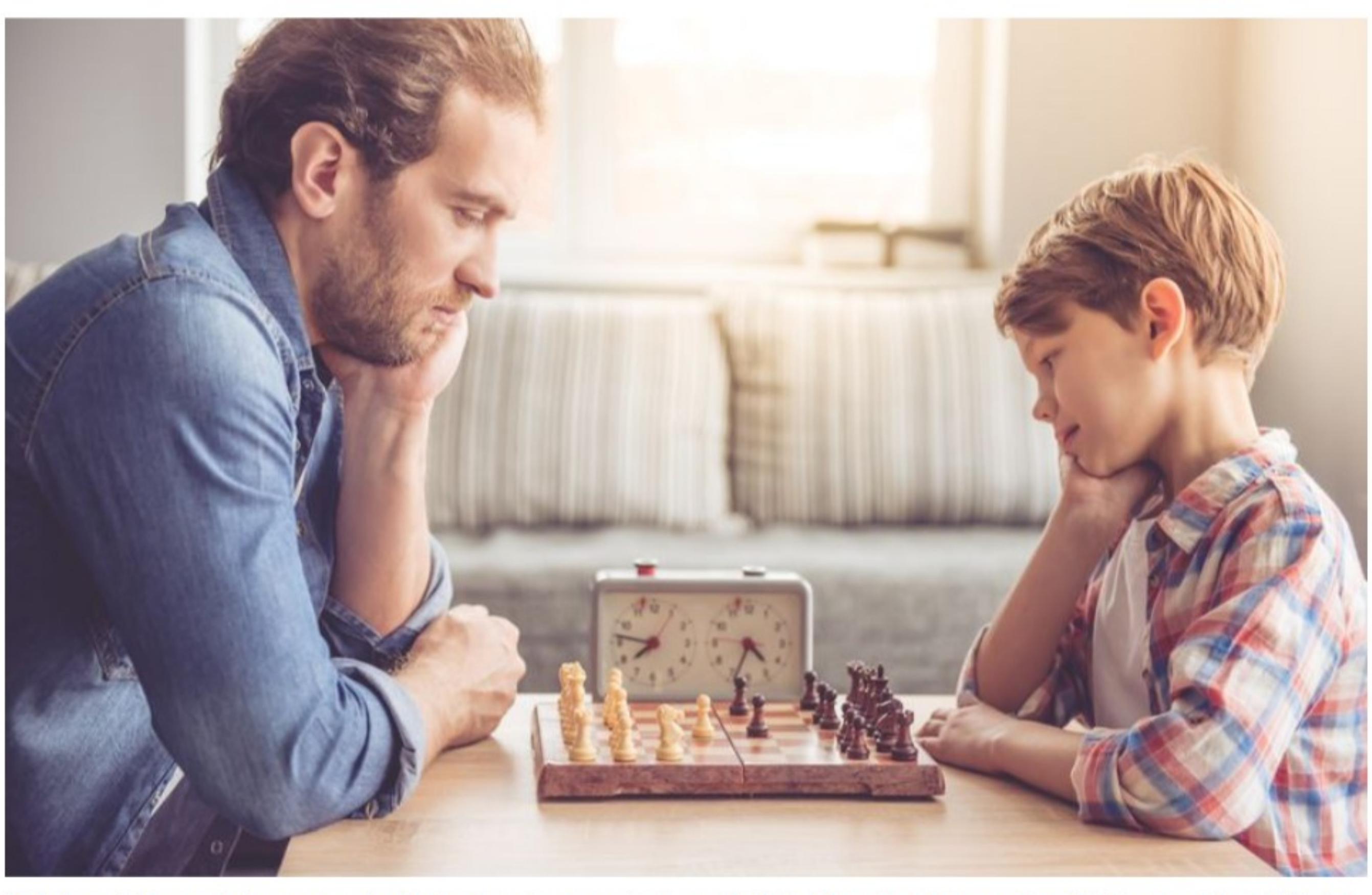
But American teens remain behind their international peers in math, at least on the 2015 results of the Program for International School Assessment (PISA), released on Dec. 6. American 15-year-olds scored near the bottom of the pack of 35 industrialized countries, and experts are positing why. In a webinar on the results, Andreas Schleicher, director of education and skills for the Organization for Economic Cooperation and Development (OECD), observes that American students' proficiency declines as they move into higher grades, and they have trouble working out the more complex layers of a problem.

