

Second Annual Secondary Math Conference



Colonial Intermediate Unit 20



“The essence of mathematics is not to make simple things complicated, but to make complicated things simple.”
-- S. Gudder

June 20 & 21, 2007

Keynote Information

DAY 1

Day 1 registration will be held from 7:30 AM - 8:30 AM; the day will conclude at 3:00 PM

OPENING KEYNOTE

The Right to Be Wrong

Presenter: Irving Lubliner, Consulting Educator, Mathematics Enthusiast

We're all looking for ways to increase our students' involvement in classroom discussion. By asking for conjectures, we sidestep students' fears of being wrong, pique their curiosity, invite participation, and foster critical thinking. Whether their guesses are "right" or "wrong," our words and actions can help turn every student response into a learning opportunity.

DAY 2

Day 2 registration will be held from 7:30 AM - 8:00 AM; the day will conclude at 3:00 PM

CLOSING KEYNOTE

Constructivism in Secondary Mathematics

Presenter: Leigh Rusnak, Assistant Principal, Northeast Middle School, Bethlehem Area School District

The idea that learners individually construct meaning is often associated with elementary schools and early learning. The concept that learners attach all new knowledge with personal and social meaning, however, is indisputable in older children as well as adults. We use experiences with new information to build our understanding of the world including the world of mathematics. Secondary teachers of mathematics consistently are frustrated by the vastness of what students do not know. The key to effective instruction is to build upon that which they DO know.

SECONDARY MATH CONFERENCE PLANNING COMMITTEE

A Special Thank You to...

Heather Brown, Training & Consulting Staff, Colonial IU 20

Dawn Ekstrom, Assistant Director of Curriculum, Colonial IU 20

Pam Guildin-Evans, District Mathematics Specialist, Bethlehem Area School District

Melissa Petrilak, Training & Consulting Staff, Colonial IU 20

Lindsey Smith, Coordinator of Professional Development, Colonial IU 20

Lisa Tirjan, Intermediate Math Coach, East Stroudsburg Area School District

Strand Information

Each participant will be asked to choose a strand to follow throughout the conference. Please review the information on sessions within each strand and choose the strand (on your registration form) that you find most suitable.

CONTENT

Day 1

Session 1 (All Day): CRA (Concrete-Representational-Abstract) Math

Presenter: Karla Carlucci, TaC Staff, NEIU 19

Teachers of mathematics are required to have a deep and profound understanding of the mathematics they are presenting to their students. The purpose of this session is to focus on the CRA (Concrete-Representational-Abstract) approach in developing participants' understanding of mathematical concepts. Participants will develop a deeper understanding of the following mathematics:

- Properties of the Real Number System
- Basic Arithmetic (+, -, x, /) of Fractional Numbers, Integers, and Algebraic Expressions
- How to utilize the area model for multiplying numbers up to polynomials
- Simplifying Algebraic Expressions
- Solving Linear and Quadratic Equations

Day 2

Session 1: Curriculum Focal Points

Presenter: TBA

Curriculum Focal Points suggest curricular reform. The points define the most important mathematical topics for each grade level and should be considered as the basis for decisions about curriculum development. The focal points, developed by the National Council of Teachers of Mathematics (NCTM) present a way to bring focus to teaching, learning, and assessing of mathematics. This session will explain Curriculum Focal Points and their use in developing curriculum for prekindergarten through grade 8.

Session 2: The Big Ideas in Math

Presenter: Teri Duckett, Education Consultant, PaTTAN

This session will focus on the updated 2007 Assessment Anchors. The match between the assessment anchors and instruction will be clarified. An introduction to the Big Ideas in Math will be included to clarify the correlation between the Anchors and the Big Ideas. This presentation will show the importance of the relationship between the Anchors and the Big Ideas as related to math instruction to support student learning. This training is specifically intended for General Education Teachers, Special Education Teachers, Administrators, 4Sight/Benchmark Districts, EAP Districts, Parents, Paraprofessionals, and others who support students in mathematics.

Strand Information

DIFFERENTIATED INSTRUCTION

Session 1: Brain-based Learning for the Secondary Classroom

Presenter: Heather Brown, TaC Staff, CIU 20

The session will focus on the latest brain research on how the brain processes information, memory and retention, and the transfer of knowledge to promote learning. We will learn about practical instructional strategies based on the research and ways to implement these strategies into your classroom.

Session 2: United Streaming for All Learners

Presenter: Steve Spengler, Coordinator of Educational Technology, CIU 20

Remediate math using technology? UnitedStreaming's short video clips can reinforce key concepts and effectively increase student achievement. Learn how Discovery Education's UnitedStreaming can assist in providing meaningful, dynamic, and multimedia remediation for students.

