Meredith Mathematics and Science Summer Institutes  
2015 Course Offerings 

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or Jeane Joyner, MMSI Director, at joynerj@meredith.edu. 

Science Professional Development 

Inexpensive, Hands-on Science Activities to Engage Students 

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<th>Grades</th>
<th>July</th>
<th>6 contact hours</th>
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Make science come alive in your classroom with activities that engage students and foster understanding of important concepts. In each one-day session, participants will explore inexpensive, hands-on activities that correlate to the grade-level Essential Standards for Physical Science, Earth Science, and Life Science. Literature to match Language Arts Standards that corresponds to science lessons will be shared. 

Betty Bigney teaches STEM K-5 for Dixon Elementary School in Onslow County. Retiring in June 2015 to continue as an independent consultant, Bigney has 44 years teaching experience in kindergarten through graduate school. She is certified in Elementary Education, Science 6-12, Gifted Education K-12, Robotics, Technology Integration, and Project Based Inquiry Learning. She has also worked with NASA programs: SSA (Solar System Ambassador), NEAT (Network of Educator Astronaut Teachers), SSEP (Solar System Educator Program), and NES (NASA Explorer Schools). In her role as a consultant, Bigney has worked with NASA, NSTA, Department of Education in Hawaii, NC Teacher Academy, MMSI, Penn State University, and Liberty County Schools in Georgia. 

Single-Day Mathematics Professional Development 

Routines and Games for High Yield Learning  
(Includes Activities from Summer 2014 Workshops) 

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Repeated in summer 2015 because of participant interest, this professional development offers a unique one-day opportunity for exploring new ideas for engaging students. The workshop focuses on routines that develop number sense and games appropriate for each grade level. The activities support the Common Core Standards and the Standards for Mathematical Practice by providing students with practice that leads to high levels of automaticity with number facts. Games are motivational; they can be used in centers, with small groups, or as class activities. 

Tery Gunter and Judy Rucker will lead this workshop that offers teachers new ways to bring the big ideas of mathematics to their students, allowing deeper understanding of concepts. Ms. Gunter has devoted 30 years to elementary education, has been an Elementary Mathematics Specialist and is currently working with second grade. Ms. Rucker is a Mathematics Consultant with 30+ years’ experience. She is a former Director of K-5 Mathematics. Both consultants served as district leaders for a National Science Foundation project in Durham Public Schools and have been consultants for the Partners and Tap Math Mathematics-Science Partnership grants.
For the Love of Mathematics!
Grade K  July 29-30  * 12 contact hours  1.2 CEUs

Do your kindergarten students love math? Are they excited about numbers and how they work? Are they able to explain their strategy for solving the problem? Join us as we explore Student Centered Learning while implementing Standards, Best Practices, and CGI. Participants will work together to plan and share ideas as we prepare our students for the 21st Century.

Jamie Staley is a kindergarten and first grade teacher with six years of experience at Coleridge Elementary School. She attended the University of North Carolina at Charlotte and received a Bachelor of Arts in Elementary Education. Staley recently received her National Board Certification. “I love what I do and love the impact I have on students each and every day,” reports Staley. Janice York has been a kindergarten teacher at Ramseur Elementary School for the past 5 years. Before entering public education, she taught for 20 years in various private schools. York attended Pfeiffer University and received a Bachelor of Arts In Elementary Education. York comments, “I enjoy learning something new every day.”

Fun First Grade Math for a New School Year
Grade 1  July 30-31  * 12 contact hours 1.2

In this hands-on session, participants will explore research-based tasks to meet students’ diverse learning needs. There will be strategies to facilitate engaging mathematical conversations and guide students to use a variety of models, strategies, properties and problem types to build their understanding of addition and subtraction along with activities that help teachers present math content so that students build number sense, understand the meaning and process of measurement, and build an understanding of part-whole relationships of number and geometry. Participants will have an opportunity to interact with and learn from fellow practitioners from other districts. Come ready to have fun and "fill your toolbox" for the new school year!