A recent pilot study out of Australia, whose students also lag in math, found that students were more engaged when math was made relevant to their lives. They did better on projects that used real money and real-world financial concepts such as lending, interest rates, mortgages, profit and loss and loans.

A friend of mine who teaches first-year math at a university and commonly sees students flounder through the content, says her students prefer formulas and quick answers over deep problem-solving from a variety of angles. But college math requires creativity and persistence, she says, and without these traits, students hit a wall. Many wash out of STEM degrees.

So how do we teach kids to get beyond formulas and dig in deeper? To help kids see the relevance of math, it's important to make it a part of everyday life from a young age just as we promote reading. Using it to problem solve real-world math riddles promotes grit and imagination.

Here are a few ideas to use at home to get kids thinking numerically.



Kids benefit from playing games that help them improve their math skills. Chess teaches creative thinking and the ability to plan ahead. (Photo: George Rudy/Shutterstock)

Games. Kids benefit from playing all kinds of games that help them improve their math skills as well as learn focus and self-control. Playing Chutes and Ladders helps little kids learn numbers and counting. Monopoly improves addition and subtraction. Set (one of my family's favorites) helps kids spot patterns. Blokus teaches spatial relationships and geometry. Chess teaches patience, creative thinking, how to break a problem into smaller parts and how to plan ahead.

Grocery store. Math is everywhere at the supermarket. Have your kids calculate the price per unit, weigh bulk items or produce, calculate percentage discounts and estimate the final price prior to checkout. Give them coupons to make the math more complicated. Very young kids can sort groceries into perishables, boxes and canned items to learn about categorization and counting. Talk about brand name versus store brand and comparison shopping. Send your teens to the store with a budget and your grocery list. (You're creating life skills for college for them, and a break for you.)

Baking from scratch involves lots of mathematical thinking: measuring ingredients for a recipe, multiplying or dividing fractions to bake a partial or double batch, and learning ratios and proportions. (Photo: Steiner Wolfgang/Shutterstock)

Baking. Making a cake or cookies from scratch involves lots of mathematical thinking. Skills your kids learn include measuring ingredients for a recipe, multiplying or dividing fractions to bake a half batch or double batch, and learning ratios and proportions. Baking a pot roast or a whole chicken requires calculating pounds per hour of required cooking time. For extra fun, convert a recipe from American standard measurements to metric units.

Building. My dad is an architect and he worries about how few young people work on construction sites these days and, of those, how few understand the relevance of math. Even if your teen doesn't want to be a carpenter, DIY homeownership requires math skills. Have your kids help you calculate the number of bags of concrete or bricks for a new patio, how many gallons of paint you'd need to paint the living room or the materials required to build a bookcase with specified dimensions. Better yet, get them building with a hammer, saw and tape measure. You don't need to know the answers to get kids engaged — in fact, it's better if you don't.

Personal finance. To grow into financially savvy adults, kids need to understand how math applies to finances and budgeting and get lots of practice with money. Most kids love money. Plus understanding the basic concepts of exponential growth and compound interest helps young adults understand debt and investing. Start talking early about money, and look for opportunities. Kids can sell outgrown toys at a family garage sale, run a lemonade stand and save allowance to budget for a specific purchase. Teens should learn how to calculate compound interest on a credit card purchase, and how much a student loan or car loan will cost with interest over a specified amount of time. New York Times money columnist Ron Lieber offers great financial tips in his book "The Opposite of Spoiled" to get family conversations started. For more ideas, try The Mint, a site dedicated to teaching kids of all ages about finance.

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