
FACILITATOR SUPPORT: SELECTED REFERENCES

BRYANT, DEBORAH AND MARK DRISCOLL. 1998. *EXPLORING CLASSROOM ASSESSMENT IN MATHEMATICS: A GUIDE FOR PROFESSIONAL DEVELOPMENT*, co-published by National Council of Teachers of Mathematics (NCTM) and the Association of Supervision and Curriculum Development (ASCD). 59pp. ISBN 0-87353-438-7 NCTM Item #672, \$17.95

The authors present an assessment framework that helps teachers obtain accurate and relevant data about what students know and are able to do in mathematics. The framework guides teachers through steps including how to plan sound assessments, make better observations, and develop tasks and rubrics that yield results.

DRISCOLL, MARK AND DEBORAH BRYANT. 1998. *LEARNING ABOUT ASSESSMENT, LEARNING THROUGH ASSESSMENT*. National Academies Press. Available as a print-on-demand document on the Web at <http://www.nap.edu/catalog/6217.html>.

This book presents ways to assist teachers in learning about assessment and how student work can be used as a rich resource in professional development.

EISENHOWER NATIONAL CLEARINGHOUSE (ENC). 1998. *IDEAS THAT WORK: MATHEMATICS PROFESSIONAL DEVELOPMENT*. The Ohio State University. Call (800) USA-LEARN for copies, or contact ENC, 1929 Kenny Road, Columbus, OH 43210-1079. (800) 621-5785; info@enc.org and <http://www.enc.org>

This handbook provides fifteen strategies for professional development which can be used to expand the repertoire of professional development beyond typical experiences offered to teachers. The principles, design framework, and strategies for professional development described in this publication are elaborated in *Designing Professional Development for Teachers of Science and Mathematics, 2nd Edition* by Loucks-Horsley, S., N. Love, K.E. Stiles, S. Mundry, and P.W. Hewson. 2003. Thousand Oaks, CA: Corwin Press.

GUSKEY, THOMAS R. FALL 1998. "THE AGE OF OUR ACCOUNTABILITY" IN *JOURNAL OF STAFF DEVELOPMENT*, National Staff Development Council, volume 19, number 4.

This reader-friendly article discusses why we must evaluate professional development activities, the importance and difficulty of gathering evidence and guidelines for doing so.

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KILPATRICK, JEREMY, J. SWAFFORD, AND B. FINDELL, (EDS.) 2001. *ADDING IT UP: HELPING CHILDREN LEARN MATHEMATICS*. Mathematics Learning Study Committee, National Research Council. 480 pages. ISBN 0-309-06995-5. Hardback \$29.95. Also available as a pdf book (ISBN 0-309-50524-0, \$18.00), or pdf chapters (ISBN 0-309-50525-9, \$2.50 each) See also <http://www.nap.edu/books/0309069955/html>.

Adding It Up explores how students in pre-K through 8th grade learn mathematics and recommends how teaching, curricula, and teacher education should change to improve mathematics learning during these critical years. The committee identifies five interdependent components of mathematical proficiency and describes how students develop this proficiency. With examples and illustrations, the book presents a portrait of mathematics learning; research findings on what children know about numbers by the time they arrive in pre-K and the implications for mathematics instruction; and details on the processes by which students acquire mathematical proficiency with whole numbers, rational numbers, and integers, as well as beginning algebra, geometry, measurement, and probability and statistics. The committee discusses what is known from research about teaching for mathematics proficiency, focusing on the interactions between teachers and students around educational materials and how teachers develop proficiency in teaching mathematics.

THE NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS — NAEP: THE NATION'S REPORT CARD

The *National Assessment of Educational Progress* (NAEP) is mandated by Congress to survey the educational accomplishments of U.S. students and to monitor changes in those accomplishments. For over 30 years, NAEP has been collecting data with the aim of providing accurate and useful information to educators and policy makers. NAEP assesses student achievement at grades 4, 8, and 12 in various subject areas, including mathematics, science, reading, writing, history/geography, and other fields and provides results for 40 or more states. NAEP has been tracking U.S. progress in academic achievement since 1969 and began providing state-level as well as national mathematics achievement results in 1990. Mathematics assessments were conducted in 1992, 1996, 2000, and 2003.

For more information, visit the NAEP website at <http://nces.ed.gov/> or contact National Center for Education Statistics, 555 New Jersey Ave., NW, Washington, DC 20208-5653. (202) 219-1690.

The NAEP Guide: A Description of the Content and Methods of the 1999 and 2000 Assessments

The purpose of this NAEP Guide is to provide an overview of the scope of the project and to increase the understanding of the philosophical approach, procedures, analysis, and psychometric underpinnings of the NAEP design. This Guide also acquaints readers with NAEP's informational resources, demonstrates the appropriateness of NAEP's design to its

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role as indicator of national educational achievement, and describes some of the methods used in the 1999 and 2000 assessments.

