

## Constructing Foundations for Success Implications of the National Mathematics Panel Report

### Mathematics Resources on the Web

#### Resource Review and Selection Process

In selecting online resources, SECC staff considered the varied roles of institute participants and sought to provide resources that would align with these roles as well as with the recommendations of the National Mathematics Advisory Panel (NMAP). When accessing these resources, decision makers should exercise some caution, as the sites featured are not inclusive of all available Web resources regarding mathematics instruction. Further, individuals accessing these resources should heed the findings of the National Mathematics Panel's Subcommittee on Standards of Evidence. After reviewing hundreds of studies, the subcommittee determined that most failed to meet scientific standards of quality by failing to allow inferences about causation (NMAP, 2008). In instances in which the research base was absent or insufficient, the panel made recommendations based on "collective professional judgment" (NMAP, 2008, p. 12).

The panel recommended that, "teachers and other educational leaders use research-based interventions to help students and parents understand the vital importance of effort in learning mathematics." (National Mathematics Panel Report (NMPR, 2008, p. xx). The panel also identified that, "Children's goals and beliefs about learning are related to their mathematics performance," (NMPR, 2008, p. xx), "a major research finding is that what is developmentally appropriate is largely contingent on prior opportunities to learn," (NMPR, 2008, p. xx) and ". . . the mathematical knowledge that kindergarteners bring to school is related to their mathematics learning for years thereafter..." (NMPR, 2008, p. xviii). In an effort to support state education agencies in providing technical assistance to local education agencies in addressing these findings, SECC staff have included web-based resources for students' families in the Mathematics Resources on the Web list.

Upon review of mathematics resources from a number of education and instructional resources organizations—Illinois Early Learning Project, University of Illinois, Math and Parent Partnerships (MAPPS), University of New Mexico, National Council for Teachers of Mathematics (NCTM), National Education Association (NEA), and SEDL—SECC program associates who have expertise in family involvement and mathematics, selected for inclusion the following free online resources, which also were reviewed by the NMPR Institute Planning Committee.

#### Mathematics Resources for Educators, Decision Makers, and Families

##### National Mathematics Panel Report (NMPR) Video Webcast

[www.connectlive.com/events/nationalmathpanel062308](http://www.connectlive.com/events/nationalmathpanel062308)

This site provides an overview of the National Mathematics Panel's final report. The archived video webcast is accessible in RealPlayer and Windows Media Player formats.

##### Access Center Math Resources

[www.k8accesscenter.org/training\\_resources/math.asp](http://www.k8accesscenter.org/training_resources/math.asp)

Developed by the U.S. Department of Education (ED), this site focuses on improving outcomes for students in grades K–8. It offers research-based articles, suggestions, and external links for supporting struggling students' access to mathematics curricula and successful mastery of mathematical concepts.

**Best Evidence Encyclopedia (BEE) Program Reviews**

[http://www.bestevidence.org/math/elem/elem\\_math.htm](http://www.bestevidence.org/math/elem/elem_math.htm)

[http://www.bestevidence.org/math/mhs/mhs\\_math.htm](http://www.bestevidence.org/math/mhs/mhs_math.htm)

Similar to the WWC site, BEE provides scientific reviews of educational programs. Links to reviews of elementary and secondary mathematics programs include analysis of mathematics curricula, computer-assisted instruction, and instructional process programs. At all levels, programs centered on the instructional process yielded the greatest positive effects in terms of increased student achievement.

**Doing What Works**

[dww.ed.gov/index.cfm](http://dww.ed.gov/index.cfm)

At this site, visitors can link to the mathematics and science sections for videos, recommended practices, and planning templates around two key components of NMPR: major topics of school algebra and critical foundations for algebra.

**Eisenhower National Clearinghouse**

[www.goENC.com](http://www.goENC.com)

Previously funded by ED, Eisenhower National Clearinghouse (ENC) has moved to a subscription service but continues to offer more than 27,000 print and multimedia curriculum resources for both mathematics and science.

