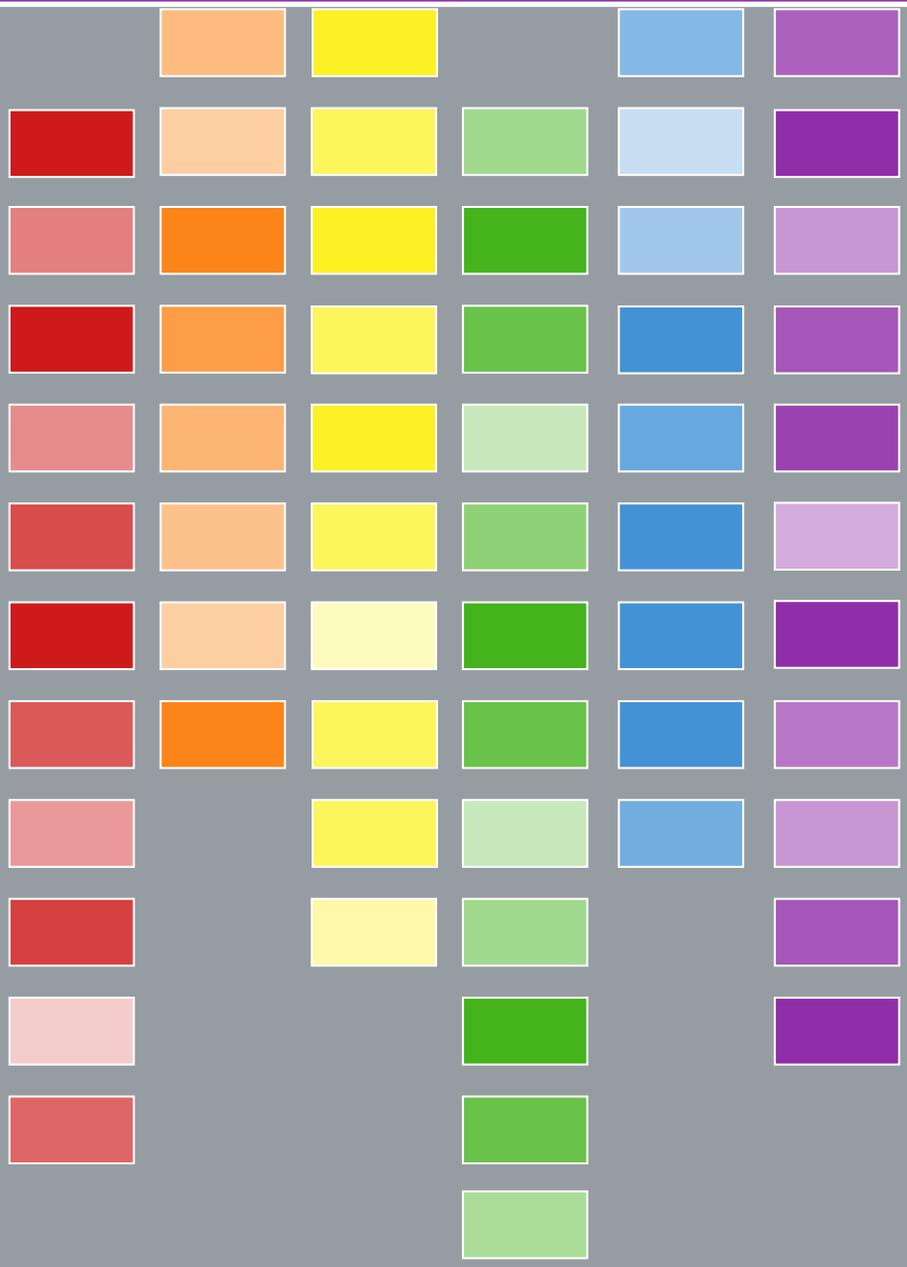




A Family Guide to Math in a Multi-Tier System of Supports (MTSS)



Introduction

It is the job of Kansas educators to help every child in our state—your child—meet high standards for success. MTSS, the Multi-Tier System of Supports, is a framework to help schools and teachers give every Kansas child the right type of support to learn, grow and succeed.

How is this new and different? The MTSS framework helps schools create ways to:

- Identify each child's needs and provide support as early as possible.
- Use strategies proven to work with all students.
- Fit support to meet each student's needs.
- Regularly check children's progress to know what works.
- Change instruction as needed to match each child's learning.

Parents play an important part in their children's learning. Read this booklet to learn how MTSS helps your child and how you can help your child as well.

Definition of MTSS

Many children successfully learn at school. Some children need extra help in order to succeed. And a few children need intense support. MTSS is a framework for school districts to align resources to support the learning success of each child, regardless of the level of support needed. The MTSS framework can be used to design school wide support for children in the areas of reading, math and behavior.

