

Everyone Wins With Math Teams

With Math Teams, school and home work together to ensure student success.

Teachers know instinctively that children benefit from parental involvement in their schooling. How to actually accomplish this is often a different matter, especially in the area of math. Parents who regularly read with their children may feel intimidated at helping them with math. What can teachers do to change this?

One-to-one discussions and tutoring, demonstrations, and modeling are often better accomplished when the family gets involved. This article describes a Math Teams elementary level program in which family members and/or other mentors help children learn math through the use of real-life situations that are stimulating, fun, and motivating.

My experience with Math Teams began several years ago, when I worked with classroom teachers who wanted to improve their students' math achievement and involve parents in their learning.

Benefits of Parental Involvement

Teachers know that family involvement in education offers advantages for children. Parents, however,

may not be aware of this research. For

instance, Richard Riley, a former U.S. Secretary of Education, has collected research over the past 30 years sug-

At a Math Teams orientation meeting, a parent is introduced to one of the activities.

gesting three very positive results from families being actively engaged in their children's education: "Students get better grades, they are better behaved in class, and they are more likely to go on to college."¹ Eighty-five studies reveal that parental participation in children's education leads to higher achievement, regardless of race or socioeconomic status.²

Families and teachers also benefit when parents get involved. Parents "show more sensitivity to their children's social, emotional, and intellectual developmental needs"³ and gain self-confidence in decision-making

skills.⁴ The teacher's job becomes easier, more effective, and more enjoyable when he or she gets support from parents.⁵

What Are Math Teams?

With Math Teams, school and home work together to ensure student success. After the school team (teacher and students) supplies a weekly activity to the home, the home team (student, family members, and others who are willing to help with activities) gets a week to solve the problem and prepare a one- to two-minute presentation of its results. At the end of the

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BY JANET G. MALLERY

week, the teams meet to share the strategies and solutions. Students bring charts, graphs, demonstrations, drawings, computer graphics, or whatever they created to show how they solved the problem. This sharing time celebrates problem-solving as it explores different perspectives and approaches.

To set up Math Teams, gather or create activities to send to the home team. Focus on real-life, age-appropriate activities. For example, to help primary students organize and communicate their thinking, use an activity on patterning. The family team can find or draw pictures of cars (animals, or fruit, etc.), then arrange them in different patterns. Middle-school children can study the weather from different countries for one week (using the newspaper, television, and Internet). They can then organize the data, using data analysis and graphing. Math Team activities should *NOT* be drill sheets on basic facts or similar textbook formats. You can find ideas in the enrichment or extension sections of math textbooks. Books such as *Family Math*⁶ and *Involving Families in Mathematics Education*⁷ can also prove useful. (See also the article listing helpful Web sites on page 43.)

When piloting this idea in classrooms, I used a ready source of activities for various levels (kindergarten through grades 5/6) prepared by bby Publications entitled "I Love Teamwork."⁸ The ready-made, problem-solving sheets are attractive to students, correlate with the National Council of Teachers of Mathematics (NCTM) Principles and Standards, relate to students' lives, and provide for a range of problem-solving strategies.

Orientation Meeting

To inform parents and spark their enthusiasm, I held a one-hour evening meeting, using overheads and a hand-out that focused on the following:

Reasons why families should be involved. A sampling of the research on the value of family involvement helps families understand why such teams can benefit their child.

A description of Math Teams. A joint effort by home and school helps children gain math power. The child's home team can be just about anyone who will devote 10-15 minutes per day for four days a week. This is a great way to involve parents, grandparents, aunts, uncles, cousins, siblings, friends, neighbors, and baby-sitters. A home team can be just one person besides the student, but three or four people will often make it more fun. If the child has no one who will commit to the home team, the teacher can arrange for help from a teacher aide, volunteers from the church or community, or even the principal. The child's school team is the teacher and his or her classmates.