Leanne Daughtry is currently the K-12 Curriculum Specialist for Johnston County Schools. She spent most of her years in the classroom as a second grade teacher. Daughtry is also a former mathematics consultant with the Department of Public Instruction. As a math coach at Selma Elementary School in Johnston County, Amanda Gosek helps teachers understand the math content and create powerful learning experiences for students. She oversees math instruction and uses data to guide professional development. Whether it is teaching remediation groups, modeling lessons or coaching the Battle of the Books team, the most enjoyable part of Amanda's day is spent with students.

Teaching Mathematics For Understanding
Grade 2  July 29-30  * 12 contact hours 1.2 CEUs

Content of this professional development includes a focus on standards that are hard for students to master in 2nd grade. Participants will explore activities to take students through steps from concrete to abstract, share strategies for solving problems concretely, and discuss ways to help students explain their thinking. They will review mathematics tasks for second grade classrooms. Current professional literature will also be reviewed. Teachers will learn how to make connections among and between standards to deepen student understanding.

Anna McGee, an Elementary Teacher Coach in Stokes County, is the lead coach in the content area of Mathematics. She taught 2nd and 4th grades and 1st grade for 10 years. As a life-long learner who seeks ways to improve her craft as an educator, McGee was previously recognized as Teacher of the Year at Mt. Olive Elementary School. Lisa Williamson is a Nationally Board Certified teacher with 22 years of experience teaching in grades K, 1, 2, and 4. A former Elementary Teacher Coach, Williamson is now an instructor at Salem College, teaching and mentoring student teachers.
Developing Geometric Understanding in Grades 2 - 3  
Grades 2-3  July 31 (one day only) * 6 hours .6 CEUs

This professional development provides content knowledge for teachers through an awareness of Van Heile levels of geometric understanding. By engaging in hands-on activities to take into their classrooms, teachers will explore the development of geometric concepts across grades, focusing on geometric vocabulary and real-world applications.

Tery Gunter and Judy Rucker will lead this professional development that encourages teachers to examine new tasks with their students, fostering deeper understanding of geometric concepts. Gunter has devoted 30 years to elementary education, has been an Elementary Mathematics Specialist, and is currently working with second grade. Rucker is a Mathematics Consultant with 30+ years’ experience. She is a former Director of K-5 Mathematics. Both consultants served as district leaders for a National Science Foundation project in Durham Public Schools and have been consultants for the Partners and Tap Math Mathematics-Science Partnership grants.

Multiplication, Division, AND Fractions . . Oh, My!  
Grade 3  July 28-29 * 12 contact hours 1.2 CEUs

The goals of this session are to assist teachers in (1) developing a deeper understanding of the Standards related to third grade multiplication, division, and fractions and (2) identifying the types of activities and tasks that help students develop conceptual understanding and computational skills that will prepare them for fourth grade and beyond. Through activities for third students, participants will review learning progressions, analyze the content of the Standards, and evaluate tasks that support students’ conceptual development. Special attention will be given to the Mathematical Practice Standards and their role in student learning.

Dr. Kayonna Pitchford is a National Board Certified Teacher with 18 years of experience in grades 3-5, including 8 years teaching third grade. She has B.S. and M.Ed. degrees in Elementary Education and a Ph.D. in Curriculum and Instruction. Pitchford currently works as an Instructional Coach for an elementary school in Fayetteville, enjoying the new challenges and responsibilities that this position brings. An experienced MMSI presenter, Pitchford has structured this workshop to build upon Common Core principles with learning activities, instructional methods, and assessment strategies that develop mathematical proficiency.

Fractions, Fluency, Finding Quotients, Figures and Fun  
Grade 4  July 28-29, 2015 * 12 contact hours 1.2 CEUs

In this hands-on session, participants will have an opportunity to learn and interact with fellow fourth grade teachers to sharpen skills and “fill your toolbox” for the new school year. The sessions will include tasks and strategies to facilitate engaging mathematical conversations as well as activities that present math content so that students develop number sense with fractions and decimals, explore fluency with multiplication, understand division and build an understanding of geometric properties. Come ready to participate and have fun!