Brief Overview of MTSS

MTSS has three tiers of instruction and support.

1. Tier I includes the instruction and support provided to all children.
2. Tier II (Supplemental) serves students needing more help. Extra instruction and support are provided to these children in small groups.
3. Tier III (Intensive) is for children who need intense support in order to succeed. Extra instruction and support for these children are provided in even smaller groups.

Tier I: Instructional support given to *all* children

Tier II: Small groups of children in need of extra help

Tier III: Children needing intense help

Every child's progress is assessed three times per year and results are used to determine whether instruction and intervention need to be added. Based on the results of their assessment, children may have the level/intensity of instruction they are receiving adjusted. Instruction within each tier is based on assessment data and what is proven to be most effective and varies by children's learning levels.

When schools implement MTSS it results in more ways for students to receive support. It should not be used to delay referral for a special education evaluation when needed. If you believe your child may need special education services work with your school and at any time you may request a special education evaluation.



How to Support Your Child's Mathematical Development

Tier I

The MTSS goal is for all students to receive high quality curriculum and instruction. Tier I includes the math instruction that all students receive in order to meet this goal. Progress is checked regularly to make sure students have the math skills needed to succeed at their current grade and level. Students scoring below that level may be given extra help through intervention.

Tier I: Instructional support given to *all* children

Tier I instruction includes the core instruction provided for all students. According to the National Council of Teacher of Mathematics, there are five essential math content areas which span the entire range from prekindergarten through grade 12. They are:

- 1. Number and operations.** The number and operations content area deals with understanding numbers, developing meanings of operations and computing fluently. Young children focus on whole numbers which they count, compare quantities, and develop an understanding of the structure of the base-ten number system. In higher grades, fractions and integers become more important. An understanding of numbers allows computational procedures to be learned and recalled with ease.
- 2. Algebra.** Algebra is the branch of mathematics that uses letters in place of some unknown numbers. You've been using algebra since your early schooling, when you learned formulas like the area of a rectangle, with width w , height h : $A=w \times h$. Letters were used to stand for numbers. Once we knew the width and height, we could substitute them into the formula and find our area.
- 3. Geometry.** Geometry is a branch of math that focuses on the measurement and relationship of lines, angles, surfaces, solids and points. Geometry is used in fields ranging from architecture to landscaping, navigation to shipping, and transportation and construction. The programming of computer graphics were made possible through geometry. Furthermore, geometry can be seen as a glue that connects many different areas within mathematics. It is difficult to imagine any area of mathematics that is more widely used than is geometry.
- 4. Measurement.** Measurements help us describe the world and everything in it. Measurements can describe length, volume, weight, time, temperature, and countless other properties. People use measurements whenever they make something, whether it's a batch of cookies or a 50-story skyscraper. Measurement may come in the form of a yardstick, clock, speedometer, thermometer and many other ways. The study of measurement is crucial to the school math curriculum because of its practical use in our lives.



5. Data Analysis and Probability. This math content area calls for children to formulate questions that can be answered with data and collect, organize, and display the data to answer these questions. It also emphasizes learning methods to analyze data and make predictions based on the data.

The amount of data available to help make decisions in business, politics, research, and everyday life is staggering: Consumer surveys guide the development and marketing of products. Polls help determine political-campaign strategies, and experiments are used to evaluate the safety of new medical treatments. Students need to know about data analysis and probability in order to reason statistically—skills necessary to becoming informed citizens and intelligent consumers.

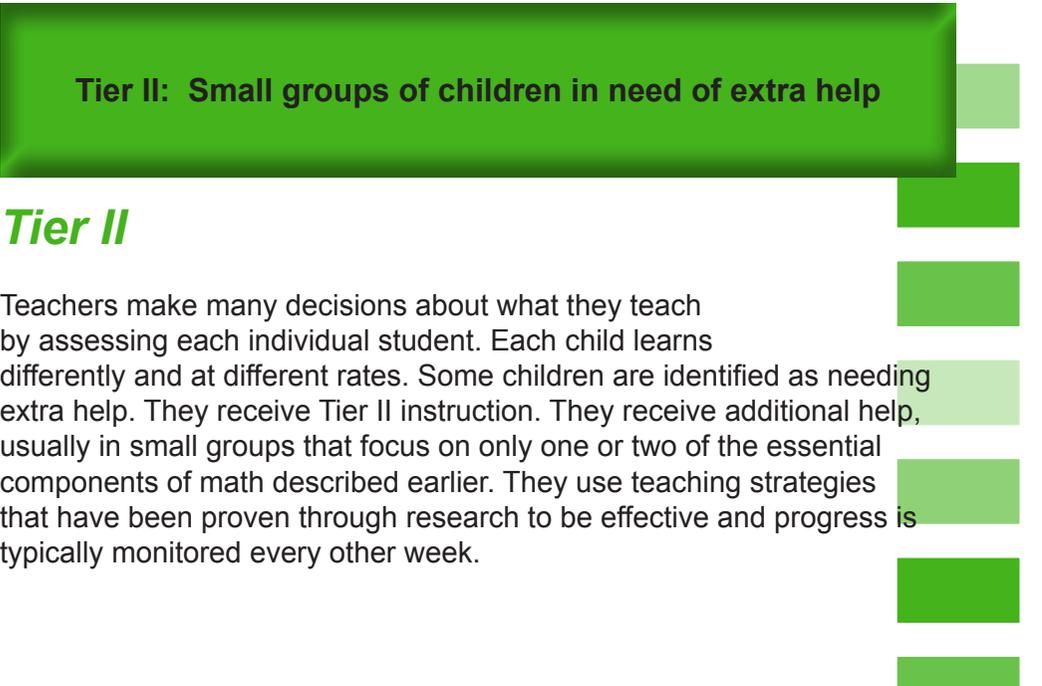
We live in a time of constant change. New knowledge, tools, and ways of doing and communicating math continues to emerge. The need to understand and be able to use math in everyday life and in the workplace has never been greater and will continue to increase.

