

Helping Your Child in the Area of Mathematics

Support positive attitudes towards mathematics

- Let your child know that everyone can be successful in mathematics. This can be done by...
- ...encouraging your child to be persistent in working through problems; success will build confidence.
- Avoid negative comments about math such as, "I was never good at math."
- Praise effort not intelligence. Use words like *I like how hard you are trying*. Avoid saying things like *you are smart*.

Be an active participant in your child's learning

- Read books to your child that involve math and talk about the math as you read.
- Relate math to real-life experiences so your child can see how math is useful.
- Complete puzzles and play board and computer games that involve logical thinking, strategizing, and reasoning.
- Involve your child in daily activities that require the use of math such as weighing objects at the grocery store, measuring ingredients for a recipe, and estimating the amount of time it will take to complete a task.
- Problem-solve out loud so your child can learn how think through the steps necessary to solve a problem.

Create an appropriate learning environment

- Provide materials and manipulatives that promote and support mathematics such as pencils, paper, rulers, tape measures, counters, protractors, calculator, measuring spoons/cups, analog clock, graph paper, thermometer, etc.
- Create a "homework spot" in a well-lit spot, complete with sharpened pencils and erasers, where your child can study and do homework.

Promote critical thinking and problem-solving skills

- As your child works on math assignments, ask higher order thinking questions such as *How can you prove that? What would happen if...? Does that make sense? Can you predict what would happen next? How does this relate to...?*
- Encourage your child to solve problems a variety of ways: Guess and check, draw a picture, make a list, solve a similar problem, look for a pattern, work backwards, use manipulatives, simulate the problem, make a list, etc.

Show interest in what your child is doing and learning at school

- Make it a habit to ask your child to tell you about what they learned about math in school that day. Follow up with interesting questions to let them know what they are learning is important to you.
- Participate in parent-teacher conferences, Open House nights, Family Math Night and other educational and community-building events.



For more ideas on helping your child in math, visit our Family Math Night Facebook page or website at www.FamilyMathNight.com.



Parents should alter their bedtime ritual to include math, study suggests.

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Bedtime problems boost kids' math performance

By Adrian Cho | Oct. 8, 2015 , 6:15 PM

"Mommy? Daddy? Read me a word problem," is probably not a request that many parents hear. Yet if a school child's parents replace a bedtime story with a math discussion even one night a week, the child's math skills may improve markedly compared with peers who listen to nonmathematical stories, a new study shows. The effect is sizable: Over the course of one 9-month school year, **students who do bedtime math gain on average the equivalent of a 3-month advantage over their peers**, researchers report online today in *Science*. The approach even works if the parents have math anxiety and generally shy away from discussing math with their children.

Educational experts generally applaud the new work, though they note it will take more investigation to understand why the strategy works. "I think it's a fantastic study," says James Stigler, an educational psychologist at the University of California, Los Angeles, who was not involved in the work. "But it is just the beginning." Andee Rubin, a mathematician and computer scientist at TERC, a nonprofit educational researcher and development company in Cambridge, Massachusetts, agrees. "I'm interested in teasing it apart and seeing what makes this effective."

Most parents understand that to help their children develop academically they should read to them, says Sian Beilock, a cognitive psychologist at the University of Chicago in Illinois and an author of the new study. But parents often assume that the school will take care of math instruction, she notes. "Our hope is that this study helps change the notion that math is the purview of the school and shows that talking about math at home is helpful," Beilock says.

To evaluate the effects of a little bedtime math, Beilock, psychologist Susan Levine, and colleagues at the University of Chicago recruited 587 first-graders from 22 schools, public and private, richer and poorer, in the Chicago metropolitan area. The parents of each child were given a tablet computer with which to read to the child at bedtime. Four hundred and twenty families were told to use it to work through word problems related to counting, shapes, arithmetic, fractions, and probability using a freely available and independently created app called **Bedtime Math**. Another 167 families were instructed to use a reading app. With a standardized test, the researchers assessed all the subjects' mathematics performance at the beginning and end of the school year.

Not surprisingly, use of the reading app made little difference to the children's math performance. In contrast, doing math at bedtime had a significant effect: Children who used the app two or more times per week outpaced peers whose family rarely used it. "It's like they've had 3 months more of math instruction," Beilock says. "In the real world that's a

pretty big effect."

Perhaps most important, use of the app brought students whose parents said they were anxious about math up to par with those whose parents were at ease with the subject. Among children whose family rarely used the math app, those with math-phobic parents made only half as much progress as the children of parents comfortable with math. But doing bedtime math even once a week eliminated the performance gap.