**Figure This!**

[www.figurethis.org](http://www.figurethis.org)

This site for parents developed by the National Council for Teachers of Mathematics (NCTM) has activities for grades 5–10. Click on “Take a Challenge” and work one of the problems. The answers are there, but before you peek, try doing the mathematics. It is the process to the answer, not the answer that will make our children strong mathematically.

**From Arithmetic to Algebra**

[www.ascd.org/publications/educational\\_leadership/nov07/vol65/num03/From\\_Arithmetic\\_to\\_Algebra.aspx](http://www.ascd.org/publications/educational_leadership/nov07/vol65/num03/From_Arithmetic_to_Algebra.aspx)

This article from the November 2007 issue of *Educational Leadership* discusses the critical need for mathematics teachers across the grade levels to provide high-quality instructional practices in mathematics, especially algebra. The authors offer several concrete illustrations of how teachers with sound content knowledge can employ basic instructional practices to help promote algebraic understanding through the teaching of arithmetic. Yes, even kindergarten teachers can begin building connections to algebra and help develop their students’ abilities to think algebraically.

**Illinois Early Learning Project**

[ecap.crc.uiuc.edu/cgi-bin/iel/searchiel.cgi](http://ecap.crc.uiuc.edu/cgi-bin/iel/searchiel.cgi)

This Web page contains a variety of tips for parents and educators of preschoolers including things to do while you are waiting, learning about coins, and measurement.

**Illuminations: Resources for Teaching Math**

[illuminations.nctm.org](http://illuminations.nctm.org)

The NCTM has also developed this new Web page with standards-based activities and links to sites that have been reviewed by a panel of experts. The links and activities on this site can keep you and your child doing high-quality mathematics for hours on end.

**Progress Monitoring in Mathematics**

[www.studentprogress.org/library/Webinars.asp#math](http://www.studentprogress.org/library/Webinars.asp#math)

In this archived webinar from the National Center on Student Progress Monitoring, Dr. Pamela Stecker discusses administration and scoring procedures for Curriculum-Based Measurements (CBMs) in mathematics, graphing scores, and setting trend and goal lines for progress monitoring.

**School Discovery Education**

[www.school.discoveryeducation.com/homeworkhelp](http://www.school.discoveryeducation.com/homeworkhelp)

This site contains videos to help children master the basics of numbers and number operations in the areas of addition, subtraction, multiplication, and division.

**Texas Instruments Math**

[www.timath.com](http://www.timath.com)

Texas Instruments' Web site includes links to graphing calculator activities for algebra, geometry, calculus, and statistics. Previous activities are archived and may be searched by content area.

**The Math Forum @ Drexel**

[mathforum.org](http://mathforum.org)

The Math Forum has been dedicated to improving math teaching, learning, and communication since 1992. Its offerings include professional development activities, problems of the week, Ask Dr. Math, and a library of technology tools, lessons, activities, and materials for both teachers and learners.

**The NCTM's Family Corner**

[www.nctm.org/resources/families.aspx](http://www.nctm.org/resources/families.aspx)

Visit this site for great links to parent resources including homework help and information about how the mathematics your child is learning likely differs from the way you were taught.

**Other Web Sites**

[www.kids.aol.com/homework-help/math](http://www.kids.aol.com/homework-help/math)

[www.aplusmath.com/Homework\\_Helper](http://www.aplusmath.com/Homework_Helper)

[www.factmonster.com/homework/hwmath.html](http://www.factmonster.com/homework/hwmath.html)

Try Googling the following for even more online mathematics resources: Coolmath • Puzzles & Problems • Gnarly Math™ • Parents' Place • Kids' Place • Mathletics! • The Games • Mathematics Lessons that are fun! fun! fun! • Hands-on Math: Activities for the Elementary Classroom • Purplemath – Your Algebra Resource • Edinformatics: Education for the Information Age.