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Back to School—The Time to Engage Parents and Families

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It's August—back-to-school time. As you plan for the new school year, don't forget to make explicit plans for engaging parents and families. As you well know, parents can be invaluable supports for their children's mathematics learning. While it's helpful to send parents basic information about their children's mathematics class, such as course outlines, assignments, and descriptions of teacher expectations, they typically need much more than that to be prepared to support their children's mathematics learning, as the following examples illustrate:

- The father of a third-grader who says, "Every night, my son and I fight about math! Like last night. I told him you have to start adding from the right; he says 'No, you don't. That's not the way we do it. I can start adding at the left—or anywhere.' He gets the right answers—and explains to me what he's doing. But it's not the way I learned it! Is that okay? I'm very frustrated!"
- The mother of a seventh grader who calls the principal, complaining that her daughter's mathematics teacher is not teaching; she's just asking students questions instead of showing students "the steps."
- The mother of a high school student who complains, "Ms. Smith is not a good teacher. When my son does his homework, there are problems that he struggles to solve. If she were a good teacher, he would be able to work all the problems easily."

Sound familiar? As recent media postings and comments about mathematics instruction and homework illustrate, many parents have beliefs about mathematics learning and instruction that are at odds with current content expectations and the effective teaching practices identified in *Principles to Actions: Ensuring Mathematical Success for All*. If we want parents to support—rather than hinder—their children's learning, we need to actively help them to update their knowledge and beliefs. And this needs to be done at the very start of the school year—before they become confused and frustrated!

What mathematics should my child be learning?
First and foremost, parents need to know that being prepared for the 21st-century workforce requires being able to do more than simply compute or carry out procedures. Children need conceptual understanding as well as procedural fluency, and they need to know how, why, and when to apply this knowledge to answer questions and solve problems. They need to be able to reason mathematically and communicate their reasoning effectively to others. In short, students need the habits of mind described in the Standards for Mathematical Practice in the Common Core State Standards and the NCTM Process Standards, as well as in the process standards of other college- and career-readiness standards.

Clearly communicating these overarching outcomes to parents is essential if we want them to understand and accept the teaching practices that promote them. It might also be helpful for parents to know that this description of 21st-century competencies is coming from business and industry leaders and the broader research community, as well as from mathematics educators. They should also know that similar expectations exist for English/language arts and science as well as mathematics. The National Research Council's *Education for Life and Work: Guide for Practitioners* is a useful resource regarding 21st-century competencies and instruction to develop them. The Hunt Institute and the National PTA have produced a series of videos for parents that describe these increased expectations.

And, of course, parents want to know the specific mathematics that their children will be learning. This involves more than providing a list of content standards or objectives, such as that students in grade 2 are expected to become able to add and subtract two three-digit numbers within 1,000. Parents need to know *how* children are expected to solve these problems, especially when the methods may be different from the ones they learned as students. For adding and subtracting, for example, they need to understand that students may use strategies based on place value or properties of operation, explaining their strategies, or using drawings to support their explanations. It is also helpful to explain to parents how these approaches benefit children and to set the approaches in the context of what their children will be learning over the next

several years. For multi-digit addition and subtraction, children eventually *will* learn standard paper-and-pencil procedures; however, first using a variety of strategies helps children understand and more easily learn the standard procedures. These same recommendations apply to all grades. For example, in grade 6, students will use unit rates or equivalent ratios to solve proportion problems instead of cross-multiplication; in high school, students may solve quadratic function problems presented in real-world contexts using tables and graphs, before solving quadratic equations. My experience has been that parents are very receptive to these "new" approaches when they clearly understand what is expected and how these approaches help their children learn mathematics.

What will my child's mathematics class look like?
Second, parents need to know that developing the mathematical knowledge described above requires instruction that actively engages their children in *doing* mathematics—solving unfamiliar problems alone and collaboratively, analyzing alternate solutions, and generalizing those solutions to methods and procedures that apply to classes of similar problems—rather than listening to the teacher show and tell them which procedures to apply and how to carry them out. Because of their own school experiences, many parents hold beliefs about teaching and learning that *Principles to Actions* describes as "unproductive." Helping parents understand the shifts in students' and teachers' roles and actions in effective mathematics classrooms is a critical priority for your beginning-of-the-year parent engagement efforts.

How can I help my child?
Most parents want to help their children learn mathematics. However, traditional ways of helping, such as showing children the steps to get answers, are at odds with our efforts to engage students in solving high-level tasks and developing conceptual understanding, thinking, and reasoning. Parents need specific suggestions about productive ways to help their children and how to implement them.

A key shift is for parents to ask questions to help their children solve unfamiliar problems rather than to show them how to solve them. Explicitly tell parents that when their children are struggling with a problem, their role is to help *them solve it* by asking questions such as the following:

- What are you being asked to find out?
- What does the problem tell you? Can you describe it in your own words? Have you seen a problem like this before?
- Is there any part of the problem that you already know how to do?
- Is there anything you don't understand? Where can you find the answers to your questions?
- Will it help to make a list, a chart, a table, a drawing, a diagram? Can you act out the problem?
- What do you estimate your answer will be? Why?
- Is your strategy working? Why or why not?
- Is there another way to check your answer?
- How do you know if your answer is right or wrong? (From *A Parent's Handbook, Grade K–5,* Allegheny Intermediate Unit, p. 2; similar questions appear in the Grades 6–8 and Grades 9–12 Parent Handbooks.)

Parents can support their children's learning in other ways:

- *Practicing basic facts***.** Children are expected to develop immediate fact recall as well as understand the meaning for operations. Immediate recall requires practice, in addition to understanding—and time for practice in the school day is limited. Parents can help in a variety of ways, especially since orally presenting facts promotes immediate recall more effectively than worksheets. Perfect times to practice are while driving, walking, waiting, and so on. Just be sure that parents understand that this practice should build on understanding of operations, not occur in isolation.
- *Playing games.* Games are a great way for parents to give their children practice with mathematics concepts and skills and develop strategic thinking, while also promoting positive parent-child relationships.
- *Posing contextual problems.* Mathematics problems are part of everyday life. Parents help children see that math is all around them when they pose problems that arise in everyday situations.

A variety of useful resources support these activities:

- Family Resources, NCTM
- *Figure This! Math Challenges for Families*, NCTM
- *Helping Your Child Learn Mathematics*, U.S. Department of Education
- *Parent Roadmaps to the Common Core Standards-Mathematics*, Council of the Great City Schools

Finally, schedule your parent engagement activities to begin as close to the beginning of the school year as possible to get parents, along with their children, off to a good start. The sooner you involve and inform parents, the better partners they can be in helping their children learn mathematics.

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