Sample weekly schedule. Be sure to announce when you will send the activity sheets home. Post the schedule prominently in the classroom. Mid-week works well, as activity sheets due

on Monday can sometimes interfere with weekend family plans and make it harder for students to remember to return them to school on Monday. Sending them home on Thursday or Friday may interfere with Sabbath preparations.

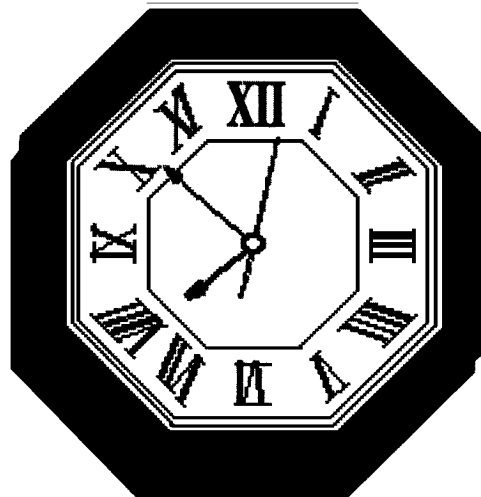
Suggest that the home team spend no more than 10 minutes on the activity the first night. They should look over the assignment and think about different ways to solve the problem before actually beginning the work. Some math team members become so excited about working together and solving problems that they try to do it all in one evening, which can lead to burnout!

Reassurance. Home team members generally feel reassured to learn that there are many ways to solve problems

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Sample Home Team Weekly Schedule

Tuesday night – 10 minutes to introduce activity
 Wednesday night – 20 minutes to work on activity



Thursday night – 20 minutes to complete activity and plan presentation format (chart, picture, graph, oral report, demonstration...)
 Monday night – 20 minutes to complete presentation format and practice how it will be shared with school team

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and report about them. Math Teams should be a time of togetherness when math learning becomes fun and challenging.

Doing a sample activity. At the first meeting, we spend a short time doing one of the activities. I provide paper, crayons, scissors, pens, glue, calculators, yarn, or whatever else might be needed both to solve the problem and to plan a presentation.

After the orientation, it is time to organize the school team responsibilities, which includes sending home an interesting math activity sheet on the stated day each week. Post reminders on the bulletin board or send additional information to parents by E-mail. Be sure to provide a pleasant atmosphere for the presentations. This helps convey to each student how fantastic he or she is in math!

Overcoming Potential Barriers

Here are three common barriers and suggested solutions:

Insufficient time. Reassure the home

team that it can take a few minutes each day or meet one or two days a week, and spend more time on the project during these times. Flexibility is a key element in scheduling.

Intimidated by math. Many parents feel unsure about how to help their children with math. They fear getting the wrong answer or looking incompetent. When assigning a math activity at the orientation meetings, select a simple problem to display on an overhead with suggestions about how to solve it. Reassure parents that they can solve the problems in various ways. Many times, people use math concepts successfully even though they have not gone far in school. Even if their method of doing these activities is quite different from the person trained in the field, they still get the right answers. Different approaches should be encouraged in math teams.

Limited English proficiency. Family members who want to help their child but cannot read English may feel frustrated and discouraged. Translate

math activity sheets for Math Team members who do not understand English and invite translators to the orientation meeting.

Questions a Teacher Might Ask

Can people participate if they have not attended the orientation meeting? Yes, you should telephone them or send home a note explaining the program. Once Math Teams begin, other families and students will hear about them and want to participate.

How long should the presentations take? About one to two minutes at the most; otherwise, they will consume quite a bit of class time. Arrange to have some students occasionally go into a neighboring classroom and present their projects, thus saving time in your classroom and providing other students with examples of problem-solving that will strengthen their own math skills.

Should Math Teams be mandatory? Ideally, you should invite but not require students to participate. Partici-

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A dad enjoys watching his son lead the way on problem-solving during the orientation meeting.

pation at the primary level is usually near 100 percent, even if not required. Middle-grade participation is more difficult to obtain unless it is required.

