Spring 2012 MTI Courses
Spring 2012 Mathematical Thinking for Instruction (MTI) courses are beginning soon. If you or someone in your district needs to take the class, use this opportunity to sign up.

Go to the SDE MTI website for schedule and registration information: www.sde.idaho.gov/site/math/mti.htm

Summer 2012 MTI Courses
Registration will open at 8:00 AM (MST) or 7:00 AM (PST) on April 2nd for Summer 2012 courses.

To contact Nichole Hall at the State Department of Education about the MTI course, email nhall@sde.idaho.gov. To contact a Regional Math Specialist through IDMT, refer to your region below for email addresses.

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It is not what is poured into a student that counts, but what is planted.

- Linda Conway

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The Structure of Mathematics

When teachers and their students focus on the structure of mathematics, they examine the broad concepts, or structural components, that underlie and connect the entirety of mathematics. An example of a structural component emphasized in the MTI class is decomposing. The following examples provide potentially useful decompositions for whole numbers, fractions and algebraic expressions in terms of operations and solving problems.

\[
\begin{align*}
7 & + 8 \\
& \frac{3}{5} \\
7 & + 3 + 5
\end{align*}
\]

\[
\begin{align*}
\frac{1}{2} & + \frac{1}{4} \\
& \frac{1}{4} \frac{1}{4} \\
\frac{1}{4} & + \frac{1}{4} + \frac{1}{4}
\end{align*}
\]

\[
\begin{align*}
3y & \\
& y y y
\end{align*}
\]

In the classroom, focusing on the structure of mathematics is exemplified by selecting problems that address big mathematical concepts and asking students why strategies, procedures, and models work and how they are related.

For example, when students use an array to develop derived facts for multiplication, they develop an understanding of mathematical properties that will appear throughout their math careers (see figure below). The same properties will help them develop efficient models and algorithms for whole number, fraction, and decimal multiplication, write algebraic expressions, and solve equations.

The structure of mathematics is missing when lessons focus on rote memorization (e.g. chanting facts) or treat topics in isolation (e.g. approaching division with decimals and with whole numbers as two unrelated skills). If the overarching structure of mathematics is ignored, students see mathematics as a series of skills to be memorized. When students learn mathematics with a focus on its structures, they are better able to apply and extend concepts to new mathematical topics and new contexts.

\[
7 \times 6 = 5 \times 6 + 2 \times 6
\]

The Five Big Ideas

At the classroom level, the implementation of the five critical instructional practices changes the look of typical classroom math instruction.

1. **Take students’ ideas seriously,**
2. **Press students conceptually,**
3. **Encourage multiple strategies/models**
4. **Address misconceptions**
5. **Focus on the structure of mathematics**

For this newsletter, we are focusing on the structure of mathematics. Look for the other big ideas addressed in upcoming issues of MTI Update.
A webinar is a seminar or workshop that is presented over the internet. During the webinar, you are able to interact with the instructor and other participants. The purpose of these webinars is to provide follow-up for the MTI course and when appropriate the Common Core State Standards. The webinars will also be archived to be accessible at a later date.

Before the webinar, make sure that your computer has the capability to run the software needed to participate. The email invitation to attend will include information describing minimum computer requirements. In addition, you will be informed on how the audio portion will be conveyed, which could be on the internet (you need speakers and microphone or a computer connected headset) and/or via telephone. If by phone, it will indicate how to use the conference call service (meaning toll free for you).

**Ways to Participate:**

- **Group** - This is the best way to participate in the webinar. The group could be grade level teams, cross grade-level teams, and/or teams from your district. You will need to establish a group leader. They will be the contact person who will enroll in the webinar and receive all of the documents and information.

- **Individual** - You are welcome to participate on your own, but the webinars are designed to be conducted in a group setting.

