REGION 10
EDUCATION SERVICE CENTER

Math
Professional Development

Web-Based Offerings
2010 - 2011

All titles will be available to members of the
Region 10 Professional Development Cooperative

Algebra I EOC Success – Using the Graphing Calculator as a tool for multiple representation and problem solving (8-10) ***NEW***
This on-line course will allow participants to examine the last released Algebra I EOC (2002), as well as TAKS items that address the Student Expectations that will be tested as the Algebra I EOC becomes a high-stakes test. For each student expectation, strategies for using the graphing calculator as a tool for multiple representation and problem solving will be examined. Graphing calculators are useful tools that can enhance mathematical instruction, foster improved teaching and learning, and increase mathematical achievement (Dunman, 1999)

Developing Algebraic Thinking in the Middle Grades (6-8) ***NEW***
According to the National Council of Teachers of Mathematics (NCTM) 2000, students must think algebraically, be able to understand patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols; use mathematical models to represent and understand quantitative relationships; and analyze change in various contexts. In addition, with the aid of technology, student can learn to use functions to model patterns of change, including situations in which they generate and represent real data. Through a series of investigation activities participants will be able to help students make connections between arithmetic and algebra, build proficiency with key algebraic concepts, such as patterns, functions, and variables. Therefore, this session will provide activities that can be solved by using tables, graphs, verbal descriptions, concrete or pictorial representations, or algebraic symbols to help students build their understandings of mathematical functions.

Exit Level Mathematics TAKS Success – Using the Graphing Calculator as a tool for Multiple Representation and Problem Solving (11-12) ***NEW***
Students are allowed two tools to complete the Mathematics portion of the TAKS: a Mathematics Chart and a graphing calculator. This on-line course prepares teachers to help students succeed on the Exit Level Mathematics TAKS using the graphing calculator as a tool. Assessment items from the 2009 Exit Level Mathematics TAKS will be included. The content addresses problem solving using multiple representation, which leads to a deeper and more complex understanding of concepts tested on the Mathematics TAKS. Dunham found studies that concluded those students who use graphing calculator technology are better able to read and interpret graphs, understand global features, and relate graphs (Dunham, 1996).

Factors Are Our Friends (3-5)
According to the Principles and Standards for School Mathematics by NCTM, students should learn to develop an understanding of numbers, ways of representing numbers, relationships among numbers, and number systems. This online professional development session will allow participants to explore strategies to help students understand the relationships of factors, multiples, and prime and composite numbers.

Interactive Journaling in Mathematics (K-8)
According to Robert Marzano, some instructional strategies are more effective at increasing retention rates among students. Summarizing/note taking is one of Marzano's top nine most effective instructional strategies to increase student achievement. This online professional development session will provide participants with the tools to introduce interactive journaling that will enhance students' understanding of mathematics through writing.

Manipulatives – Connecting Concrete to Abstract (8-12) ***NEW***
Manipulatives help students develop conceptual understanding of a given mathematical concept. They provide a visual representation; help students make the connections to abstract ideas; makes practices more meaningful; allows students to make connections to other mathematics concepts and relationships. This three hour online professional development session will give participants the tools to make manipulatives an integral part of everyday instruction.

Questioning Strategies: Promoting and Un-boxing Deep Understanding (6-8) ***NEW***
The purpose of questioning as a cognitive strategy is to bring a student from limited understanding of a concept to complete understanding of a concept. According to Robert Marzano (2007), questions can stimulate engagement when used effectively. Therefore, an educator must reach into the learner's hidden levels of knowing and awareness in order to help the learner reach new levels of thinking. Through the art of thoughtful questioning, teachers can extract not only factual information, but aid learners in connecting concepts, making inferences, increasing awareness, encouraging creative and imaginative thought, aiding critical thinking processes, and generally helping learners explore deeper levels of knowing, thinking, and understanding of mathematics. In fact, questioning techniques can be one of the most flexible and adaptive tools in a teacher's arsenal.

Recursive Thinking as a Path to Linear Functions (8-12) ***NEW***
Students are good at recursive thinking. This workshop uses this strength that our students have as a path to teaching Linear Functions. This one hour online professional development session will model how one is able to use recursive thinking to deepen students' understanding of rate of change and the y-intercept.

Mathematics Cadres

Fall 2010 Elementary Mathematics Cadre (K-5) ***NEW***
For Mathematics educators who are unable to attend the Fall 2010 Elementary Mathematics Cadre, the powerpoint is provided for the latest legislative and TEA updates. Links are also provided to resources cited in the powerpoint and to Region 10 resources.

Fall 2010 Middle School Mathematics Cadre (6-8) ***NEW***
For Mathematics educators who are unable to attend the Fall 2010 Middle School Mathematics Cadre, the powerpoint is provided for the latest legislative and TEA updates. Links are also provided to resources cited in the powerpoint and to Region 10 resources.

Fall 2010 High School Mathematics Cadre (9-12) ***NEW***
For Mathematics educators who are unable to attend the Fall 2010 High School Mathematics Cadre, the powerpoint is provided for the latest legislative and TEA updates. Links are also provided to resources cited in the powerpoint and to Region 10 resources.

Spring 2011 Elementary Mathematics Cadre (K-5) ***NEW***
For Mathematics educators who are unable to attend the Spring 2011 Elementary Mathematics Cadre, the powerpoint is provided for the latest legislative and TEA updates. Links are also provided to resources cited in the powerpoint and to Region 10 resources.

Spring 2011 Middle School Mathematics Cadre (6-8) ***NEW***
For Mathematics educators who are unable to attend the Spring 2011 Middle School Mathematics Cadre, the powerpoint is provided for the latest legislative and TEA updates. Links are also provided to resources cited in the powerpoint and to Region 10 resources.

Spring 2011 High School Mathematics Cadre (9-12) ***NEW***

For Mathematics educators who are unable to attend the Spring 2011 High School Mathematics Cadre, the powerpoint is provided for the latest legislative and TEA updates. Links are also provided to resources cited in the powerpoint and to Region 10 resources.