Should Math Team activities be considered homework? Again, this is up to you. You can use the activities as a long-term homework assignment. Students who do not have a home team can substitute regular homework assignments. You can use a special section in the grade book for Math Teams so that students get a grade in their regular homework assignments as well as one on the Math Team activities.

How can I motivate students to get involved? Post Math Team presentations on bulletin boards, send out monthly newsletters edited by teachers or older students, and provide consistent positive feedback to show you value and celebrate everyone's contributions.

Should I send a Math Team activity home every week? Do what works best for your classroom. You may want to schedule this as a special activity once a month.

Will this benefit me as a teacher? Yes!

It is a fantastic way to gain home and community support. Students will learn that diversity of ideas is welcomed. Their skills will improve as they see meaningful daily uses for math. Research shows that when teachers encourage family involvement on a consistent basis, parents give teachers better ratings.⁹

Everyone Wins

Valuegenesis, a 1989 in-depth study of 12,000 youth, nearly 2,000 parents, and more than 700 pastors, principals, and teachers in the North American Division, concluded that when home, school, and church consistently work together, children have a better chance of developing into "balanced, mature adults able to love God and care about others."¹⁰ In addition, school quality improves in the presence of strong "external systems of support."¹¹ The Valuegenesis study suggested that "new mechanisms of communication"¹² should be used to inspire home support. Math Teams can do this while improving school quality

and fostering math learning. Everyone wins with Math Teams—homes, school, students, and teachers. ☞

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2. Information on parents and school achievement can be found in the following sources: Anne T. Henderson, ed., *The Evidence Continues to Grow: Parent Involvement Improves Student Achievement* (Boston: National Committee for Citizens in Education, 1987); John Myers and Luetta Monson, *Involving Families in Middle Level Education* (Columbus, Ohio: National Middle School Association, 1992); National PTA, *Building Successful Partnerships* (Bloomington, Ind.: National Educational Service, 2000.); U.S. Department of Education, *Fathers' Involvement in Their Children's Schools* (Washington, D.C.: National Center for Educational Statistics, 1997).
3. *Ibid.*, p. 14.
4. *Ibid.*
5. *Ibid.*
6. Jean K. Stenmark, Virginia Thompson, and Ruth Cossey, *Family Math* (Berkeley, Calif.: Lawrence Hall of Science, University of California, 1999).
7. Douglas Edge, ed., *Involving Families in School Mathematics* (Reston, Va.: National

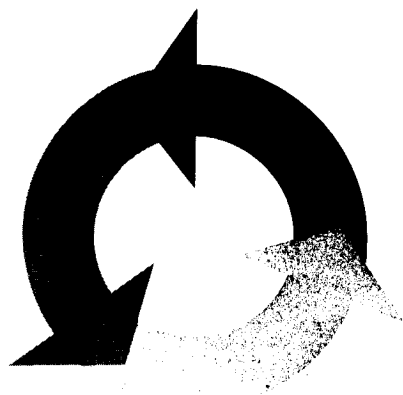
A home team can be just one person besides the student, but three or four people will often make it more fun.

Mathematics at Work!

1. An activity is sent from the school team to the home team.
2. The home team works on the activity for one week.
3. The school team meets again to share home team products, strategies, and solutions. It is a celebration of problem-solving.

School Team

students
teacher



Home Team

Everyone!
student
mother
father
brothers
sisters
aunts
uncles
grandparents
cousins
friends

Home team members generally feel reassured to learn that there are many ways to solve problems and report about them.

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8. bby Publications, P.O. Box 726, Shelbyville, KY 40066.

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12. Ibid.

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This article is based upon work she has done in classrooms in conjunction with the course "Methods of Teaching

Mathematics K-8." She presented this topic at the National Council of Teachers of Mathematics convention in 1999.

Suggested Activities

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