How Can Parents Help Their Middle School Students with Mathematics?

1) **What are the Maryland College-and-Career-Ready Standards?**
Maryland's College- and Career-Ready Standards (MDCCR Standards) form the foundation for Maryland's new State curriculum framework. These standards incorporate the Common Core State Standards. **http://mdk12.org/instruction/curriculum/mathematics/ind**ex.html

2) **Why are the Common Core Standards important for my student?**
The MDCCR Standards are important because they were designed to ensure that all students are ready for success after high school. These standards establish clear, consistent guidelines for what every student should know and be able to do in mathematics and English language arts from kindergarten through 12th grade. Maryland has created and implemented standards also for Pre-K students.

The MDCCR Standards in Mathematics are divided into two types of standards: (1) those that outline critical mathematics processes, conceptual understandings, and proficiencies at each grade level/course; and (2) the Standards for Mathematical Practice (MP), which describe the habits of mind and behaviors that mathematics educators should seek to develop in their students. During mathematics instruction, these two types of standards should be interconnected continuously.

For additional information about how and why the standards were designed to assure student success, watch this 3-minute video presentation: *www.youtube.com/watch?v=FSslWliDJiA*.

3) **What is the mathematics content my student is expected to know and be able to do?**
The MDCCR Standards were developed to provide all students with the focused, coherent, and challenging mathematics content they are expected to know and be able to do by the end of every grade level or high school course. In previous years, the content expectations for each grade/course were more extensive and did not allow all students enough time to learn the mathematics. In contrast, the MDCCR Standards identify the most critical content at each grade/course level; build upon the learning and understanding from previous years to help prepare students for new learning; and thus, give students additional time to learn the content provided for each grade.

A few resources that you might find helpful are outlined below.

- Your student's teacher is your most valuable resource. The first step in helping your student is to speak with your student's teacher to discuss the content and when the content will be taught during the school year.

- Local school systems often provide resources to assist parents. Access your local Board of Education website for parent guides and information on mathematics content and resources.

- "Parent Roadmaps to the Common Core Standards in Mathematic," developed by the Council of the Great City Schools, provide parents with the major mathematics topics that

should be taught in each grade/course level, as well as strategies to help parents support their student's learning. These Parent Roadmaps also present three-year snapshots which show how selected standards progress from year to year so that students will be college-and career-ready upon their graduation from high school http://www.cgcs.org/Page/244.

- The public website for the Maryland State Department of Education (MSDE) includes a variety of parent resources. The icon for the MSDE Blackboard website can be located at https://msde.blackboard.com/webapps/portal/frameset.jsp. Once this page is open, go to the top right corner and locate the words PARENT RESOURCES. Click to open.

- The National Parent Teacher Association (PTA) Council has published "PTA Parents' Guides to Student Success." These guides, located at http://www.pta.org/parents/content.cfm?ItemNumber=2583, provide information on the mathematics content that students need to learn at each grade/course level, from kindergarten through high. The guides also suggest ways that parents can help their students in mathematics.

- Check the websites for your local Board of Education and PTA Council websites. These websites are likely to contain information that applies to your student's school.

4) Why can't we just teach students the way we learned?

If you don't recognize the mathematics in your student's homework, think about how the world has changed since you were in school. The mathematics looks different because the world is different Advances in science, technology, information processing and communication, combined with the changing work place; make it necessary for all students to learn more mathematics. Business and industry demand workers who can:

- solve real world problems
- explain their thinking to others
- identify and analyze trends from data, and
- use modern technology.

In their mathematics classes, students will learn and practice the mathematics for their grade using the four strategies listed above. You will see a shift from pages of individual problems to seeing single and multiple step real life problems that students often solve individually, with a partner or in a small group. Students will be encouraged to think through and discuss the problem and solution with others. Students will often be writing to explain how they solved a problem using precise vocabulary and steps that were used to solve the problem. Often students will solve problems using data and technology as part of the problem solving process or as a reference. Students are encouraged to use the mathematics they know and apply it to the next level of skill development or problem solving. Students still need to find the right answers and use mathematically correct and efficient procedures.

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If the mathematics strategies and content your student is learning are unfamiliar to you, seek assistance from your student's teacher. Teachers are an excellent resource for ways in which you can best help your student learn and use the mathematics currently being taught. You also may want to ask whether your student has any misconceptions, and how you can work with the teacher to strengthen your student's correct understanding of mathematics.

If your student needs additional ongoing support beyond merely correcting a misunderstanding, discuss this need with the teacher so that, together, you can develop a plan. Your student's teacher also can give you the necessary log-in and password information for intervention and enrichment modules on MSDE's Blackboard website https://msde.blackboard.com/webapps/portal/frameset.jsp.