Leanne Daughtry is currently the K-12 Curriculum Specialist for Johnston County Schools. She spent most of her years in the classroom as a second grade teacher. Daughtry is also a former mathematics consultant with the Department of Public Instruction. Amanda Gosek is a math coach at Selma Elementary School in Johnston County. Gosek helps teachers understand the math content and create powerful learning experiences for students. Whether it is teaching remediation groups, modeling lessons, or coaching the Battle of the Books team, the most enjoyable part of Amanda's day is spent with students.
iPads & Websites for Challenging Students & Supporting Achievement
Grades 4 through 6  July 30-31 * 12 contact hours 1.2 CEUs
Technology has become an essential and valuable classroom tool. This high-energy, interactive workshop will engage participants in a variety of tools for meeting standards, strengthening understanding, and extending learning. Bring your iPad or other hand-held device and join the fun as you explore classroom resources.

Amanda Northrup is an award-winning 5th grade teacher and blogger. Her students enjoy an engaging learning environment that strengthens their confidence, competence, and enjoyment. She frequently leads dynamic professional development in mathematics, science, and technology for elementary teachers and administrators. Northrup is a recipient of the Presidential Award for Excellence in Mathematics Teaching and the Burroughs Wellcome Career Award for Science and Mathematics Teachers.

Teach, Not Tell: Developing Mathematical Understanding of Fractions, Operations and More!
Grade 5  July 27-28 * 12 contact hours 1.2 CEUs
This session focuses on making sense of fractions and fraction operations, developing fluency with whole number and decimal operations, and the role of discourse in the mathematics classroom. Activities emphasize understanding student thinking and making decisions based on what students know and understand. Instruction around solving problems will be highlighted.

Nancy Teague was the Lower School Mathematics Specialist at Greensboro Day School for over 20 years until her retirement in 2013. She is currently working with a research project at UNC-G exploring teachers' use of research related to working with fractions. Teague has presented workshops across North Carolina helping K-6 teachers understand math curriculum and content, use appropriate pedagogical techniques, and effectively assess student thinking and understanding.

Preparing Students for Success in Mathematics
Grade 6  July 28-29 * 12 contact hours 1.2 CEUs
Sixth grade mathematics teachers prepare their students for success in middle school mathematics and beyond. This session focuses on maximizing instructional impact through strategic design. The professional development will provide teachers with classroom strategies, activities, and resources to strengthen students' understanding of key 6th grade content.

Alisan Royster has a Master's Degree in Elementary Education and is certified in AIG and Middle School Mathematics. She has thirteen years of experience teaching in grades 4 through 7 and has led professional development sessions for NCCTM, Partners for Mathematics Learning, TAP Math, and MMSI.

Challenging Mathematics in Middle School
Grade 7  July 30-31 * 12 contact hours 1.2 CEUs
This professional development will address ways to make the most of instructional time to meet the needs of every learner. The session will address major work of the 7th grade Common Core Standards by investigating learning activities, instructional methods, and assessment strategies to challenge all students. Participants will experience activities for their classrooms as they discuss mathematics “in the middle.”

Alisan Royster has a Master's Degree in Elementary Education and is certified in AIG and Middle School Mathematics. She has thirteen years of experience teaching in grades 4 through 7 and has led professional development sessions for NCCTM, Partners for Mathematics Learning, TAP Math, and MMSI.
Mathematics on the Move: Preparing for High School Mathematics
Grade 8   July 30-31 * 12 contact hours 1.2 CEUs

In this session teachers will focus on the 8th grade Common Core Standards, which build the foundation for Math I Standards. Through effective planning and classroom practices, teachers can increase mathematical growth for all levels of learners. The session will explore instructional strategies and student activities focused on the most critical 8th grade content.

