

How Can I Help My Child to Become Mathematically Powerful?

Money

Encourage your child to

- participate in making family budget decisions
- participate in grocery shopping
- begin to manage his or her allowance
- make decisions about how much the allowance can buy

Counting/Number

Encourage your child to

- count past 500 by different multiples (count past 500 by 50s, or count past 650 by 20s)
- make connections between factors and multiples (If I can run one mile in five minutes, how many miles can I run in thirty minutes?) Math Facts
- By the beginning of grade 5, your child should know the multiplication facts up to 10×10 .

Time

These are some of the time concepts that you can help your child learn at home:

- how to read an analog clock (with an hour and minute hand)
- how to schedule time. If you need to do four specific things, how much time will you need? If you have four things to do and they each take twenty-five minutes, how much time will you need to complete them all? What could those four things be?

Measurement

Involve your child in measurement activities that encourage measurement like

- cooking (fractions, volume, cups, teaspoons, and so on, following step-by-step instructions)
- reading a thermometer
- estimating temperatures (It will be 60° today, will you need a coat for recess?)
- estimating area and perimeter, and identifying the difference between the two!

Problem Solving

Pose meaningful problems attached to real-world contexts whose solutions allow for varied approaches. Follow up solutions with questions such as:

- How did you figure that out?
- How do you know if your answer is correct?
- Can your answer be an estimate or does it have to be an exact number? Why?



Good Questioning Techniques for Parents

Careful, intentional, and mindful questioning is one of the most powerful tools a skillful teacher possesses (from *Activating and Engaging Habits of Mind* edited by Arthur Costa and Bena Kallick [ASCD 2000]). So what do careful, intentional, and mindful questions look like?

- They help students make sense of the mathematics.
- They are open-ended, whether in answer or approach. They may use multiple answers or multiple approaches.
- They empower students to unravel their misconceptions.
- They not only require the application of facts and procedures, they also encourage students to make connections and generalizations.
- They are accessible to all students in their language and offer an entry point for all students.
- Their answer leads students to wonder more about a topic and to perhaps construct new questions themselves as they investigate this newly-found interest.

The list below offers a generic set of questions that may help guide and facilitate discussions with your children about the mathematics they are studying:

- Why do you think that?
- How did you know to try that strategy?
- How do you know you have an answer?
- Will this work with every number? Every similar situation?
- When will this strategy not work? Can you give a counter example?

Source: *Good Questions for Math Teaching: Why Ask Them and What to Ask, Grades 5–8* by Lainie Schuster and Nancy Anderson (Math Solutions 2005).



Helpful Things to Say When Your Child Asks for Help with Math Homework

In order to help your child to become a strong and flexible problem solver, we assign a variety of math activities as homework.

Often your child will receive homework that is directly connected to our math curriculum in the Lower School. You will begin to recognize Home Links (grades 1, 2, and 3), Study Links (grade 4), and ACE questions (grade 5) as the year progresses. All are connected to the concepts that are being taught in class. Other assignments may be teacher-generated or adapted from other relevant sources.

Games may also be assigned for homework. We use games as motivating ways to help our students learn and master concepts. We play these games in school and ask that you play them at home with your child, too. Games are to be taken seriously. When your child asks you to play a math game, notice that your child has to remember and explain rules; create, articulate, and justify a strategy; and use math, as well. Yikes! Often a lot more mathematical thought goes into playing a game than completing a worksheet!

We also assign open-ended problems (multistep story problems) or performance tasks (collecting data). Open-ended problems often challenge your child to try to use much of his or her math knowledge to solve an unfamiliar problem. Sometimes children complain that "the teacher did not teach me how to do this." And in a way, they are correct. We cannot teach your child how to do every kind of problem. Instead, we focus on problem-solving strategies and making connections between similar types of problems and possible strategies used to solve them.

When your child asks you for help, please try not to jump in with an answer no matter how tempting that may be! Instead, try using some of these prompts to support their thinking and perseverance:

- Does this remind you of other problems that you have done in class?
- What have you come up with so far?
- Where do you think you should start?
- What is the problem asking you to do?
- Would drawing a diagram or picture help?
- Why do you think your answer is not correct?

Implementing a well-balanced homework policy takes into account the various needs and expectations of children. This is a tricky business! It requires mathematics teachers to be thoughtful, purposeful, and respectful in their assignments. The ultimate goal of any homework assignment is to offer opportunities for meaningful mathematical conversations between parents and their children.