The following websites also offer assistance for parents:

- The National Council of Teachers of Mathematics (NCTM) provides multiple resources and tips for helping students: http://www.nctm.org/resources/content.aspx?id=2876

- LearnZillion makes videos available for many different mathematics lessons. They are organized by the topic of the content. https://learnzillion.com

5) How can I help my student transition to the MDCCR Standards, even if I personally do not have a recent background in mathematics content?

- If the mathematics strategies and content your student is learning are unfamiliar to you, seek assistance from your student's teacher. Ask the teacher for suggested resources that support current classroom instruction and how you, as a parent, can use them to support and extend your student's achievement.
- Show your enthusiasm for your student's study of mathematics. As an influential role model, encourage your student to have a positive attitude, to be curious and to keep trying. Make sure that he/she knows that mathematics requires patience, practice, and time to think and reflect. If you tell your student that mathematics is difficult for you or that you do not like mathematics, you may undermine your student's self-confidence by signaling that mathematics will be a negative experience also for him/her.

- Value Mistakes. All of us learn from our mistakes! View your student's mistakes as part of the learning process and a unique opportunity to grow, rather than as a penalty. Help your student identify his/her own errors. This way, your student can correct mistakes and learn where his/her thinking was confused. Finally, urge your student to ask the teacher questions either during or after class.

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6) How do I help my student if they need additional support in mathematics?

Homework causes trouble in many households. Relax…remember whose homework it is! Think of yourself as more of a guide than a teacher. Don't take over for your student. Doing that only encourages him/her to give up easily or to ask for help when a problem becomes difficult.
The best thing you can do is ask questions. Then listen to what your student says. Often, simply explaining something out loud can help your student figure out the problem. Encourage your student to show all work, complete with written descriptions of all thinking processes. This record will give your students something to look back on, either to review or to fix a mistake, and can also help the teacher understand how the problem was solved.

7) How is homework in middle school different from elementary school?

Suddenly your student has a whole host of teachers to answer to, none of whom are necessarily aware of the others' homework loads. And that's when your student may drop the ball. Neglecting to hand in homework assignments is the number one reason that grades drop when they reach middle school. Whether assignments lie unfinished at the bottom of a back pack or finished but sadly left on a desk at home, the cumulative points can really add up and drag a student's grade down. With most schools offering access to individual students' grades online, it can be truly depressing to log on and discover that your student, while seeming to do well on class work and tests, has numerous zeros listed beside homework assignments. Help your student get in the habit of writing down each daily assignment in mathematics and checking it off when it is complete and returned to class.

Here are some helpful tips for your student:

- Look for homework online
- Go over the directions with him and find out what he does and doesn't understand
- Encourage him to find another mathematics student he can call for help if he wants to review a class lesson
- Ask him where he think he should begin
- Ask him if he can find information in his notes to solve the problem
- Ask if there is a similar problem in his textbook
- Suggest that he draw or make a model to explain his thinking
- Ask guiding questions as he works: What should you do next? Is your answer reasonable? Can you solve it another way?
- Remember to resist the temptation to do the homework for him
- To succeed in mathematics he needs to take responsibility for his homework

8) How are these standards designed to help my student?

The standards are structured so that students build upon what they learn each year. Concepts become increasingly more complex as the student moves from grade to grade. Because the standards are on par with what is being taught in other states and leading countries around the world, your student will be ready for the newest 21st-century jobs and to compete in the global economy.

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9) Will my student be prepared for high school courses?

The middle school program provides an emphasis on problem solving strategies, so the students will become problem solvers who are mathematically literate and apply mathematical concepts and skills for relevant and real life experiences. In addition to building strong concepts and skills, the Standards for Mathematical Practice develop perseverance in solving problems, reasoning and explaining, modeling and using tools strategically, and structure and generalizing. Every lesson should seek to build student expertise in Content standards and Practice standards. Your students should be prepared to take the appropriate course in high school. Parents should develop a strong home school connection to be familiar with the content that is being taught at each grade level.

10) How can I help my student write in mathematics?

Teachers are using writing in mathematics class to help students reflect on their learning. As students put their thoughts onto paper using words, symbols, numbers, and drawings it helps them make sense of the mathematics they are learning and deepen their own understanding. Teachers also use student's writing to assess their understanding and can often identify misunderstandings or areas of confusion. Writing in mathematics class starts with students verbally talking with their peers and working out problems with partners. The mathematics class today is filled with discussions and conversations about the mathematics work they are doing and problems they are solving. When you are working with your student at home, you could ask your student to draw a picture of the problem they are solving. Then ask them to label the drawing or write words or phrases to tell what they did first, second, third, so on. If students need more structure, fold a sheet of paper into four sections. Label each section and have students show the steps they used/thought about as they solved the problem. It is also important to encourage your student to learn and use mathematics vocabulary. Request a list of mathematics vocabulary the teacher is using so you can reinforce these words at home through conversations and when students are doing homework.

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