Dan Wicks has twelve years of experience teaching in grades 6, 7, and 8 in both high- and low-achieving schools. He helped to create and deliver both Partners for Mathematics Learning and TAP Math professional development. He earned his Master's Degree in Elementary and Middle School Mathematics and has taught at MMSI since 2009.

Building Content Knowledge for Teaching Probability
Grades 7 through 10   July 28-29 * 12 contact hours 1.2

This session is designed to build understanding of school probability from the ground up! Participants will experience probability tasks that involve content from middle and high school standards. Intriguing activities with a carnival setting challenge students to apply probability in real world situations. Focus will include the development of a deeper understanding, conventions, tools for representation, and the big ideas of probability.

Dr. Katie Mawhinney is Professor of Mathematics at Appalachian State University. Her teaching experience includes work with students in middle grades, secondary, undergraduate, and graduate levels. Mawhinney has also partnered with K-12 teachers in professional development projects such as AMP, Partners, and TAP Math.

May the Functions Be With You!
Grade 8 through Math III   July 28-29 * 12 contact hours 1.2 CEUs

This session will focus on modeling with functions with curriculum topics spanning from grade 8 through Math I, Math II, and Math III. The goal of this session is to provide tasks and tips to help students master concepts and develop a deeper understanding about a variety of function families including the composition of functions and translations of functions. Pennington and Wilson state, “We look forward to sharing with you and may the functions be with you!”

Christina Pennington has 19 years of experience teaching mathematics in 8th grade through high school. She currently teaches Math I, Math II, and Discrete Mathematics at Ashe County High School where she has been since 2006. Pennington has a M.A. in Curriculum and Instruction and enjoys the opportunity to share with other teachers at professional developments. Carmen Wilson has been teaching mathematics to students in Ashe County for 26 years. A former officer in the North Carolina Council of Teachers of Mathematics, Wilson is a National Board Certified teacher who enjoys working with other educators in professional development settings.
Effective Implementation of Rich Tasks, Grades 8-12  
Grades 8 through 12  
July 30-31  * 12 contact hours 1.2 CEUs

This session focuses on ways to engage students with rich tasks and shows how teachers can effectively incorporate these tasks into their current classroom practices. We will discuss the use of warm-ups, student notes, independent work, and exit slips (closures). We will also explore what these components would “look like” in a student-centered classroom.

Julie Kolb currently teaches mathematics at Meredith College; prior to joining the faculty at Meredith she taught high school mathematics in Wake County for over 30 years. Kolb is Director of Project LEAD, a secondary MSP project. Chad Broome taught high school mathematics at a Title I school. His passion was for working with students who came into high school well below grade level. Broome currently is the Instructional Content Facilitator for Secondary Mathematics for Union County Public Schools where he works with over 100 mathematics teachers at 12 high schools.

Big Ideas of Geometry Across the Curriculum  
Math I, II, III  
July 28-29  * 12 contact hours 1.2 CEUs

What are the most essential understandings of geometry in the secondary curriculum? In this workshop, we will look at the big ideas of geometry in Math I, II, and III; we will explore how geometry is connected vertically across Math I, II, and III and integrated horizontally with the other topics in each course. Classroom activities for exploration will involve geometric modeling and reasoning.

Dr. Tim Hendrix is an Associate Professor of Mathematics at Meredith College, where he has taught for 13 years. Hendrix has worked extensively with both pre-service teachers and in-service teachers at the middle and secondary levels for over 20 years. He loves exploration of mathematical ideas and how discovery and reasoning can be incorporated into the math classroom!

Modeling with Statistics  
Math I, II, and III  
July 30-31  * 12 contact hours 1.2 CEUs

Working from the CCSS relating to statistics (.ID & .IC), participants engage in activities that support student-centered statistics instruction. This session focuses on data analysis of one- and multi-variable statistics and will incorporate multiple technological tools. A culminating goal of this session will be to develop task(s), anticipate student approaches and questions, and share these tasks.