In this changing world, those who understand and can do math will have better opportunities and choices for shaping their futures. Knowledge in math opens the doors to productive futures. A lack of basic math skills can keep those doors closed. All students should have the opportunity and the support necessary to learn math in a meaningful and positive experience.

Tier II: Small groups of children in need of extra help

Tier II

Teachers make many decisions about what they teach by assessing each individual student. Each child learns differently and at different rates. Some children are identified as needing extra help. They receive Tier II instruction. They receive additional help, usually in small groups that focus on only one or two of the essential components of math described earlier. They use teaching strategies that have been proven through research to be effective and progress is typically monitored every other week.



Tier III: Children needing intense help

Tier III

Some students need more time, support, and smaller groups than Tier II. These students receive Tier III instruction. Tier III instruction is more explicit and skill focused. They are given intensive instruction using strategies that have been proven through research to be effective. Their progress is typically monitored weekly.



Creating a Rich Math Environment at Home

Creating a rich and positive math environment at home and at school is important to children's numeracy success. A rich mathematical environment:

- promotes confidence and helps children believe they can "do" math
- helps children feel safe about taking chances
- uses activities that can be approached in many ways
- gives children a chance to practice what they have learned
- allows children to explore
- uses good questions to develop reasoning in children
- encourages children to talk about and show their thinking
- supports children to use what they know to learn new ways and ideas
- accepts use of different strategies, not just one way
- respects that children need time to develop their mathematical thinking.



Helping Your Child with Math at Home

Teachers help build children's mathematical thinking at school. Families help build it at home. Research shows that an ongoing partnership with families can help children develop math understanding.

Families can help their children be resourceful, persistent, and confident in math by:

1. **Being positive!** If you have a negative attitude about mathematics, chances are your child will too. Try not to say bad things about math (or math teachers) and instead talk about how important math is. Help your child have a "can do" attitude by praising your child's efforts as well as their accomplishments. Acknowledge the fact that math can be hard at times and tell them that sticking with a difficult task and working hard are the keys to success. It is normal to struggle



sometimes as we learn - we will get better and better if we just don't give up.

Relate learning math to other things that take hard work and persistence; being good at soccer is hard work and requires lots of practice. Learning to play the guitar well or sing well takes a lot of time and people make many mistakes in the beginning.

Encourage your child to be curious about how things work: "I wonder if...."

- 2. Linking math with daily life.** Everyday, people face situations that involve mathematics, such as deciding if they have enough money to buy groceries, reading a clock to check the time before the game starts, making a budget, deciding on the shortest route to a destination, developing a schedule, or figuring out a sale price. Help your child realize that mathematics is a big part of everyday life

Children need to know that math isn't just something they learn at school. Math is everywhere. Have fun with math, talk about it and help your child be aware of math in everyday life.

- 3. Making math fun.** Play board games, play card games, solve puzzles, and think about brain teasers with your child. All young people enjoy these kinds of activities and they all build mathematical thinking. Point out the math involved in the game and have your child explain the strategies he, or she, used.

Look for toys that encourage your child to think creatively (building blocks and construction toys).

Cuddle up and read books together - talk about the ideas related to numbers, space, time, and money.

- 4. Discussing math-related careers.** Mathematics is the key to a wide variety of interesting jobs. Help your child think about what he, or she, is learning in math and how it will affect their future. With older children, talk about how grades and the classes they choose to take can influence the career they can have.

A fun activity to do is as you drive around town, look at the signs and businesses you pass. Write down all the careers that involve math; dentist, mechanic, baker, etc....



