



Mathematics
Professional Development Offerings
2009-2010
Offered at Region 10 or at Clustered Locations Only

Elementary Mathematics

Children's Thinking in Measurement, Grades K-5

Measurement provides children an opportunity to describe, compare, and classify objects, make estimates, and solve application problems, and it allows students to relate spatial concepts to numerical concepts. This session will center on the core ideas of measurement, and how these core ideas arise and are expressed as children solve problems in class.

Designing Small Group Instruction in Mathematics, Grades K-5 *NEW!*

Today's classrooms are filled with many diverse learners. In this session, participants will learn strategies and activities that are effective for implementing mathematics instruction that is tailored for small groups. Emphasis will be placed on the structure of the groups and meeting individual needs.

First Steps, Grades K-9 *NEW!*

First Steps in Mathematics professional development will develop and expand teachers' understanding of mathematics and how children learn mathematics. First Steps in Mathematics enables teachers to successfully diagnose, plan, implement, and evaluate their students' learning experiences. Diagnostic Tasks and Diagnostic Maps within each strand will help teachers to identify students' misconceptions about mathematics. Sample lessons and learning activities provide teachers with practical and simple ideas to support students' development.

Mathematics TEKS Connections (MTC) K-2

This two-day training provides an opportunity for participants to increase the depth of their understanding about the inherent connections within the TEKS by exploring instructional strategies that facilitate thinking needed to make those connections. These content- and instruction-based connections will be explored within and between grade levels and contents. Participants will look at number concepts, place value, addition, and subtraction.

Mathematics TEKS Connections (MTC) 3-5

This two-day training provides an opportunity for participants to increase the depth of their understanding about the inherent connections within the TEKS by exploring instructional strategies that facilitate thinking needed to make those connections. These content- and instruction-based connections will be explored within and between grade levels and contents.

M-STAR Project for Middle School, Grades 5-8, *NEW!*

Understanding of curriculum focal points and implementation of the focal points in daily mathematics instruction is critical for teachers to obtain the best results when teaching for depth, understanding, and proficiency. This professional development session provides knowledge and skills to implement the focal points and includes activities that help teachers with classroom application of the curriculum focal points. This session will provide awareness of the advanced mathematics that underlies the mathematics that teachers teach at their grade level. Mathematical tiers of instruction will also be addressed.

M-STAR Project Part II, Addressing the Needs of Struggling Students, Grades 5-8, *NEW!*

The Texas Response to Curriculum Focal Points framework will be utilized to design and implement strategies for those students in grades 5-8 who are identified as needing mathematics intervention. Completion of MSTAR Project for Middle School is prerequisite for this training.

Middle School Mathematics

Assessing Mathematical Knowledge, Grades 6-10

Assessment of mathematical knowledge allows teachers to determine what students know and what they are able to do. In addition, a study conducted by Hill, Rowan, and Ball revealed that teacher mathematical knowledge is significantly related to student achievement gains. In this one-day module, participants will learn the components of a valid assessment, and will examine student work to evaluate student knowledge. In addition, participants will discuss the direct impact of the teacher's ability to effectively assess student knowledge and design instruction based on that assessment.

First Steps, Grades K-9 *NEW!*

First Steps in Mathematics professional development will develop and expand teachers' understanding of mathematics and how children learn mathematics. First Steps in Mathematics enables teachers to successfully diagnose, plan, implement, and evaluate their students' learning experiences. Diagnostic Tasks and Diagnostic Maps within each strand will help teachers to identify students' misconceptions about mathematics. Sample lessons and learning activities provide teachers with practical and simple ideas to support students' development.

Fostering Algebraic Thinking, Grades 6-12

This four-day staff development session is composed of four modules designed around analyzing student work, listening to students, documenting patterns of student thinking, and asking questions of students. The goal of the professional development academy is to help mathematics teachers in grades 6-12 learn to identify, describe, and foster algebraic thinking in their students and understand students thinking through the analysis of different kinds of data, such as student work and classroom observations. The training is built around *Fostering Algebraic Thinking* by Marc Driscoll.

Learning Mathematics through Writing, Grades 6-8 *NEW!*

The purpose of this session is to help students begin to increase mathematical understanding by organizing and consolidating their thinking through communication. The second purpose is to have students communicate mathematical thinking coherently and clearly to peers, teachers, and others. The third purpose is to have students analyze and evaluate the mathematical thinking and strategies of others. Finally, to have students use language of mathematics to express mathematical ideas precisely. This training provides a developmental model for incorporating writing into a math class. Suggestions for managing journals, developing prompts for writing, other writing strategies, and providing students with feedback on their work will be highlighted.

