FASTT Math™

Aligns to Enhancing Education Through Technology Criteria

The primary goal of the *Enhancing Education through Technology (*Ed Tech) program is to improve student academic achievement through the use of technology in schools. .According to the federal *Guidance on the Enhancing Education through Technology (Ed Tech) Program*, a Local Education Agency's (LEA) technology plan must address 13 specific components in order to qualify for formula or competitive funding. The following chart details how ***FASTT Math*** helps meet 12 of these requirements.

Required *Ed Tech* Components	🕮 ***FASTT Math***
1. <u>Strategies for improving academic achievement and teacher effectiveness</u>: A description of how the applicant will use *Ed Tech* funds to improve the academic achievement, including technology literacy, of all students attending schools served by the LEA and to improve the capacity of all teachers in schools served by the LEA to integrate technology effectively into curriculum and instruction	***FASTT Math,*** which stands for Fluency and Automaticity through Systematic Teaching with Technology, delivers individualized instruction and practice that helps students develop automatic recall of basic math facts from numbers 0-9 or 0-12. Computer-based, customized practice activities and worksheets help students achieve math-fact fluency. In addition, the *Fact Fluency Foundations Guide* provides instruction in number sense and operations for those students who lack a foundation in basic math concepts. ***FASTT Math*** employs a proven approach called "expanding recall" to help students move newly acquired math facts from working to long-term memory. No more than three new facts are introduced during any given 10-minute session. Students practice holding new facts longer and longer in working memory until they make the leap to automatic retrieval. Developing automatic recall of basic facts provides the foundation needed for later development of higher-order math skills. ***FASTT Math*** uses this effective procedure: 1. The student is introduced to two or three non-fluent facts to study. Typically, but only when possible, the session's "Study Facts" appear as a commutative pair. He/she is encouraged to read the facts aloud. The student can also watch an animated representation of each fact to help remind him/her in a more concrete way of what the fact represents. 2. After seeing and speaking the new "Study Facts," the student is asked to type each number sentence into the computer. If he/she fails to type the facts correctly, the facts are redisplayed, and the process is repeated. This helps establish a memory relationship with the fact in the student's mind. *(Continued)*

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Strategies for improving academic achievement and teacher effectiveness Continued	3. Once the student can correctly type the number sentences of the new "Study Facts," the program then presents a practice session with these facts. The program mixes presentations of the two "Study Facts" with a gradually increasing number of fluent facts. The student builds the capacity to hold the fact in memory for a longer and longer period of time. ***FASTT Math*** limits the allowed response time to prevent the student from employing non-automated strategies. 4. When the student is able to recall the current "Study Facts" consistently, the facts are added as "Focus Facts" to the student's Fact Grid. The software provides extra practice to help the students solidify them in memory and increase recall speed. 5. Once a student is able to recall his or her "Focus Facts" in less than .8 of a second, those "Focus Facts" are changed to "Fast Facts" on the student's Fact Grid. ***FASTT Math*** also provides students with customized worksheets to practice their math facts in a paper-and-pencil format. Teachers can print problems in a vertical or horizontal format and in single- and multi-digit operations. These worksheets only include the math facts that a student is fluent with or is currently studying. <u>Teacher implementation tools</u> ***FASTT Math*** provides teachers with tools to ensure effective integration of the program into the curriculum and instruction: ▪ Classroom implementation strategies ▪ Procedures for customizing the student software experience ▪ Alert messages that notify teachers when a student is having trouble using the software or has successfully completed a level in the Fact Grid ▪ Progress monitoring and performance reports, with suggestions for their use ▪ Installation and setup procedures ▪ Classroom management software features ▪ Software implementation training ▪ Optional on-site workshops that help teachers integrate technology into curricula