- **Miss a presentation?** You may view the archived webinar and accompanying resource materials. You can watch and listen to the presentation, questions, and discussion as it happened in the live webinar. The archive of the webinar will be available within two weeks of the webinar broadcast at: [http://tinyurl.com/mtifollowup](http://tinyurl.com/mtifollowup)

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**Spring 2012 Webinars**

- **January 19th** 5:00-6:00 (MST); 4:00-5:00 (PST)  
  Composing and Decomposing Numbers, K-6th  
  [Click here to Enroll](#)

- **January 30th** 5:00-6:00 (MST); 4:00-5:00 (PST)  
  Progression of Addition Models and Strategies in the CCSS, K-6th  
  [Click here to Enroll](#)

- **February 16th** 5:00-6:00 (MST); 4:00-5:00 (PST)  
  Ratio and Proportional Reasoning, 6th-8th  
  [Click here to Enroll](#)

- **February 22nd** 5:00-6:00 (MST); 4:00-5:00 (PST)  
  Multiplication: Strategies, Models, Context & the CCSS, 3rd-6th  
  [Click here to Enroll](#)

- **February 24th** 5:00-6:00 (MST); 4:00-5:00 (PST)  
  Addition: Strategies, Models, Context & the CCSS, K-3rd  
  [Click here to Enroll](#)

- **March 13th** 5:00-6:00 (MST); 4:00-5:00 (PST)  
  Expressions and Equations, 6th-8th  
  [Click here to Enroll](#)

- **March 21st** 4:45-5:45 (MST); 3:45-4:45 (PST)  
  Division: Strategies, Models, Context & the CCSS, 3rd-6th  
  [Click here to Enroll](#)

- **April 13th** 5:00-6:00 (MST); 4:00-5:00 (PST)  
  Subtraction: Strategies, Models, Context & the CCSS, K-3rd  
  [Click here to Enroll](#)

- **April 18th** 4:45-5:45 (MST); 3:45-4:45 (PST)  
  Mathematics Instructional Practices, K-8th  
  [Click here to Enroll](#)
Region V and VI Follow Up Workshops

Number Sense (grades 6th - 8th), 4:00 - 6:00 pm
January 26th, Idaho Falls School District

Fluency with Numbers (kinder - 5th), 4:30 - 6:30
February 2nd, Pocatello School District

Measurement (kinder - 5th), 4:30 - 6:30
March 8th, Pocatello School District

Spatial Reasoning (kinder - 3rd), 4:30 - 6:30
April 26th, Pocatello School District

The MTI follow up workshops are available to districts, schools and teachers who are interested in implementing the ideas and information from the MTI course. These can be done after school or during a district or school in-service time. If a school or district requests a workshop, we ask that they guarantee that a minimum of 15 people will be in attendance from their school or district. In addition, for all after school workshops, we will post the workshop information on our MTI follow up website. This will allow interested teachers and administrators from surrounding schools and districts to attend the workshop as well. Thank you for your interest in providing MTI follow up support.

Please contact your Regional Math Specialist, Karin Moscon, to register for a workshops or to discuss scheduling a workshop in your school or district
karinmoscon@boisestate.edu

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Visit Us on the Web!

DMT Website:
dmt.boisestate.edu

SDE MTI Website:
sde.idaho.gov/site/math/
mti.htm

Region V and VI Follow Up Workshops

2012 Region V and VI Common Core Support Math Initiative Conference

On May 3rd in Idaho Falls and on May 4th in Pocatello, IDMT personnel will present sessions on MTI course ideas and integration with the Common Core State Standards. In addition several other related presentations on the Idaho Math Initiative will be conducted.

While the conference is still in the planning stages, the goal is to help build teachers, schools, and districts understanding of the Common Core State Standards and how various aspects of the Math Initiative supports their implementation.

The conference is sponsored by the State Department of Education (SDE). More information regarding the location, who should attend, and agenda will be available soon on the SDE website:
http://www.sde.idaho.gov/site/math/

Good teaching is more a giving of right questions than a giving of right answers. - Josef Albers