Session 3: Organizing Differentiated Lessons

Presenter: Heather Brown, TaC Staff, CIU 20

Teachers will be able to skillfully analyze their understanding of curriculum and flexible instruction. This workshop will focus on the planning process required to effectively organize a Differentiated Instruction lesson. The following essential questions about high quality learning will be considered: "How can I get to know my students and their needs?" "What is most important for my students to learn about this topic?" "How will I know whether my students have attained this information?"

Session 4: Advanced Differentiated Instruction

Presenter: Melissa Petrilak, TaC Staff, CIU 20

Differentiated instruction is a powerful way to address the varied learning needs of students. This workshop is intended for the teacher who already incorporates differentiated instruction routinely, but would like to implement additional instructional and management strategies to support diverse learners in the classroom. Participants will examine effective uses of differentiated practices such as curriculum compacting and student contracts.

Session 5: Differentiated Instruction Make-and-Take

Presenter: Melissa Petrilak, TaC Staff, CIU 20

Teachers will be introduced to materials and strategies that will enhance their facilitation of differentiated instruction. Teachers will have the opportunity to create materials that successfully support differentiated instructional practices. Participants will receive a CD that contains extensive differentiated instructional ideas and templates. Teachers are highly encouraged to bring their own laptop to this session.

DATA ANALYSIS

Session 1: Performance Tracker

Presenter: Steve Spengler, Coordinator of Educational Technology, CIU 20

Teaching our students to interpret and analyze data is not only a required component of math but it's a necessary skill in today's world. As teachers, how many times do you sit and analyze your own student assessment data? This session is for the mathematics teacher who uses Performance Tracker in his/her school and is looking for guidance on using data to influence his/her teaching.

Session 2: Data Analysis in the Real World

Presenter: Maria Katsaros, K-12 Instructional Supervisor for Math, Upper Merion School District

What do I do with all the numbers and what do they mean? How do I connect the data to my instruction? Using data from your classroom and the school district curriculum or planning guide, you will determine the most effective action plan for the upcoming school year. Please bring your most recent data from this past year's class or for the 2007-2008 school year (this may include 4Sight Data, Performance Tracker Data, etc. and should be drilled down to the Assessment Anchors so that we may determine what plan of action we will prepare to move your students toward proficiency) and your curriculum or planning guide.

Session 3: Math Milestone Assessments

Presenter: Frank DeFelice, Principal, Bangor Area High School

This workshop will highlight the success the Bangor Area School District has experienced by implementing Math Milestone Assessments in grades K-12. Data will be shared on how student achievement has increased by using the scores to guide remediation and enrichment. The process has been a major change in the way our staff facilitates mathematics instruction within the classroom. Mr. DeFelice will share experiences from an administrative perspective on what has been revised within the Professional Learning Community in the area of Mathematics.

Session 4: PDE Data Tools: How is PVAAS (Pennsylvania Value-Added Assessment System) Different?

Presenter: Kristen Lewald, PVAAS Statewide Project Director, IU 13

This session will provide an overview of the features of the available data tools from PDE including PVAAS, PSSA reports by eMetric, Grow Network, paayp.com and 4Sight. PVAAS will be highlighted in this session. PVAAS is providing principals and teachers with a new type of student learning information for school level planning, grade level planning and student level planning. Participants will see and assist in interpreting examples of PVAAS reports that will be provided to Pennsylvania schools in the Fall of 2007 serving students in grades 4-8.

Session 5: Data Not Guesswork

Presenter: Heather Brown, IU 20, TaC Staff

DataNotGuesswork is an instructional routine to provide students with a constant review of what has been taught and a preview of what is yet to come. This is accomplished through a variety of data collection methods. By graphing the data, students see their individual progress as well as their contributions to the overall classroom performance. Teachers use this data to assess student understanding and adjust their instruction accordingly, thus promoting a community of learners.

Strand Information

TECHNOLOGY

Session 1: TI-84 from the Bottom Up

Presenter: Ray O'Brien, National T3 Instructor, Texas Instrument

Learn applications for math and science topics for the TI-84 calculator. This session assumes that you want to build a basic set of skills for use of the calculator over several courses and grades.

Session 2: TI-84 - Utilizing Data in the Teaching of Secondary Mathematics

Presenter: Ray O'Brien, National T3 Instructor, Texas Instrument

We will use the tools of the TI-84 calculator to model equations with data collected during the session.