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2. Goals: A description of the applicant's specific goals, aligned with challenging state standards, for using advanced technology to improve student academic achievement	*FASTT Math* is an intervention program designed to support students in second grade and above in establishing fluency with basic math facts from numbers 0-9 and 0-12. With interactive software, comprehensive teacher resources, and individualized practice sheets, students gain automatic recall of addition, subtraction, multiplication, and division facts, allowing them to free up critical mental resources so that they can focus on higher-order math. With the research-validated *FASTT* system—Fluency and Automaticity through Systematic Teaching with Technology—computer-based instruction is automatically differentiated in customized daily sessions based on continuous assessments of students' fluency. *FASTT Math* aligns to the Curriculum Focal Points for number and operations and to the Final Report by the National Math Panel that stresses the importance of developing quick recall of basic math facts in addition and related subtraction facts and multiplication and related division facts. This intervention system provides the targeted dose to fill fluency gaps for students. Additional information can be found at www.tomsnyder.com/standards.
3. Steps to increase accessibility: A description of the steps the applicant will take to ensure that all students and teachers have increased access to technology	Through ***FASTT Math's*** adaptive technology, all students can receive the targeted instruction and systematic, repetitive practice they need to develop accurate and automatic recall of facts. Research has shown that ***FASTT Math*** is especially effective for students with mild disabilities and those who are at risk of school failure. Teachers can customize software features to support children with special needs and English-Language Learners. ▪ The 1.25-seconds monitored response time can be lengthened for students with processing difficulties. ▪ The number of problems presented during instruction can be reduced for students who need more time to absorb new information. ▪ The audio function can be turned on or off. ▪ Students can listen repeatedly to any instructions they may have missed. ▪ Problems can be spoken aloud in English and Spanish. ▪ The high-contrast for screen text option benefits visually impaired students. ***FASTT Math*** maximizes teacher effectiveness by providing them with the step-by-step instructions and tools they need to effectively install and setup the software, manage the class, and generate performance and progress monitoring reports.

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4. Promotion of curricula and teaching strategies that integrate technology: A description of how the applicant will identify and promote curricula and teaching strategies that integrate technology effectively into curricula and instruction, based on a review of relevant research and leading to improvements in student academic achievement	Dr. Ted Hasselbring, professor in the Department of Special Education at the Peabody College of Vanderbilt University and former William T. Bryan Professor and Endowed Chair in Special Education Technology at the University of Kentucky and Laura Goin, Chief Executive Officer of Designs for Learning, developed *FASTT Math* for students in need of assistance with developing fact fluency, based on two decades of research. Dr. Hasselbring has an extensive background designing technology programs aimed at helping students with learning disabilities and those who have been identified as at-risk. The *FASTT Math* approach has been validated over several years of research with both struggling and non-struggling students. Studies involving more than 400 students have demonstrated that the *FASTT Math* approach can be extremely powerful for developing fluency with basic math facts. Students who used the program regularly did better than students who were only occasional users. 🕮 The *Research Foundation & Evidence of Effectiveness for FASTT Math* provides specific information on the research for *FASTT Math*. Please contact your Scholastic Account Executive to request a copy. *FASTT Math* consists of two programs: the *FASTT Math* student software and *Scholastic Achievement Manager* (SAM), which is the learning management system for *FASTT Math*. *FASTT Math* is designed to help a student develop fluency with basic math facts in addition, subtraction, multiplication, and division, in number ranges 0-9 or 0-12. The program begins by assessing the student's current fluency of facts (correct and fast answers). It then provides adaptive instruction to help him or her build a memory relationship between a problem and its answer and increase the speed at which the student responds to problems. The *FASTT Math* student software leads the student through a linear path of instruction and assessment. As part of the daily lesson, the student will be given a customized assignment; for example, to study new facts. In addition, the student will be required to complete one practice game per day. Each lesson should take about ten minutes to complete. *FASTT Math* has nine engaging practice games of two different types, as follows: Game Type One: Five objects move continuously from one end of the screen to the other. Each object is linked to a math fact. The goal of the game is to answer each fact as fast as possible to keep the objects from reaching the other end of the screen. Correct responses are awarded points. *(Continued)*

