Institute for Excellence in Teaching: Middle School Mathematics

6th Grade

Course Description:
Excellence in teaching middle school mathematics requires teachers to equip students to approach mathematics using the following process standards: problem solving, reasoning and proof, communication, connections, and representations. This three-day institute will provide middle school mathematics teachers with the tools necessary to execute mathematics courses that are grounded in those process standards. Led by master teachers, participants will first explore content-specific activities that engage students while guiding them to stronger mathematical fluency so they are prepared for subsequent and/or advanced mathematics study. The content-specific activities, which will be explored through the process standards, will include the following: number and operations, proportionality, expressions, equations, measurement and data, and the foundation of functions. After content focus, participants will choose among sessions that model strategies that enhance student learning and support strong vertical teaming throughout the middle school mathematics curriculum. Once participants are thoroughly familiar with these perspectives, their lead master teacher will support them in planning for the upcoming school year. With a deliberate institute framework that allows teachers to vary the area of competency that their classroom needs, participants will leave the institute exposed to new teaching strategies and deeper vertical alignment awareness so that their students can demonstrate mathematical success.

Following are the sessions in which 6th grade teachers will have an opportunity to participate:
- Getting Concepts to Stick Using an Inquiry Approach
- Problem Solving vs. Following a Procedure: Using Common Sense Mathematical Approaches to Clarify and Explain Quandaries in the Real World
- Virtual Teams, Backward Design, and Follow a Concept
- Technology Smörgåsbord
- STEM Explorations and Rich Mathematics Opportunities
- Bringing Mathematics Alive Through Experiences of the Great Mathematicians
- Balancing Your Teaching Mindset with Focus on Mastery of Content
- Communicating Results through Multiple Representations and Methods
- Teaching to a Growth Mindset (11-12 year old style)
Instructor Bio: Mark Cox teaches Fifth Grade Mathematics at Trinity Valley School in Fort Worth, Texas. He has been teaching secondary students for 23 years, including in Mansfield and Arlington Texas public schools and in the Episcopal school system. Mr. Cox has presented at numerous local and state conferences including the Conference for the Advancement of Mathematics Teaching and Texas Instruments. He holds a BA in mathematics from the University of Texas at Austin and an MA in Mathematical Teaching from The University of Texas at Arlington.

7th Grade

Course description: Excellence in teaching middle school mathematics requires teachers to equip students to approach mathematics using the following process standards: problem solving, reasoning and proof, communication, connections, and representations. This three-day institute will provide middle school mathematics teachers with the tools necessary to execute mathematics courses that are grounded in those process standards. Led by master teachers, participants will first explore content-specific activities that engage students while guiding them to stronger mathematical fluency so they are prepared for subsequent and/or advanced mathematics study. The content-specific activities, which will be explored through the process standards, will include the following: number and operations, proportionality, expressions, equations, measurement and data, and the foundation of functions. After content focus, participants will choose among sessions that model strategies that enhance student learning and support strong vertical teaming throughout the middle school mathematics curriculum. Once participants are thoroughly familiar with these perspectives, their lead master teacher will support them in planning for the upcoming school year. With a deliberate institute framework that allows teachers to vary the area of competency that their classroom needs, participants will leave the institute exposed to new teaching strategies and deeper vertical alignment awareness so that their students can demonstrate mathematical success.

Following are the sessions in which 7th grade teachers will have an opportunity to participate:

* Promoting Number Sense Simply by Laying Cable
* How Problematic Can a Shadow Be?
* A Match between the Mates!
* Virtual Teams, Backward Design, and Follow a Concept

* Technology Smörgåsbord

* STEM Explorations and Rich Mathematics Opportunities

* Bringing Mathematics Alive Through Experiences of the Great Mathematicians

* Assessment of Learning; Assessment for Learning; and Assessment as Learning

* Creating an Assessment Friendly Environment

* Student Centered Learning

Instructor Bio:
Laura Grimwade is the Director of Research, Assessment, and Accountability for the Rockdale County Public School System in Conyers, Georgia. Prior to this, Laura served as a K-12 Math Coordinator and a former secondary math teacher, having enjoyed 10 years at the middle school level. She has worked extensively to train educators for Standards Based Mathematics, the Backwards Design Model, and a Balanced Assessment System. She has presented at numerous math conferences and trainings, including the DODEA and the American International Schools in Bolivia and Guam. Laura has been a math consultant for the College Board since 1999. She holds a BA in Middle Childhood Education, MA in mathematics, and Ed.S in Educational Leadership from Georgia State University.

8th Grade

Course Description:
Excellence in teaching middle school mathematics requires teachers to equip students to approach mathematics using the following process standards: problem solving, reasoning and proof, communication, connections, and representations. This three-day institute will provide middle school mathematics teachers with the tools necessary to execute mathematics courses that are grounded in those process standards. Led by master teachers, participants will first explore content-specific activities that engage students while guiding them to stronger mathematical fluency so they are prepared for subsequent and/or advanced mathematics study. The content-specific activities, which will be explored through the process standards, will include the following: number and operations, proportionality, expressions, equations, measurement and data, and the foundation of functions. After content focus, participants will choose among sessions that model strategies that enhance student learning and support strong vertical teaming throughout the middle school mathematics curriculum. Once
participants are thoroughly familiar with these perspectives, their lead master teacher will support them in planning for the upcoming school year. With a deliberate institute framework that allows teachers to vary the area of competency that their classroom needs, participants will leave the institute exposed to new teaching strategies and deeper vertical alignment awareness so that their students can demonstrate mathematical success. Following are the sessions in which 8th grade teachers will have an opportunity to participate:

* From Conjecture to Justification: Exploring Linear Relationships and Angle Relationships in Triangles Through Mathematical Investigation and Argumentation

* Interacting with Content and Classmates: Multiple Representations as a Tool for Learning and Communicating Mathematical Ideas

* Graphing and Geometry: The Coordinate Plane as a Platform for Connecting Mathematical Concepts

* Virtual Teams, Backward Design, and Follow a Concept

* Technology Smörgåsbord

* STEM Explorations and Rich Mathematics Opportunities

* Bringing Mathematics Alive Through Experiences of the Great Mathematicians

* Level Up: Transforming Ordinary Math Tasks into Meaningful, Demanding Math Tasks

* Where Are We Going With This? Preparing Students for their Future in Mathematics

* Using Multiple Representations to Assess Student Understanding

**Instructor Bio:**

Jennifer Nicholson teaches a concurrent credit Pre-Calculus course and AP Calculus AB & BC at North Side High School in Fort Worth, TX. She has 17 years of experience teaching secondary math to students in San Antonio ISD, Mansfield ISD, and Fort Worth ISD. Ms. Nicholson has been recognized for excellence in secondary math teaching as a Freese & Nichols Chair for Teaching Excellence in Secondary Mathematics and a FWISD Teacher of the Year finalist, and as a recipient of the Bayard H. Friedman Hero award for Math. Ms. Nicholson holds a BS in Mathematics with Secondary Teaching Certification from Angelo State University.