Available at <http://nces.ed.gov/nationsreportcard/pubs/guide/2000456.asp>

NAEP Released Mathematics Items

Actual test questions from the assessment, both multiple-choice and constructed-response questions, are available on the Web at

<http://nces.ed.gov/nationsreportcard/itmrls>

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS (NCTM)

The National Council of Teachers of Mathematics (NCTM) is a professional organization for mathematics educators. The mission of NCTM is to provide vision and leadership in improving the teaching and learning of mathematics so that every student is ensured an equitable standards-based mathematics education and every teacher of mathematics is ensured the opportunity to grow professionally. NCTM was the first professional organization to develop and release standards to raise student expectations for school mathematics in 1989. Since their release, most states have adopted standards and, between 1992 and 1996, test scores at grades 4, 8, and 12 on the National Assessment of Educational Progress reflect one grade level of improvement in performance.

For more information, visit the NCTM website at <http://www.nctm.org> or contact: National Council of Teachers of Mathematics (NCTM), 1906 Association Drive, Reston, VA 20191-1502. (703) 620-9840; fax (703) 476-2970

NCTM Curriculum and Evaluation Standards for School Mathematics. 1989.

The original set of standards was designed to establish a broad framework to guide reform in school mathematics and to give a vision of what content priority and emphasis the mathematics curriculum should include. The 54 standards describe the curriculum in terms of content priority and emphasis in four groups: one set each for grades K-4, 5-8, and 9-12, and one set for evaluating math programs and student achievement. Also available in Spanish. 1989. 258 pp. ISBN 0-87353-273-2, stock #396, \$32.95

Principles and Standards for School Mathematics. 2000.

Principles and Standards updates the messages of NCTM's previous *Standards* and shows how student learning should grow across four grade bands — pre-K-2, 3-5, 6-8, and 9-12. It incorporates a clear set of principles and an increased focus on how students' knowledge grows as shown by recent research. It also includes ways to incorporate the use of technology to make mathematics instruction relevant and effective in a technological world. *Principles and Standards* is available over the Web, as a book, and on a CD-ROM. The CD-ROM extends the messages of *Principles and Standards* and includes downloaded

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versions of the *E-Standards* and Illuminations Web sites. The *E-Standards* site provides the searchable full text and graphics of *Principles and Standards* along with electronic examples for each grade band, with interactive applets and classroom videos. The Illuminations site offers numerous technology-rich, teacher-ready projects and lessons that illuminate *Principles and Standards* at each grade band, classroom videos, and links to reviewed Internet resources. 2000. 402 pp., ISBN 0-87353-480-8, Stock #719, \$49.50. For more information or for a preview, visit standards.nctm.org or call (703) 620-9840.

A Research Companion to Principles and Standards, edited by Jeremy Kilpatrick, W. Gary Martin, and Deborah Schifter, presents the research relevant to topics covered in the *Principles and Standards* publication. 2003. 413 pp. ISBN 0-87353-537-5 Stock #12341, \$46.25.



PBS Mathline[®] is a teacher resource service of public television utilizing the power of telecommunications and video to provide resources and services to teachers of mathematics grades, K–12. Through participation in *Mathline*, teachers collaborate to make important decisions about their teaching.

A professional development program, the Algebraic Thinking Math Project (ATMP), has as its main purpose the promotion of thinking, dialogue and growth among teachers in grades three through eight on the topic of developing algebraic thinking in students. This project consists of: a series of video lessons which allow teachers to make “virtual visits” to classrooms where teachers and students are engaged in NCTM Standards–based instruction; printed lesson guides; and online learning communities which provide teachers with a small, focused web–based conference area. The video set includes an overview on “algebraic thinking” — what it means, why it is important, what research tells us about it, and what it looks like in different classroom settings.

For more information about Mathline, visit the website at <http://www.pbs.org/teachersource/math.htm>

REGIONAL EDUCATIONAL LABORATORIES. 1998. *IMPROVING CLASSROOM ASSESSMENT: A TOOLKIT FOR PROFESSIONAL DEVELOPERS (TOOLKIT 98)*, Northwest Regional Educational Laboratory, Portland, OR.

This ready–to–use toolkit for professional developers offers two volumes of materials: one with background text and professional development training activities; the other containing supplemental resources, including sample assessment items, student work and readings.