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Promotion of curricula and teaching strategies that integrate technology, Continued	Game Type Two: Three facts are linked to one object moving from one end of the screen to the other. The faster the student answers each fact the faster the object moves. Correct responses are awarded points and bonus points.
5. Professional development: A description of how the applicant will provide ongoing, sustained professional development for teachers, principals, administrators, and school library media personnel to further the effective use of technology in the classroom or library media center	Implementation Training (Half-day): Scholastic will provide a half-day in-person implementation training for teachers. This training examines how *FASTT Math* teaches automaticity and fluency and provides teachers with all the tools to successfully get started with the program. Participants learn how to implement the *FASTT Math* instructional model, use report data to monitor progress and individualize instruction, and integrate *FASTT Math* into the existing mathematics curriculum.
6. Technology type and costs: A description of the type and costs of technology to be acquired with education technology funds, including provisions for interoperability of components	***FASTT Math*** can be used with a Windows® or Macintosh® platform. The following specifications are recommended to operate the program: Student Workstations WINDOWS: Processor: Pentium IV 1.0 GHz; Memory: 256 MB; Hard Disk Space: 100 MB; OS: Windows XP SP2; 8x CD-ROM Drive; Headphones; CD Player; 800 x 600 16-Bit Color Monitor MACINTOSH: GV 1.25 GHz; 256 MB; 10 MB; Mac OS X v. 10.4 X; 8x CD-ROM Drive; Headphones; CD Player; 800 x 600 16-bit Color Monitor Teacher Workstation WINDOWS: Processor: Pentium IV 1.5 GHz; Memory: 512 MB; Hard Disk Space: 200 MB; OS: Windows XP SP2; 8x CD-ROM Drive; Headphones; CD Player; 800 x 600 16-Bit Color Monitor; TV Monitor; DVD Player; Internet Connection; Color Printer MACINTOSH: GV 1.25 GHz; 512 MB; 15 MB; Mac OS X v. 10.4 X; 8x CD-ROM Drive; Headphones; CD Player; 800 x 600 16-bit Color Monitor; TV Monitor; DVD Player; Internet Connection; Color Printer Application Server WINDOWS: Processor: Dual 3.2 GHz Xeon; Memory: 2048 MB; Hard Disk Space: 5 GB; OS: Windows '03 Server MACINTOSH: Dual 2.0 GHz G5; 2048 MB; 5 GB; Mac OS v. 10.4 X *(Continued)*

Required *Ed Tech* Components	🕮 *FASTT Math*
Technology type and costs Continued	Data Aggregation Server WINDOWS: Processor: Dual 3.2 GHz Xeon; Memory: 2048 MB; Hard Disk Space: 1GB per school; OS: Windows '03 Server MACINTOSH: Dual 2.0 GHz G5; 2048 MB; 1 GB per school; Mac OS v. 10.4 X
7. Coordination with other resources: A description of how the applicant will coordinate activities funded through the education technology program with technology-related activities supported with funds from other sources	***FASTT Math*** can be integrated with specific technology-related school activities using *Ed Tech* funds and money from state, local, foundation, and other sources. The federal funding programs for which ***FASTT Math*** qualifies include: ▪ Title I, Part A – Improving Basic Programs ▪ Title I – Supplemental Educational Services ▪ Title III—English Language Acquisition ▪ 21st Century Community Learning Centers ▪ Comprehensive School Reform ▪ GEAR Up ▪ IDEA, Part B ▪ IDEA, *Response to Intervention*
8. Integration of technology with curricula and instruction: A description of how the applicant will integrate technology (including software and electronically delivered learning materials) into curricula and instruction, and a timeline for this integration	Designed for students in Grades Two and above, *FASTT Math* can be implemented in a variety of settings—before- or after-school programs, daily math instruction, computer lab, pull-out programs, or summer school. In the classroom, students can quickly and independently rotate onto classroom computers for *FASTT Math* every day. In computer labs, teachers can allocate 10-15 minutes of lab time of *FASTT Math* for the whole class or small groups. At the beginning of the ***FASTT Math*** program, students take a placement quiz to determine his/her baseline fact fluency. Then the software provides systematic, adaptive instruction, practice, and review of facts to fill the gaps. *FASTT Math* complements the core math program, and can be implemented into the daily schedule: ▪ Before-school math program ▪ During homeroom ▪ Daily instructional math block ▪ Computer lab periods ▪ Targeted after-school programs ▪ Pull-out intervention ▪ Summer school