Stigler says the study is particularly impressive for its size and for being done outside a laboratory setting. "You don't have to guess whether [the technique] will work in everyday life because the study was done in everyday life," he says. However, Janet Bowers, a math education researcher at San Diego State University in California, notes that 70% of the subjects came from middle- and upper-middle class families and questions whether the result can be generalized. "You're not going to bring it to a low-income school," she predicts, "because there just aren't parents who sit there and read."

Why the technique was so effective remains to be determined, Rubin says. "What makes this different from helping your kid with their homework?" she asks. "Is it because it's on an iPad? Is it because it's in place of a story? Why did the people who used it use it?"

Beilock says she suspects that the delivery mechanics—computer or paper—don't matter, but that the key is talking to your child about math. That should become as routine as bedtime reading, she says. Stigler says it's an attainable goal. "I don't think you're going to see a huge cultural shift," he says. "But a study like this, if it's well publicized, can make a difference."

Bowers notes that the study was funded by Overdeck Family Foundation, whose chair, Laura Overdeck, established the nonprofit Bedtime Math foundation, which makes the app. Beilock acknowledges that connection, but adds that the authors have no financial interest in app and the foundation had no control over the data. "It's all in the paper," she says, "so people can draw whatever conclusion they want."

***Update, 9 October, 11:02 a.m.:** *This story has been changed to avoid the implication that primarily fathers discuss math with their children.*

Building a Strong Mathematical Foundation

at HOME

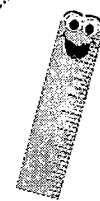


Counting

Count. Count again. Now count some more. Count ...the number of steps to the car. ...the number of forks on the table. ...the number of grapes on your plate. And, when you're ready, skip count by twos!

Rulers and Tape Measures

Measure everything! How far can you jump? How long is the desk? How tall are you? How tall is the dog?



Coins

Collect coins in a jar. Sort them into groups. Discuss their names and values. Skip count by 1s (pennies), 5s (nickels) and 10s (dimes). Practice adding small amounts.



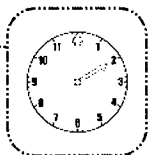
12-Month Calendar

Write down all the important dates: Your birthday. Your mom's birthday. Special holidays. Karate class. Now use it to figure out things like how many days before your trip to grandmas.



Time

About how long does it take you to... brush your teeth? ...drive to the store? ...jump up and down 10 times? Use a stopwatch to find out!



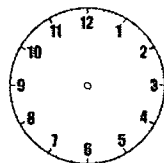
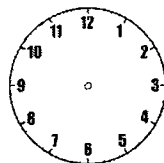
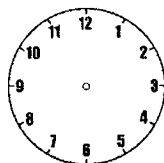
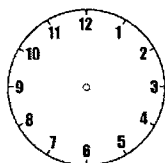
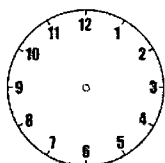
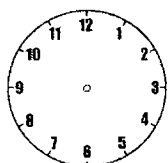
Analog Clock

What time do you get up? What time do you go to school? List your daily schedule. Use the clocks below to show the time of each listed item. Cut out and glue next to the appropriate item on the schedule.

Shapes



Look around. Where do you see rectangles? Where do you see triangles? Build with blocks. Design with clay. Draw with paint.



Developing Number Sense at HOME

Here are 5 simple ways to seamlessly integrate number sense activities while driving in the car, cutting vegetables, waiting in the dentist's office...

1 What's the Question?

Give your kids the answer and have them come up with the problem. For example: *The answer is seven. What's the question?* Sample answer: *I had ten grapes and then I ate three. How many grapes are left?*

2 Who Am I?

Not only are these perfect for mental math practice but they're a great way to reinforce math vocabulary. Sample: *I am an even number greater than ten but less than twenty. The sum of my digits is nine. Who am I?*

3 Which Number Does Not Belong?

This is a pre-algebra activity where kids sort and classify numbers into categories. Example: *Which number does not belong: 4, 12, 17, 8, 20?* Answer: *The number '17' does not belong because it is an odd number (or...17 is not a multiple of 2).*

4 Which Has More?

A great mental math activity that gets kids to compare several quantities at the same time. Example: *Which has more, the number of wheels on two cars or the number of eggs in a dozen?*

5 And the Answer is...

For this activity, kids need to compute a series of quantities in their head. Example: Start with the number of days in a week. Subtract the number of wheels on a tricycle. Double that number. And the answer is...