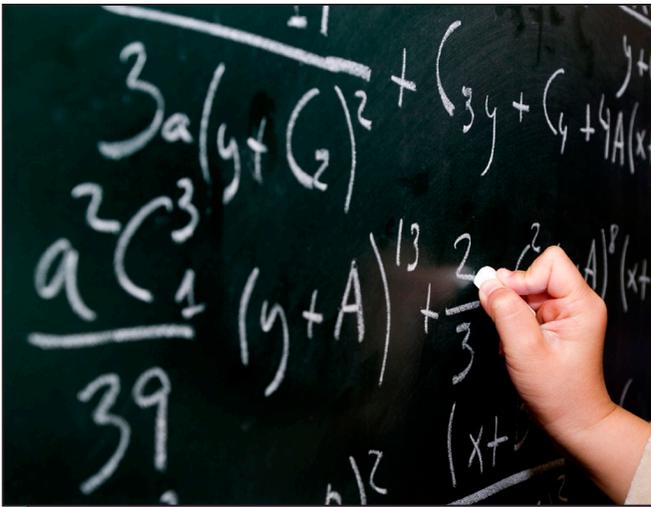
5. Having high expectations. Sometimes people believe that only “smart” kids can learn math. This is not true. If we, as parents, do not believe that our children are able to understand math, they probably will never do as well as they are capable of. Your attitude and expectations are crucial to influencing future opportunities for your children. Tell them you believe in them. When they struggle, help them or ask the school to find extra help for them.

6. Supporting Homework. Homework is a topic that can cause stress in many homes. Relax, and remember whose homework it is.

- When things get hard for your child do not take over their homework. This will encourage them to give up too easily.
- If you do not understand the math in your child’s homework, do not panic. This could make them feel that math is too difficult for them to learn.

Think of yourself as a guide, rather than a teacher. Ask your child questions and listen to what they say. The simple act of explaining the steps in a problem out loud can often help a child to figure it out.

Encourage your child to show all their calculations or a description of their reasoning. Going back over this written record can help a child find their mistakes. It also helps the teacher spot where a child is having problems and then help to correct them.



MTSS FAQ

What can I expect with MTSS?

- Frequent updates of student progress
- Early identification of academic or behavioral concerns at the first signs of difficulty.
- Help for your child that increases or decreases depending on his or her needs.
- Information and involvement in planning and providing interventions to help your child.
- Information about how your child is responding to the interventions being provided.

What do I do if I believe my child is struggling?

- Talk with your child's teacher.
- Review and assist with homework assignments.
- Ask for regular progress monitoring reports.
- Celebrate your child's successes.
- Learn more about the curriculum, assessments, and interventions being used in your child's school.
- Participate in conferences and other meetings about your child.

How can I participate in MTSS?

Families play a critical role in supporting what their children are learning in school. The more parents are involved in student learning, the higher the student achievement. Ask questions to learn more about MTSS in your child's school:

- Is my child successful? How do I know? If not, why and what can we do differently?
- If needed, how is additional help going to be provided? By whom? How often? For how long?
- What can I do to participate in problem-solving about my child?
- What can I do to help with interventions for my child at home?
- How will I know if interventions are working?



Resources

There are many websites for mathematics games. The following websites can help children develop mathematical understanding.

www.khanacademy.org

The Khan Academy has a library of over 3,500 videos on everything from arithmetic to physics, finance, and history and hundreds of skills to practice. Students, parents, teachers, and other adults can learn what they want, when they want, at their own pace.

www.ed.gov/pubs/parents/LearnPtnrs/math.html

This website is called "Learning Partners – Let's Do Math" and is full of games and activities to do at home within everyday activities.

www.kidsdomain.com/games/math2.html

Contains about 20 games for young children focusing mainly on counting and numeral recognition. Also has a section for older children.

www.eduplace.com/math/brain

This website introduces a new problem-solving brainteaser every Wednesday. Begins at a Grade 3 level and is suitable for any primary children who are ready for challenging problems.

<http://bedtimemathproblem.org>

Bedtime Math Problems provides a new math problem to share with your kids every day.

www.mathbrain.com

Includes games such as Math Baseball. This site allows you to select a game by age level.

www.figurethis.org

Includes math challenges for families.

www.nctm.org

The National Council of Teachers of Mathematics website offers a Family Corner for resources on homework help, math today and tips on helping your child succeed in math.

<http://illuminations.nctm.org/>

Highly recommended by the National Council of Teachers of Mathematics (NCTM), this resource will help improve the learning and teaching for students.

For more information on MTSS

Kansas Parent Information Resource Center (KPIRC)

1-866-711-6711

www.kpirc.org

Kansas State Department of Education (KSDE)

1-800-203-9462

www.ksde.org

Kansas Multi-Tier System of Supports (MTSS)

www.kansasmtss.org

Project Success

www.kansasprojectsuccess.org

Families Together, Inc. (PTI)

1-800-264-6343

www.familiestogetherinc.org



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