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9. Innovative delivery strategies: A description of how the applicant will encourage the development and use of innovative strategies for the delivery of specialized or rigorous courses and curricula through the use of technology, including distance-learning technologies, particularly in areas that would not otherwise have access to such courses or curricula due to geographical distances or insufficient resources	***FASTT Math's*** technology embodies unique design features that help math-delayed children develop mathematical fluency. The program: ▪ Individualizes instruction, practice and review based on students' responses ▪ Assesses and focuses instruction on facts a student doesn't know ▪ Presents small, manageable amounts of new information ▪ Requires recall from memory by controlling response time ▪ Presents new information using the systematic "expanding recall" model ▪ Provides corrective feedback during instruction ▪ Generates customized worksheets that only include the math facts that a student is fluent with or is currently studying The ***FASTT Math*** software has built-in features to recognize the progress that students make and reward their hard work. ▪ Students feel a deep sense of accomplishment as they master math facts recorded on their Fact Grid. ▪ The program divides the facts in the Fact Grid into levels. Each level that students achieve adds more choices for customizing the interface of their "Fast Tracker" device. ▪ When a student reaches a new level in the software, the *FASTT Math Manager* notifies the teacher, who can print out an award certificate. ▪ When students are learning new facts or playing a game, they are rewarded with points. Students compete with their own previous scores, which focuses them on progressive self-improvement. ▪ The program provides a certificate students can print out when they have completed all the facts in the operation.
10. Parental involvement: A description of how the applicant will use technology effectively to promote parental involvement and increase communication with parents, including a description of how parents will be informed of the technology used	The *FASTT Math* program has the following parent support materials: ▪ Parent letter in English or Spanish that introduces the *FASTT Math* program to parents and lets them know that students can readily share their progress. ▪ Student Fact Grid reports provide a copy of a student's fact grid displaying the student's fluency status with all facts in the operation. ▪ Award Certificates can be printed as students complete different levels of the fact grid. The certificates can be shared with parents and uses as examples of student achievement. ▪ Customized worksheets can be generated that students can bring home as part of the homework that parents can support.

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11. Accountability measures: A description of the process and accountability measures that the applicant will use to evaluate the extent to which activities funded under the program are effective in integrating technology into curricula and instruction, increasing the ability of teachers to teach, and enabling students to reach challenging state academic standards	Actively monitoring student progress and program usage is easy with the help of three different types of reports for *FASTT Math*. These reports help teachers to assess a student's strengths and weaknesses and evaluate his or her progress in math fact fluency. Further reports inform instruction and facilitate administrative and management tasks. Student Reports can be printed by teachers and administrators for individual students. The Student Fact Fluency Status Report shows an individual student's fluency with each fact in the specific operation for the selected date. The Student Lesson Status Report shows individual student daily lesson status during the selected time period. The Student Response to Intervention Report shows individual student fact fluency growth over time. Class, Grade, and Teacher Reports can be printed by teachers and administrators for specific groups, classes, and for all students that are assigned to a teacher. The Progress Report shows student performance—such as Fast Facts after Placement Assessment and current Fast, Focus, and Study Facts—and usage information for each student listed. The Intervention Grouping Report groups students under four *FASTT Math* performance standards—Fluent, Near Fluent, Developing, and Underdeveloping. School and District Reports can be printed by administrators for specific grades, schools, and a district. The Summary Progress Report shows the number of students enrolled in *FASTT Math* and assigned to each operation. The *FASTT Math* Implementation Report shows student fact fluency growth during the selected time period.
12. Supporting resources: A description of the supporting resources, such as services, software, other electronically delivered learning materials, and print resources, that will be acquired to ensure successful and effective uses of technology	Student Resources ▪ *FASTT Math* software customizes short daily instructional lessons to build fact fluency. ▪ Individualized practice sheets extend the learning to paper and pencil and multi-digit computation. Teacher Resources ▪ The Teacher's Guide includes implementation tips, software features, reports, and the research foundation. ▪ The Installation Guide explains the software and SAM. ▪ The *Scholastic Achievement Manager* (SAM) collects data from the program, tracks progress, and generates reports. ▪ The Quick Reference Card helps teachers preview and use the software after installation. ▪ The Fact Fluency Foundations Guide provides additional interventions for students who need remediation in conceptual understanding of number sense.