

Upcoming Workshop Opportunities

For information about HCESC workshop opportunities, click on the green [LINK](#) above.

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Click on "[The Standards](#)" to download your own PDF version.

Contact Us by Email

[Gale Jorgensen](#)

[Dana Mossor](#)

[Christina Sherman](#)

Common Core Standards - What's happening now?



Mathematics Common Core State Standards and Model Curriculum

The State Board of Education has adopted the Common Core State Standards in English Language Arts and Mathematics as well as the revisions to Ohio's academic content standards in science and social studies. The standards will be effective when newly aligned assessments are implemented in 2014-2015.

The documents below summarize the relationship between the 2001 Ohio Academic Content Standards in Mathematics and the 2010 Common Core State Standards for Mathematics. Click on the links to open the documents.

- [K-8 Mathematics Academic Content Standards Crosswalk](#) (PDF)
- [High School Mathematics Academic Content Standards Crosswalk](#) (PDF)

Resources

The following documents are for districts and teachers to use as tools for better understanding of the Common Core State Standards. Click on the links below to open the documents.

- [CCSS: Standards for Mathematical Practice](#) (PDF)
- [Learning Progressions](#) (PDF)
- [What Should Districts Be Doing?](#) (PDF)



ODE has recently posted the drafts of the Model Curriculum (for all subject areas). The math at this draft can be accessed by clicking [here](#). Educators should have the opportunity to react to these soon... remember the model curricula are scheduled to be adopted by the board in March.

NCTM Implementation Support and Joint Task Force

A joint task force representing the Association of Mathematics Teacher Educators (AMTE), the Association of State Supervisors of Mathematics (ASSM), the National Council of Supervisors of Mathematics (NCSM), and the National Council of Teachers of Mathematics was formed to develop actions and resources needed to help teachers implement the Common Core State Standards in Mathematics (CCSSM).



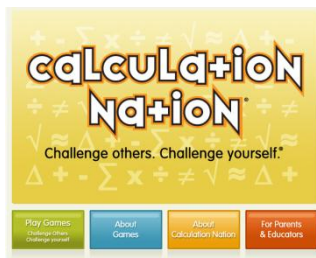
The adoption of the Common Core State Standards for mathematics could have significant implications for teachers. NCTM has prepared [a PowerPoint presentation](#) to inform teachers and to support them in implementation of the Common Core Standards. Other presentations for grade bands are under development and will be made available soon.

60th OCTM Annual Conference: Report

On Oct. 13-16, 2010, ODE presented multiple sessions during the 60th Annual Ohio Council of Teacher of Mathematics Conference: Polymers to Polygons in Akron, Ohio. Many of the presentations addressed implications of the Common Core State Standards, including implications by specific grade bands and implications for assessment. Click on the links below to view the PowerPoint presentations given by ODE at this conference.

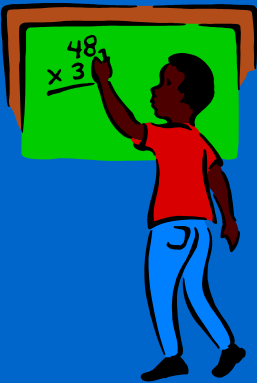
- [Ohio's New Assessment System](#) (PPT)
- [Current Trends in Education](#) (PPT)
- [The Common Core State Standards: What do they mean for Ohio?](#) (PPT)
- [Common Core Implications for Grades K-2](#) (PPT)
- [Common Core Implications for Grades 3-5](#) (PPT)
- [Common Core Implications for Grades 6-8](#) (PPT)
- [Common Core Implications for High School](#) (PPT)
- [Common Core State Standards Implications for Higher Education and Pre-Service Teachers](#) (PPT)

Technology Corner - Calculation Nation (from NCTM)



Calculation Nation[®] uses the power of the Web to let students challenge opponents from anywhere in the world. At the same time, students are able to challenge themselves by investigating significant mathematical content and practicing fundamental skills, ranging from multiplication to adding algebraic like terms. The element of competition adds an extra layer of excitement.

“The games on Calculation Nation[®] provide an entertaining environment where students can explore rich mathematics,” said Jim Rubillo, Executive Director of the National Council of Teachers of Mathematics (NCTM). “Through these games, students are exposed to the same mathematical topics that they see in class as well as those that are recommended in *Curriculum Focal Points*.” Calculation Nation[®] is part of the NCTM **illuminations** project, which offers Standards-based resources that improve the teaching and learning of mathematics for all students. Its materials illuminate the vision for school mathematics set forth in NCTM’s *Principles and Standards for School Mathematics* and *Curriculum Focal Points*.



Brain-Based Research

Source: [How the Brain Learns Mathematics](#) by David Sousa

Teachers want their students to remember what they have learned in class. But this is not often the case. The more teachers know about the memory systems, the more likely they are to plan lessons that will result in greater retention.



There are two types of temporary memory, immediate and working.

1) Immediate Memory

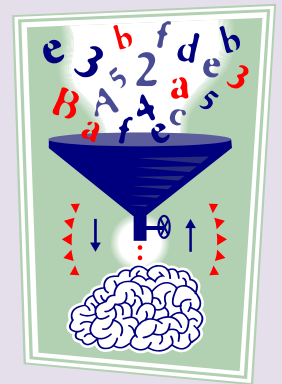
- Is a place where information is put briefly until we make a decision on how to dispose of it.
- Holds data for up to about 30 seconds.
- An individual's experience determines the importance of the information. If there is little or no importance within this time frame, it drops out of the temporary memory system.

