

The Quantile® Framework for Mathematics In the Home

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Parents play an important role in their child's academic success. The significance of parent involvement has been well documented in research, as well as in the political arena. In 2000, for example, the U.S. Congress amended its list of National Education Goals to include: "Every school will promote partnerships that will increase parent involvement and participation in promoting the social, emotional and academic growth of children" (U.S. Department of Education, 1994). While these initiatives have supported strengthening the home-school connection, when it comes to the study of mathematics parents can inadvertently relay their own negative attitudes and phobias about the subject to their child.

The good news is that the value of parent involvement on a child's 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). Many children can complete homework assignments independently and will develop their own positive attitudes and study habits. However, parents who are actively involved in what their child is studying in the classroom can significantly influence their child's success—both in school and beyond.

Everyday Activities that Support Mathematics Instruction

Mathematics is everywhere. By helping a child recognize the mathematics involved in everyday activities, parents can foster a natural appreciation of the subject. Parents may find that incorporating "mathematical tasks" into the following activities can be powerful teaching tools:

- *In the store:* count money, determine a discount and make change
- *In the kitchen:* compare fraction amounts and other measurements in a recipe
- *In the family room:* play board games that require calculations with money or partner-read the sports page of a newspaper to discuss and compare statistics

In addition to these activities, *found* games (or those that parents find or create) can be incorporated into a child's daily routine to support mathematics instruction in a more entertaining and spontaneous way. These activities can include counting games, songs about numbers or estimation contests. Here's one example:

On a long trip, ask the children in the car to count the number of vehicles that pass (going in the opposite direction) in a distance of a half or full mile. Then, ask them to estimate how many vehicles will pass by in a set distance, such as five miles. After counting the vehicles for five miles (per the car's odometer), the child who has the closest estimate is the winner.

There also are a number of *found* games that parents can create with a simple deck of playing cards. For example, games like War or Spades provides a child with opportunities to compare numbers and products. Playing cards also can be used to help the child explore math rules about divisibility: can the number on the card be divided by 2, 5 or 9?

The more parents communicate and collaborate with their child's teacher, the more practical and useful these activities will be. Teachers can provide parents with valuable insights into what topics the child might need extra help with and then suggest activities to help build these skills.

Quantile® Resources that Support Mathematical Development

The Quantile Framework for Mathematics measures both a child's mathematics achievement level and the difficulty of mathematical topics on the same scale. The child's Quantile measure provides parents with more information about his or her progress in mathematics. Parents can use this Quantile measure to be more involved in their child's mathematical development by helping them to identify the skills the child has learned, as well as those he or she is likely to encounter next in school and may require extra help with.

The Quantile website (at www.Quantiles.com) provides a number of free resources to help parents support the mathematical skills and concepts their child is learning in school, especially those in need of review. The site offers a variety of family-friendly resources, such as math literature guides, book lists, and *Math at Home*, that help parents extend mathematical learning beyond the classroom.

Math at Home offers resource packages of activities and resources, such as tutorials, games and worksheets, as downloadable files. By first 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 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 had difficulty. Pinpointing which skills are needed for review is important in specifically addressing the child's needs.

The *Math Skills Database* also can be used to find the supplemental and prerequisite skills and concepts upon which the child can strengthen his or her understanding of specific mathematics topics. Quantile resources are aligned to each state's curricula so that parents can better support classroom instruction.

When it comes to raising a child's mathematics achievement level, parents can play an equally important role as teachers. Because mathematical skills and concepts build upon each other, continuous practice is key to the child's success. Parents should encourage their child to think mathematically in school and at home. Challenging him or her to engage in activities that require

mathematical thinking, and providing help when necessary, will support the child's computation and problem-solving skills.

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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