Mathematics TEKS Connections (MTC), Grades 6-8

This training is a two-day, research-based professional development opportunity for mathematic teachers. Participants will experience hands-on professional development activities. They will also receive many student ready lessons. The intent of MTC is to have teachers focus on and experience the inherent horizontal alignment between mathematic concepts and connections to other concepts (or big ideas) within the same grade as well as vertical alignment within other middle school mathematics courses.

Measurement Institute, Grades 6-10

This two-day institute is designed to provide teachers opportunities to participate in measurement activities that are centered around hands-on instruction, bridging from concrete to more sophisticated reasoning strategies while developing a deeper understanding of measurement concepts.

Middle School Geometry (TEXTTEAMS)

This four-day institute focuses on important geometric concepts: geometric structure, transformations, triangles, planar figures, and solids called for in the grades 6-8 TEKS and TAKS. Vertically aligned activities will extend teacher knowledge in geometry, including algebraic connections, enabling them to focus on students' conceptual development. Incorporating concrete models and appropriate technology, the institute will broaden and deepen teacher content knowledge.

Middle School Algebraic Reasoning (TEXTTEAMS)

This three-day institute follows a model of developing algebraic reasoning based on giving participants a concrete experience from which they can explore and investigate problems and patterns. From their explorations and investigations, participants make informal generalizations. Then they use language to describe the informal generalizations and connect symbols to the language, a process which produces formal (algebraic) generalizations.

Middle School Problem Solving (TEXTTEAMS)

Teachers who attend this three-day institute will learn how to help their students use and master problem solving as they deepen their own understanding of what problem solving means. The training will allow teachers to explore how and where problem solving pervades and connects the TEKS and why and how students must use and master problem solving to be successful in mathematics.

Middle School Proportionality (TEXTEAMS)

This four-day institute highlights the importance of proportional reasoning in the middle school mathematics program and the connections to algebra. The focus of the institute is on developing the properties, language, and representations of proportional relationships that arise from number, operation, algebra, probability, statistics, measurement, and geometry.

Mathematics for English Language Learners (MELL)

The primary purpose of the MELL Initiative is to improve mathematics instruction for English Language Learners, especially those at the secondary level including middle school. Classroom practices and instructional strategies that contribute to successful math instruction for English Language Learners will be explored in this one-day session.

M-STAR Project for Middle School, Grades 5-8, *NEW!*

Understanding of curriculum focal points and implementation of the focal points in daily mathematics instruction is critical for teachers to obtain the best results when teaching for depth, understanding, and proficiency. This professional development session provides knowledge and skills to implement the focal points and includes activities that help teachers with classroom application of the curriculum focal points. This session will provide awareness of the advanced mathematics that underlies the mathematics that teachers teach at their grade level. Mathematical tiers of instruction will also be addressed.

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Teaching Mathematics Through Technology (TMT3), 6-8

This two-day training is designed to equip teachers to be effective and judicious users of technology as they teach to the depth and complexity outlined by the TEKS for middle school mathematics. A variety of technologies (internet, spreadsheet, graphing calculators, CBR's, TI-Interactive) will be used to collect and analyze real-world data. Participants will learn how to appropriately represent this data in a meaningful manner. Student-ready lessons will be provided to engage students in gathering data, data analysis, problem solving, and mathematical reasoning through the use of various modes of technology.

TI-Nspire for Middle School Mathematics *NEW!*

This technology with exchangeable face plates can serve as a TI-Nspire or a TI-84 graphing calculator. The TI-Nspire has the capability that goes beyond the graphing calculator, such as the use of spreadsheets, notes pages, multiple representations, grab and move features, save and review work, data and statistics, construction of geometrical concepts, and others. The goals of this training are to have participants feel comfortable using the TI-Nspire handheld, understand the power and potential of the TI-Nspire's key mathematical and pedagogical features, and take away classroom ready materials suitable for 6th, 7th, and 8th grades based on the TEKS.

High School Mathematics

Algebra I: 2000 and Beyond (TEXTEAMS)

This five-day institute is designed to deepen teacher content knowledge, and to provide mathematics activities to support teacher and student learning. Foundations for Functions, Linear Functions, and Nonlinear Functions are included.

Algebra II TEXTEAMS

The Algebra II four-day institute is a professional development experience designed to stretch and extend participants mathematical knowledge. Continuing the focus on functions from the Algebra I Institute, the Algebra II institute explores a variety of functions that are found in the Algebra II TEKS. Included are functions, transformations, inverses, and solving equations.

Assessing Mathematical Knowledge, Grades 6-10

Assessment of mathematical knowledge allows teachers to determine what students know and what they are able to do. In addition, a study conducted by Hill, Rowan, and Ball revealed that teacher mathematical knowledge is significantly related to student achievement gains. In this one-day module, participants will learn the components of a valid assessment, and will examine student work to evaluate student knowledge. In addition, participants will discuss the direct impact of the teacher's ability to effectively assess student knowledge and design instruction based on that assessment.