2) Working Memory

- Is a place of limited capacity where we can rework ideas for disposal or storage somewhere else.
- Can only handle a few items at once (two - seven) depending on learner's age.
- Items are only held for a limited amount of time:
 - Pre-adolescents approximately 5 – 10 minutes
 - Adolescents approximately 10 – 20 minutes
- For focus to continue, there must be some change in the way the learner is dealing with the item. In other words, teacher must vary the way a learner is getting and working with the information.
- Uses two criteria to decide which information gets stored, sense and meaning.

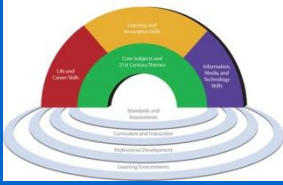
The **implications** of these memory systems are clear.

- 1) Less information is more.
- 2) Shorter is better.
- 3) A lesson must contain state changes for the learner to deal with the information.
- 4) For new learning to be retained, the learner must be given adequate time to process and reprocess the information (called rehearsal). Providing sufficient time to make sense of the information, elaborate on the details and assign value and relevance significantly increases the chance of retention.



Next Newsletter: Long-Term Memory





21st Century Student Outcomes

Download the *Full Skills Definition Document* [here](#)

21st Century Lesson Links:

K-2: My Pet In this lesson, students develop and use spatial relationships and spatial memory by creating a map of a pet. The students use visual and spatial skills, measure with nonstandard units, and describe "trips" around their pet using directional and positional words.

3-5: Building A Box Emma, a new employee at a box factory, is supposed to make cube-shaped jewelry boxes. Students help Emma determine how many different nets are possible and then analyze the resulting cubes.

6-8: Touchdown Decisions First, it shows that the assumptions that coaches make at fourth down aren't necessarily correct. And second, it challenges the common public assumption that successful football coaches know which decisions are best for the team.

9-12: Making Sense of Percent Concentrations These activities guide students through a rich exploration of percent concentration using both tactile experiences and real-world applications. Students predict, model, and generalize their conjectures about percent concentrations.

21st Century Skills -

Source: [Partnership for 21st Century Skills](#)



The focus for this newsletters 21st century skill is Thinking and Problem Solving.

Learning Skills for	21 st Century Skills	21 st Century Tools
Thinking and Problem Solving	Critical Thinking and Systems Thinking <i>Use logical reasoning skills. Becoming numerate. Skillful in using various Problem-Solving strategies.</i>	Word processing software, manipulatives, calculators, graphing calculators, spreadsheet software, and geometry tools.
	Problem Identification, Formulation and Solution <i>Ability to identify, analyze, and solve problems.</i>	Manipulatives, calculators, graphing calculators, Smart Boards, presentation software.
	Creativity and Intellectual Curiosity <i>Develop and communicate ideas to others.</i>	Digital cameras, laptop computers, multimedia presentation software, graphing calculators, probes/CBRs, Website development software

	4th grade	8th grade	12th grade
SAMPLE Student Outcomes	<ul style="list-style-type: none"> Apply a variety of age-appropriate strategies to solve simple open-ended problems with real-life applications, such as comparison shopping, time-distance, or measurement and proportion problems. Use word processing or online forums to record journal entries of their math experiences. Use presentation software to share their problem-solving strategies. 	<ul style="list-style-type: none"> Solve problems using computation, customary and metric measurements, scale factors, ratios, and proportions Create graphical representations of data using graphing calculators and spreadsheets. 	<ul style="list-style-type: none"> Employ more complex problem-solving methods to develop a deeper understanding of mathematics, such as simulating a construction project (within certain material & budget constraints). Formulate, approach, and solve problems beyond those studied using a variety of problem-solving tools such as graphing calculators, probes, GPS, and geometry tool software.

The Ohio Resource Center has a great resource, **Technology Treasure Trunk**, to help find lessons that address Thinking and Problem Solving.



Like a trunk in an attic, the chart below contains teaching treasures in the form of ORC instructional and content resources. Remember, ORC instructional resources are peer-reviewed best practice and promising practice lessons that support standards-based learning and the appropriate use of technology.





To find treasures, click on a section of the chart to select a technology and a grade band (preK-4, 5-7, 8-10, or 10-12). Each section opens to a mini-collection—a small set of carefully selected ORC resources—further organized, when appropriate, by specific technologies, ORC resource types, standards alignment, or mathematical content. Happy treasure hunting!

	PreK-4	5-7	8-10	11-12
Applets				
Calculators (graphing)				
Calculators (nongraphing)				
Dynamic geometry software				
Spreadsheets				

Other Math Links and information:

Greater Cincinnati Council of Teachers of Mathematics

Ohio Council of Teachers of Mathematics



Math At A Glance

Professional Development Opportunities:

Register: www.hcesc.org Click on PD events



NCTM E-workshops

- Two 90-minute sessions deliver **3 hours of Standards-based content**
- **No travel** required
- **One low rate** for an entire group; \$179



OCTM 2011 Conference: Toledo, Ohio October 13-14, 2011

Are you getting information about additional learning opportunities for the math education community? If so, please send Dana or Christina the information so we can add it to our list!!