



Lawrence Public Schools – Mind Research Institute Partnership
ST Math – Spatial Temporal Mathematics
2015-2016

Partnering Schools: Arlington Middle, Breen, Bruce, Community Day Arlington, Frost Elementary, Guilmette Elementary, Guilmette Middle, Hennessey, Lawlor, Leahy, LHS NGA, Oliver Partnership, Parthum Elementary, Parthum Middle, Rollins, South Lawrence East Elementary, Spark Academy, Tarbox, Wetherbee

***ST Math* Frequently Asked Questions**

What is *ST Math*?

ST Math is a supplemental online learning program. Like much of our classroom instruction, *ST Math* emphasizes visual models as a means for deepening conceptual understanding. *ST Math* also incrementally transitions students from visual models to the abstract notation of numbers and symbols. For more information on the pedagogy of *ST Math* and their mission go to <http://www.mindresearch.net/about/>.

How will the schools use *ST Math*?

ST Math will be used in partnering schools as part of the individualized math instruction blocks that usually occur during intervention/acceleration periods. It will also be introduced as a home study option. In *ST Math*, students can work at their own pace and progress through content once they have shown mastery at each level. When students use *ST Math*, the teacher gets feedback on what math content each child has mastered and if any child is having trouble with any content. The teacher uses this information to tailor instruction during math lessons and interventions.

ST Math addresses all *Common Core Standards for Math* at each grade level. Using *ST Math* reinforces classroom learning and provides each student with extra practice in all grade level content. *ST Math* provides students with some content beyond the grade level *Common Core Standards*. These topics are for enrichment and challenge.

We want students to develop patience and perseverance when solving problems. We teach this as part of daily math instruction. *ST Math* provides an opportunity for students to try different approaches and to keep going until a solution is found. We want students to develop math tenacity and stamina, but we also want students to develop an appreciation for math.

Students usually enjoy *ST Math*. It is a fun and sound way of providing students with reinforcement and guided practice in grade level math content. Just as independent reading homework hopes to develop a lifelong interest in reading, *ST Math* lets students embrace math as a personal interest.

Why did partnering schools select *ST Math*?

One of the best ways to encourage student learning is to develop interest and motivation. When a reading teacher assigns independent reading in school or at home, the teacher hopes that the student is developing an interest in reading and selecting pieces for personal enjoyment. Independent, self-selected and self-paced reading develops habits for lifelong learning.

ST Math provides something similar for mathematics. It allows students to work independently and at their own pace to improve understanding. It also promotes personal interest and enjoyment in mathematics. At the same time, *ST Math* promotes deep conceptual understanding and fluid reasoning needed to address the *Common Core Standards* to which our students are held accountable on state tests. By adopting the *ST Math* resource, we will provide a supplement that is individualized, independent, enjoyable, and motivating. *ST Math* will also improve mastery of the *Common Core Standards*, reinforce classroom instruction, AND provide the teacher with feedback on student progress.

What is unique about the *ST Math* resource?

- **EMPHASIS ON VISUAL MODELS** - *ST Math* emphasizes visual models and incrementally teaches students to connect those models to abstract numbers and symbols. This is the same strategy used in many of our math classrooms, especially those also adopting Singapore Math.
- **PROMOTES REASONING** - *ST Math* uses reasoning puzzles for student learning, not rote procedures. This fosters conceptual understanding rather than repetition of memorized steps.
- **INDIVIDUALIZED TOWARD MASTERY** - Each student can progress at her/his own pace, staying on one level until mastery has been reached or moving forward once mastery has been demonstrated. In this way, *ST Math* is individualized instruction and reinforcement.
- **MOTIVATING** - LPS students who experienced *ST Math* during 2014-2015 were fully engaged in the puzzles, motivated to demonstrate progress and advance to higher levels, and they spontaneously started discussing math reasoning with their peers. These are all positive indicators of student interest and engagement.
- **TARGETED INSTRUCTION AND BLENDED LEARNING** - The teacher can monitor individual student progress, identify areas in which a student struggles, and provide targeted instruction in school.
- **DEMONSTRATED IMPROVED PERFORMANCE** - *ST Math* has improved student performance on standardized tests when students use the program for at least 90 minutes per week (60 minutes/week for Grades PreK-1). See <http://www.mindresearch.net/results/>
- **INDEPENDENT PRACTICE** - Students will be encouraged to access the unique home features of *ST MATH* to support continued growth and mathematical enjoyment.