Session 3: Introducing Geometer's Sketchpad

Presenter: Kevin DeVizia, Mathematics Department Head (grades 6-12), Delaware Valley School District

The Geometer's Sketchpad is a powerful tool to help students think deeply and discover important mathematics. In this course, participants will learn their way around the many capabilities of the software while experiencing classroom-tested activities and lessons demonstrating how Sketchpad can facilitate student learning. While this session assumes little or no experience with the software, participants will finish this session with the skills necessary to lead their students in learning mathematics with Sketchpad.

Session 4: Geometer's Sketchpad: Part II

Presenter: Kevin DeVizia, Mathematics Department Head (grades 6-12), Delaware Valley School District

In this session, participants will learn more advanced and lesser-known features of Sketchpad that can be used in teaching mathematics, and not just Geometry. Examples of lessons used by the presenter will also be demonstrated.

Session 5: WebQuest

Presenter: Dennis Ebersole, Professor - Mathematics and Computer Information Science, Northampton Community College

In this session the participant will learn about webquests and how they can be used to engage students in learning core ideas. Then participants will work in pairs on a math webquest. Finally, participants will work in teams to design webquests.

TEACHING STRATEGIES

Session 1: Brain-based Learning for the Secondary Classroom

Presenter: Heather Brown, TaC Staff, IU 20

The session will focus on the latest brain research on how the brain processes information, memory and retention, and the transfer of knowledge to promote learning. We will learn about practical instructional strategies based on the research and ways to implement these strategies into your classroom.

Session 2: Strengthening Your Students' Grasp of Algebra Concepts

Presenter: Irving Lubliner, Consulting Educator, Mathematics Enthusiast

Students studying algebra must make the transition from concrete to conceptual mathematics, learning to combine and apply a wide range of skills to solve challenging problems. Come learn strategies that motivate students to utilize algebra concepts and notation, increase basic skill proficiency, and generate enthusiasm for mathematics.

Session 3: Teaching to the Top: Lessons and Problems for Gifted Students in Secondary Mathematics

Presenter: Richard J. Tony, Richard King Mellon Chair in Mathematics, Shady Side Academy Senior School

Mathematically precocious students benefit from challenging, deeply engaging activities. This breakout session will feature some lessons and problems for gifted students. Topics in Algebra, Geometry and Precalculus will be considered and handouts will be provided.

Session 4: Engaging and Exciting Explorations: Manipulatives to Enhance Learning Math

Presenter: Dr. Lynn Columba, Professor, Lehigh University

Secondary teachers will participate in hands-on activities to motivate and to challenge reluctant learners in mathematics classrooms. Many educators agree that motivation is the key to success for both teaching and learning mathematics. These activities reflect recommendations of the National Council of Teachers of Mathematics (NCTM). This workshop will provide a collection of strategies that teachers of mathematics will find useful in their daily teaching. A few examples include the following: Mobius Strips, Angle finders, geodesic domes, pentominoes, tangrams, Rosemary's Circle (paper folding), etc.

Session 5: Effective Classroom Instruction Strategies

Presenter: Greg Shoemaker, Director of Elementary Education, Easton Area School District

NCLB is here to stay. Increase the effectiveness of your lessons by incorporating these basic best practices/strategies into your lessons.

Registration Form

Cost of the conference for CIU 20 staff and member districts is \$79.00; cost of the conference for districts outside CIU 20 is \$99.00, which will cover the cost of the conference and includes a light breakfast and lunch, all necessary materials, and access to all conference materials posted online.

Individuals working towards initial certification in Secondary Education, Mathematics, and/or Special Education are invited to attend this conference at the student registration price of \$40.00.

PROFESSIONAL EDUCATORS ARE ELIGIBLE TO RECEIVE 10.5 ACT 48 HOURS

Please make all checks/purchase orders payable to “CIU 20” and mail to the attention of Fabienne Duré, Colonial Intermediate Unit 20, 6 Danforth Drive, Easton, PA 18045. Registration forms may also be faxed to 610.252.0471.

THE REGISTRATION DEADLINE IS WEDNESDAY, JUNE 6, 2007

PLEASE PRINT OR TYPE

TEACHER's NAME (please include subject and grade level)

REGISTRANT's EMAIL ADDRESS

SCHOOL DISTRICT or COLLEGE/UNIVERSITY (for student registrants)

SELECT A STRAND

Please select the top three strands that you are interested in attending by marking 1, 2, and 3 in the circle of the desired strand. You will be placed in a strand as space allows; *please note that if the strand you select includes a session which you do not feel will be beneficial, based on availability, you may have the opportunity to enter a different session.*

Content

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