

Resources 5 4 3 2 1

Some of the favorite resources from MESPA 2014 presenters that may help you expand your leadership of mathematics.

5 – Key Books

***Solving for Why: Understanding, Assessing, and Teaching Students Who Struggle with Math* by John Tapper, Math Solutions, 2012. www.mathsolutions.com.** This book summarizes some of the reasons students struggle in mathematics and includes assessment and instructional resources while arguing that understanding and thinking about learning is a far better approach than rote procedural learning of mathematics.

***5 Practices for Orchestrating Productive Math Discussions* by Margaret S. Smith & Mary Kay Stein. NCTM & Corwin Press, 2011. www.nctm.org**

A book that lists 5 practices (anticipating, monitoring, selecting, sequencing, connecting) that strengthen math discussions in the classroom and more strongly highlight the mathematics involved to focus student learning of key concepts. A short but powerful read.

***Accessible Mathematics: 10 Instructional Shifts That Raise Student Achievement* by Steven Leinwand (Heinemann.com) <http://www.heinemann.com/products/E02656.aspx>**

Short essays on a particular instructional strategy suitable for PLC or staff meeting discussions. Each Instructional Shifts ends with a “So what should we see in an effective mathematics classroom” section, summarizing that strategy. See also the “Accessible Mathematics Reflection Template” (available on either the MCTM or SciMathMN Frameworks websites) to help you guide staff discussions of each of the 10 instructional shifts.

***Helping Children Learn Mathematics and Adding It Up*. National Academies Press. www.nap.edu.**

Helping Children Learn Mathematics is a short summary of the National Research Council’s extensive report *Adding it Up* which is a meta analysis of the research about learning number concepts. It is a helpful desktop reference about the research on children learning mathematics and great to have at your fingertips. Both resources can be read online for free. A “Study Guide” for *Helping Children Learn Mathematics* is available on either the MCTM or SciMathMN Frameworks websites within the MESPA resources.

***Math Solutions*, www.mathsolutions.com,** is one of our favorite sites for teachers or for professional development. This company has produced books, videos, and other resources that can help you structure professional development in mathematics. A few of our favorites include *Solving for Why* (see #1), *Number Talks: Helping Children Build Mental Math and Computation Strategies*, and *Supporting English Language Learners in Math Class* (especially for teacher pd), *Leading the Way: Principals and Superintendents Look at Math Instruction* (especially to help with administrators who are in a coaching role), *Faster Isn’t Smarter: Messages about Math, Teaching and Learning in the 21st Century* (suitable for administrator, teacher and parent/community discussions).

4 – Make a team of 4 to attend a thought-provoking symposium

Make plans to attend the daylong **MCTM Symposium on May 1, 2014** led by mathematics educator **Cathy Seeley**. Dr. Seeley is a former NCTM President, Peace Corps volunteer, State Director of Mathematics for Texas and Senior Fellow of the Dana Center, University of Texas. She is an engaging and thought provoking facilitator. This day is organized for teams to attend and work together and gives you the opportunity to

hunker down with a team from your school (any number of participants) to talk about the mathematics achievement of your students. The symposium precedes the annual meeting of the Mathematics Council of Teachers of Mathematics (MCTM) in Duluth and requires separate registration. More information and registration information available at <http://www.mctm.org/symposium.php>

Dr. Seeley has written several short essays on mathematics education in her book, *Faster Isn't Smarter: Messages about Math, Teaching and Learning in the 21st Century*. Each essay concludes with differentiated reflection and discussion questions for teachers, families, and leaders/policymakers. The following essays are available online and would make good staff discussion activities prior to the symposium or may be useful resources for any discussions of mathematics that you have planned.

- “Faster Isn't Smarter” http://www.mathsolutions.com/documents/9781935099031_message18.pdf
- “Chrystal's Calculator” http://www.mathsolutions.com/documents/9781935099031_message30.pdf
- “Balance is Basic” http://www.mathsolutions.com/documents/9781935099031_message14.pdf
- “Constructive Struggle” http://www.mathsolutions.com/documents/9781935099031_message17.pdf
- “A Math Message for Families”
http://www.mathsolutions.com/documents/9781935099031_message27.pdf

3 – People/Organizations to Follow on Twitter

Twitter can be a quick way to tie into some PD for a wide audience. Following a few key people or organizations in mathematics can connect you to a variety of resources to help you lead your staff.

@MNmath4all

This group of Minnesota District Math Leaders tweets messages especially connected to mathematics in Minnesota.

@NCTM

The National Council of Teachers of Mathematics is the professional group for teachers and is a great resource for math leaders

@Trianglemancsd

Christopher Danielson is a Minnesota expert on how K-12 students learn mathematics. He is on the faculty at Normandale Community College and writes reflective, engaging thoughts on mathematics learning.

2 – Free Apps

- MyScript Calculator. Use your fingers to write $3 + 4$ and watch what happens. Better yet, use your fingers to write $5 + 3 = 9$ and watch what the MyScript Calculator does.
- NCTM Illuminations site, <http://illuminations.nctm.org/> has several apps within the activities on this searchable site.

1 – Free Curriculum Materials Resource

Fractions are one area where key misconceptions cause students to struggle and holds them back from opportunities in learning other math concepts. Check out the Rational Number Project materials at <http://www.cehd.umn.edu/ci/rationalnumberproject/rnp1-13-grade3.html> for use as a supplement or replacement of the fraction lessons in your curriculum materials. This is a strong research based curriculum material from research done by Kathleen Cramer, Tom Post and Terry Wyberg at the University of Minnesota.