As a former mathematics teacher and engineering consultant, Jared Webb is pursuing a doctorate focused on Mathematics Education at UNCG. Webb is interested in working together with practicing teachers to adapt to the student-centered instructional focus of current educational reform efforts.

Beyond Math III: Engaging Students in Mathematical Challenges  
Fourth Year Mathematics  
July 30-31, 2015 *12 contact hours 1.2 CEUs

Designed for teachers of students in their fourth year of secondary mathematics, this professional development will include Standards and instructional strategies appropriate for courses beyond Math I, II, and III. Content areas will include statistics, advanced study of functions, discrete mathematics topics, and more. Appropriate instructional strategies will be incorporated.

Dr. Deborah Crocker is Professor of Mathematics at Appalachian State and President of the North Carolina Council of Teachers of Mathematics. Crocker is the recipient of the NCCTM Rankin Award and the NCCTM Innovator Award and has 36 years of teaching experience. Elisabeth Turner has been a high school math teacher at Alexander Central High School for fifteen years. She is National Board Certified and completed her Master's Degree at Appalachian State University as a Mathematics Education Leadership Training (MELT) Scholar. She has been a MELT instructor and was on the Math 3 Team as part of the Navigating the Seven C's Professional Development Series.
Specifically for District Supervisors, Coaches, Lead Teachers, and Principals

Leadership for Instruction and Student Achievement
July 27-31, 2015  30 hours  *3.0 CEU’s

Register here for this special professional development.
(http://www.meredith.edu/academics/schools/natural_and_mathematical_sciences/mathematics/mmsi/leadership-institute-at-mmsi)

Carol Midgett  Dorothy White  Ana Floyd  Wendy Rich  Katie Mawhinney  Amanda Northrup

Designed specifically for educators with mathematics leadership responsibilities, the professional development focuses on K-6 mathematics content knowledge and sound pedagogical practices. Content of this week-long institute includes the development of counting and cardinality for primary students, place value across elementary grades, the development of operations with whole numbers, fractions, and decimals, strategies for working with adult learners, supporting change in the classroom, technology resources for learning, and formative assessment resources. The institute identifies strategies that will increase leaders’ expertise as they plan professional development for K-6 teachers, identify resources, support change in classroom practices, and guide local implementation of state standards.

Outstanding educators will collectively provide this professional development: Dr. Dorothy White is Associate Professor of Mathematics Education at University of Georgia. A nationally recognized researcher and expert in elementary education, White’s research focuses on culture and equity in mathematics teacher education and collaborative planning in professional learning communities. Former President of the North Carolina Council of Teachers of Mathematics, Wendy Rich is the Director of Elementary Curriculum in Asheboro City Schools. She served on the Advisory Board of the TEAM II project and has been a member of n NCTM Editorial Panel. Amanda Northrup is a blogger and is well-known throughout North Carolina for her professional development related to technology. She is currently a fifth grade teacher in Haywood County Schools. Carol Midgett is an experienced coach and facilitator for the Lenses on Learning programs, both elementary and secondary, and was the Co-Director of TAP Math. Midgett serves on the Advisory Board of the North Carolina Science, Mathematics, and Technology Education Center. Both Midgett and Northrup are recipients of the Presidential Award for Excellence in Mathematics and Science Teaching, the nation's highest honor for teachers of mathematics and science. Dr. Katie Mawhinney is Professor of Mathematics at Appalachian State University. An author for the Partners and TAP Math projects, Mawhinney is also a consultant for the Appalachian Mathematics Project (AMP), a Mathematics-Science Partnership project. Ana Floyd is the K-5 Lead Teacher for Elementary Science and Mathematics in Randolph County Schools. She was a member of the TEAM Project, funded by the National Science Foundation. Mawhinney, Rich, and Floyd along with MMSI Director Jeane Joyner are authors of the JUMP START series, formative assessment materials created for the National Council of Supervisors of Mathematics and the Association of Mathematics Teacher Educators.