For more information, visit the NWREL website at <http://www.nwrel.org/assessment/ToolKit98.asp>

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RUDNER, LAWRENCE M. AND W. SCHAFER, (EDS.). 2002. *WHAT TEACHERS NEED TO KNOW ABOUT ASSESSMENT*. National Education Association. NEA Professional Library Distribution Center, P.O. Box 2035, Annapolis Junction, MD 20701-2035. (800) 229-4200. 145 pp. 2074-X-00-NET, \$12.95

Going beyond the basic information on high-stakes testing and test scoring, this book also includes discussions on classroom assessment. Chapters cover topics such as writing and scoring classroom tests, developing other assessment tools, and helping students become better test takers. The National Education Association published the print version as part of their Student Assessment Series. ERIC/AE published an on-line version [pdf, 300K]. The goal of both organizations is to encourage thoughtful discussion. If you like any portion of this book, you may photocopy that portion from the print version or print that section from the on-line version (<http://www.ericae.net/books/nea/teachers.pdf>). Multiple copy discounts are also available.

SUTTON, JOHN AND A. KRUEGER, (EDS.). 2002. *EDTHOUGHTS: WHAT WE KNOW ABOUT MATHEMATICS TEACHING AND LEARNING*. Aurora, CO: Mid-continent Research for Education and Learning. (303) 337-0990, \$11.00 (quantity discounts available). See also <http://www.mcrel.org/topics/productDetail.asp?productID=33>

This publication summarizes education research and surveys of best classroom practices and offers implications for improved teaching and learning. As a tool for professional development and community engagement, EDThoughts provides mathematics educators and K-12 administrators much information addressing issues from the following topics:

- Mathematics for All
- Mathematics Teaching
- Mathematics Assessment
- Mathematics Curriculum
- Mathematics Instructional Technology
- Mathematics Learning

THE THIRD INTERNATIONAL MATHEMATICS AND SCIENCE STUDY (TIMSS)

The Third International Mathematics and Science Study (TIMSS) represents the most extensive international study of student achievement ever conducted. In 1994-95, it was conducted at three grade-level bands (3/4, 7/8, and the final year of secondary school) in 41 countries and more than 30 languages. Students were tested in mathematics and science, and extensive information about the teaching and learning of mathematics and science was collected. Altogether, TIMSS tested and gathered contextual data for more than half a million students and administered questionnaires to thousands of teachers and school principals. Also, TIMSS investigated the mathematics and science curricula of the participating countries. The TIMSS results were

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released in 1996 and 1997 in a series of reports, providing valuable information about mathematics and science instruction and student achievement.

In addition, a repeat of TIMSS (TIMSS-R) was conducted at the eighth grade in 1999. This provided countries that participated in TIMSS in 1994–95 the opportunity to monitor trends in mathematics and science achievement at the eighth grade and allows countries that did not participate in TIMSS the opportunity to compare with international benchmarks. For TIMSS 2003, the framework used in TIMSS 1995 and TIMSS 1999 was revised to reflect changes during the last decade in curricula and the ways mathematics and science are taught. In particular, the new framework provides specific objectives for assessing students at grades four and eight.

For more information, visit the TIMSS website at <http://timss.bc.edu> or contact TIMSS International Study Center, Center for the Study of Testing, Evaluation, and Educational Policy (CSTEED), Campion Hall 332, Boston College, Chestnut Hill, MA 02467. (617) 552-1600; email: timss@bc.edu

TIMSS Mathematics Items, Released Set for Population 2 (Seventh and Eighth Grades)

Available at: <http://timss.bc.edu/TIMSS1/Items.html> or order from CSTEED at the address above.

TIMSS Related Reports

The National Center for Education Statistics has a wealth of TIMSS information, including highlights of the TIMSS-R. Available at <http://nces.ed.gov/timss>

WESTED, WGBH. 2003. *TEACHERS AS LEARNERS: A MULTIMEDIA KIT FOR PROFESSIONAL DEVELOPMENT IN SCIENCE AND MATHEMATICS*. Corwin Press. Product #LI-03-02, \$399.00

Based on *Designing Professional Development for Teachers of Science and Mathematics*, this multimedia kit offers visual, first-hand examples of a variety of professional development strategies, including case discussions, study groups, coaching, immersion in content learning, and curriculum implementation that are all targeted to science and mathematics teachers. These strategies emphasize teachers as learners and how that can be translated into student learning.

The kit contains:

- Facilitator's Guide that includes an easy-to-use discussion guide for each of the 18 video programs; professional development designs for half-day to three-day sessions, and concrete strategies for using the Teachers as Learners collection
- CD-ROM with detailed facilitator's scripts, PowerPoint® presentations, activities, and masters for overhead transparencies and handouts that accompany the Facilitator's Guide
- Four videotapes consisting of 18 programs that illustrate a diverse range of professional development strategies, such as immersion in content, standards-based curriculum integration, examining practice, and collaborative work
- *Designing Professional Development for Teachers of Science and Mathematics, 2nd Edition*, a primer on professional development practice