ST Math provides the opportunity for a much different approach to math assignments from traditional practice worksheets. It is an ongoing, self-paced, sequential mastery of reasoning puzzles with individualized progress monitoring. To bridge any gaps that may be revealed, additional written assignments may be offered to provide a review and application of classroom learning. Through the self-paced reasoning puzzles of *ST Math*, continuation of core content mathematics curriculum resources, and targeted re-teaching and reinforcement, we are confident that our students will be prepared, excited, and successful mathematics learners.

Examples and additional information can be found by watching **Welcome to ST MATH**:

<https://www.youtube.com/watch?v=7g8pmwLuZxM>

How much time should a student use *ST Math* at home?

It is suggested that students in Grades 3-6 spend about 60 minutes each week working on *ST Math* puzzles. In younger grades, less time is appropriate. Of course, keep in mind that students will enjoy these puzzles and may want to expand this time. Anything beyond two hours per week is excessive. *ST Math* has proven to improve student performance when a child uses *ST Math* for 90 minutes each week (60 minutes in Grades PreK-1). Most students will have ample opportunities to complete this practice during the school week.

What if students are unable to access ST MATH at home?

ST Math is a web-based platform and can be accessed through an internet connection with a desktop or laptop computer. An *ST Math* APP is also available for free for Apple and Droid tablets. Students will be provided with school access codes and individual passcodes. While home use is encouraged, it is not a requirement. Home sessions can be planned as one or two 30-minute practices or in several shorter segments. Students will be encouraged to complete a minimum of 90 minutes of ST Math each week (60 minutes for PreK-1), most of which will be done during school time.

What if a student does not understand one of the puzzles while working at home?

One of the goals of ST Math is to build perseverance and the willingness to try different strategies. If a child has tried several times and can't complete the puzzle, an icon of a pointing finger appears on the screen showing the student where to click. If the child continues to struggle with the puzzle, the teacher will receive an alert telling them which student is having trouble with which puzzle. The student can stop using ST Math until the teacher has an opportunity to address the issue at school. Parents may also end the session and email the teacher if they notice a prolonged struggle.

How do students get started at home?

Students will use ST Math in school for several weeks before home use codes are assigned. This will provide time for students to be registered, learn their passcodes and how to sign-in, and develop some independence in using the program.

When the teacher feels that students are ready, he/she will send home a letter from ST Math explaining how to enter the Home Activation Code. Signing on before the teacher assigns the codes will not provide access to the puzzles. The teacher also controls which content students can access at any given time.

With appreciation....

The Lawrence Public Schools – Mind Research Institute Partnership and adoption of *ST Math* has been made possible through a generous philanthropic donor match grant of nearly **\$200,000**. During 2015-2016, it is expected that more than 8000 Lawrence students will learn math using the ST Math resource.

Mind Research Institute (MRI) is an independent non-profit organization founded on the ideals of teaching math the way children learn best – visually and experientially. The mission of MRI is to ensure that all students are mathematically equipped to solve the world's most challenging problems. To achieve this goal, MRI is changing the way math is taught. The focus is that every child has the potential to be a powerful learner and to acquire the problem-solving and math proficiency needed to compete in a knowledge-based economy. Through a uniquely visual, non-language-based approach to teaching math — delivered through the ST Math instructional software — students are deeply understanding math, developing perseverance and problem-solving skills, and becoming life-long learners prepared for success.

Currently, ST Math had been adopted by more than 2,500 schools in 40 states serving more than 800,000 students.