Fostering Algebraic Thinking, Grades 6-12

This four-day staff development session is composed of four modules designed around analyzing student work, listening to students, documenting patterns of student thinking, and asking questions of students. The goal of the professional development academy is to help mathematics teachers in grades 6-12 learn to identify, describe, and foster algebraic thinking in their students and understand students thinking through the analysis of different kinds of data, such as student work and classroom observations. The training is built around *Fostering Algebraic Thinking* by Marc Driscoll.

Geometry for All Institute (TEXTEAMS), Grades 9-12 *NEW!*

This four-day institute is intended to deepen teacher content knowledge of the concepts and ideas of geometry. This professional development examines function-based geometry, transformations, and the geometry of circles.

High School Geometry: Supporting TEKS and TAKS (TEXTEAMS) *NEW!*

This four-day institute is intended to deepen teacher content knowledge of the concepts and ideas of geometry. Much of the institute is built upon learning experiences that develop and promote the power of using concrete experiences to introduce and build mathematical concepts. The overarching ideas of the institute are algebraic connections, coordinate geometry, conjecture, and justification woven into the topics of geometric structure, transformations, triangles, planar figures, and three-dimensional figures.

Manipulatives in the Secondary Mathematics Classroom, not just for Included Students

This one-day staff development session provides rigorous training for Mathematics classroom teachers, Special Education teachers, and educators who work directly with inclusion students. Emphasis is on using manipulatives to reinforce basic mathematics concepts and problem solving. A brief introduction to the graphing calculator provides training for those educators who work in the secondary setting.

Mathematics for English Language Learners (MELL), Grades 6-12

The primary purpose of the MELL Initiative is to improve mathematics instruction for English Language Learners, especially those at the secondary level including middle school. Classroom practices and instructional strategies that contribute to successful math instruction for English Language Learners will be explored in this one-day session.

Mathematics TEKS Connections (MTC) 9-12

Good teaching must include knowledge of cross grade and cross concept connections. This awareness should be reflected in both curriculum scope and sequence and in lesson plans that are outcomes of that scope and sequence. Such understandings also have direct impact on the ability of the teacher to effectively assess student knowledge and design instruction based on that assessment. The MTC, two-day training addresses these issues.

Mathematics TEKS Connections (MTC) Geometry

This two-day module is designed to provide teachers an opportunity to investigate and study TEKS with classroom ready lessons that incorporate research-based instructional strategies. Participants will focus on understanding the connection of the TEKS to a function-based approach to Geometry. The goal is to make this course part of a larger high school math curriculum, rather than an isolated course.

Maximizing Algebra II Performance (MAP)

This two-day training utilizing the 5E instructional model is designed to focus on understanding the Algebra II mathematics TEKS, understanding the connection of those TEKS to preceding and subsequent coursework, modeling how those TEKS should be taught. Participants will also examine instructional strategies and materials that support effective teaching. The goal of MAP training is to make this course part of a larger high school math curriculum rather than an isolated course, and to provide teachers with the tools to make this course application-based and relevant to student lives.

Measurement Institute, Grades 6-10

This two-day institute is designed to provide teachers opportunities to participate in measurement activities that are centered around hands-on instruction, bridging from concrete to more sophisticated reasoning strategies while developing a deeper understanding of measurement concepts.

Mathematics for English Language Learners (MELL)

The primary purpose of the MELL Initiative is to improve mathematics instruction for English Language Learners, especially those at the secondary level including middle school. Classroom practices and instructional strategies that contribute to successful math instruction for English Language Learners will be explored in this one-day session.

Teaching Mathematics Through Technology (TMT3) Algebra I and II

This two-day training is designed to equip teachers to be effective and judicious users of technology as they teach to the depth and complexity outlined by the TEKS for Algebra I and Algebra II. Each session is activity-based to encourage professional discourse about the decisions surrounding the use of technology as a tool to strengthen student learning about mathematics. A variety of technologies (internet, spreadsheet, graphing calculator, data collection devices, TI-Interactive) are used for collecting and analyzing real-world data.

Teaching Mathematics Through Technology (TMT3) Geometry

This two-day training is to equip teachers to be effective and judicious users of technology as they teach to the depth and complexity outlined by the TEKS for Geometry. Each session is activity-based to encourage professional discourse about the decisions surrounding the use of technology to strengthen student learning about Geometry. A variety of technologies (internet, spreadsheet, Sketchpad, graphing calculator, TI-Interactive) are used for collecting and analyzing real-world data.