The Quantile Framework® for Mathematics In the Home

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Parents and guardians have a significant opportunity and a dedicated responsibility to insure their children's academic success. Oftentimes, parents inadvertently relay their own attitudes about mathematics upon their children. Yet, they have the power to encourage and stimulate a love of mathematics, regardless of their own confidence in the study of mathematics. Recognizing that parents are a child's first teacher, parent involvement in a child's education is a major factor in determining success in school and in life.

Research demonstrates the tremendous impact that parent involvement has on the achievement of their children (Henderson and Berla, 1994). The value of parent involvement on academic achievement stems from a variety of roles. Parents do not need to have an extensive amount of education to be able to monitor homework assignments, become involved in their child's school activities, or model their own appreciation for the importance of education in their professional or personal experiences (Cotton and Wikelund, 2001).

Families play a vital role in educating children. The importance of parent involvement has been documented not only in research but in the political arena as well. The U.S. Congress recently added to an initial list of six National Education Goals an additional goal that states: "Every school will promote partnerships that will increase parent involvement and participation in promoting the social, emotional, and academic growth of children" (Goals 2000. U.S. Department of Education, 1994).

The value of parent involvement extends beyond school as well. Many children successfully complete appropriate assignments and develop attitudes and study habits. However, parents who are involved and knowledgeable about the curriculum and instruction can powerfully influence their child to be a successful student beyond school. It is clear that supportive family involvement in education is crucial for children to succeed in school and throughout life.

Everyday Activities that Support Mathematics Instruction

Mathematics is everywhere. By helping children recognize the mathematics in everyday activities parents create a natural appreciation and love of the subject. Mathematical tasks that become a part of daily home activities are powerful teaching tools. One activity might be shopping, where parents have the opportunity to help their children count money, determine discounts, or make change. Another activity could be cooking, where children can be led to compare fraction amounts by using recipes with a quarter of a cup or a third of a cup, or how many quarter cups it takes to make a half cup. Activities can also be entertainment, such as board games that require calculations with money, considerations for probability, counting, or matching. In leisure reading, parents can partner-read sports pages from the newspaper, offering guidance in statistics for comparison purposes. Home activities involving mathematics provide the relevance and excitement necessary to create lifelong learners.

Found games—those that parents find or create—can be incorporated into the daily routine with the purpose of instructing mathematics in a fun, spontaneous way. These might be counting games, songs about numbers, or estimation contests. For example, on a long trip children can be asked to count the number of cars that pass (going in the opposite direction) in a half mile or one mile. Then they can be guided toward estimating how many cars they think will pass by in a set distance (for instance, in five miles). After counting the cars for five miles, according to the odometer, the child in the car who has the closest estimate is the winner. Another example might be playing games with cards, like War or Spades, to compare numbers, products, etc. Others might involve counting off in multiples, or math rules involving divisibility—can the number on the card be divided by 2, 5 or 9?

Any of these kinds of activities can be more practical when the parents are communicating and working with the classroom teacher. Teachers can identify where the child might need to strengthen his/her skills and suggest ideas of how to do so at home.

Parent involvement for students is effective if parents take the role of a monitor in a supportive manner (Making room for homework, *News & Observer*, October 31, 2009). In other words, parents do not need to be experts in the subject. The important roles of parents involve monitoring for projects and homework, counseling long-term goals for their child, or acting as liaisons between the home and school. Parent attendance for a child's school activities and conferences is as effective as parents who try to help their child with homework. Parents who consistently attend their child's school activities and conferences are just as effective as those who help with their child's homework (Giles, 1987).

Quantile Resources to Support Mathematics

The Quantile® website (www.Quantiles.com) provides resources to help parents identify and support the mathematical skills that their child is learning or those skills in need of review. The site includes a suite of family-oriented resources, like Math Literature Guides, lists of books, and family reports called *Math at Home*. The *Math at Home* search engine offers a resource package with a list of family-friendly activities and resources, such as tutorials, games, and worksheets, as a downloadable document. By identifying the child's grade level, home state, and Quantile measure *or* a summary of the child's success with grade-level materials, a parent or teacher can search for resources in *Math at Home*. Parents with or without access to their child's Quantile measure can visit the Quantile website to retrieve mathematics topics at the appropriate grade level where the child has difficulty. Pinpointing which skills are needed for review is important in specifically addressing the needs of the student. The *Search the Math Skills Database* tool can also be used to find the supporting and precursory skills upon which the student can strengthen his/her mathematical skills. All Quantile resources are aligned to state curricula across the country so that parents are armed with the ability to support classroom instruction. Quantile measures empower parents and offer ways to increase confidence in order to support a child's study of mathematics.

The stakeholders for student achievement in school are the parents as well as the educators. The Quantile Framework® for Mathematics is an assessment tool that can also be used as

an instructional tool by both parties. Parents are able to take the initiative of advancing their child's academic achievement and problem-solving abilities with the information on the Quantile website. The site offers the information, activities, and resources that can be used in the classroom, in after-school tutorials, or in the home.

References

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About MetaMetrics

MetaMetrics®, an educational measurement and research organization, develops scientific measures of student achievement that link assessment with targeted instruction to improve learning. The organization's renowned psychometric team created The Lexile Framework® for Reading; El Sistema Lexile® para Leer, the Spanish-language version of the reading framework; The Quantile Framework for Mathematics; and The Lexile Framework for Writing.

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