

DOINGWHATWORKS



SAMPLE MATERIAL

Resources for Planning Problems

RMC Denver Professional Development, Colorado

Topic: Improving Mathematical Problem Solving in Grades 4 Through 8

Practice: Prepare Problems

Numerous publications and websites serve as sources of problems or tasks for problem solving. This document provides a partial list of sources that can help teachers or math coaches in planning for problem-solving instruction. In some cases, the source also suggests alignment with Common Core State Standards.

Resources for Planning Problems

NCTM Publications (<http://www.nctm.org/catalog/productsview.aspx?id=89>)

Teaching Mathematics through Problem Solving: PreKindergarten–Grade 6

Teaching Mathematics through Problem Solving: Grades 6–12

Navigating through Problem Solving and Reasoning in Grade 4

Navigating through Problem Solving and Reasoning in Grade 5

Navigating through Problem Solving and Reasoning in Grades 6-8

Reasoning and Sense-Making Problems and Activities for Grades 5-8

Figure This! Math Challenges for Families

Menu Collection: Problems Adapted from Mathematics Teaching in the Middle School by C. Patrick Collier

Other Publications

MATHCOUNTS School Handbooks (<http://secure.sportsawardsonline.com/applications/default/store/>)

The All Time Greatest Problems (MATHCOUNTS) by Patrick Vennebush and Jr. Terrel Trotter (<http://secure.sportsawardsonline.com/applications/default/store/>)

Math Olympiad Contest Problems for Elementary and Middle School by George Lenchner (<http://store.moems.org/>)

Get It Together: Math Problems for Groups, Grades 4-12 by Tim Erickson (EQUALS) (<http://www.lawrencehallofscience.org/equals/EQbkgetTog.html>)

Websites

1. National Council of Teachers of Mathematics (NCTM) Illuminations

([National Council of Teachers of Mathematics \(NCTM\): Illuminations — Resources for Teaching Math](http://illuminations.nctm.org/)
<http://illuminations.nctm.org/>)

The Illuminations website provides standards-based resources to improve mathematics instruction, including lessons, tools, and web resources designed to improve the teaching and learning of mathematics for all students. Materials include a library of activities and a collection of lessons that illuminate the vision for school mathematics put forth in standards.

2. The Math Forum (<http://mathforum.org/>)

The Math Forum is an online resource for improving math learning, teaching, and communication. It offers a wide range of problems and puzzles, online mentoring, research, team problem solving, collaborations, and professional development.

Problems of the Week (http://mathforum.org/problems_puzzles_landing.html)

Math Library—Problem Solving (http://mathforum.org/library/ed_topics/methods_solving/)

The Problem Solving and Communication Activity Series
(<http://mathforum.org/pow/support/activityseries/>)

3. **Mathematics Problems and Warm-Ups** (<http://www.geom.uiuc.edu/~lori/mathed/problems/>)

This site includes a collection of 101 mathematics problems that are searchable by keyword or by categories. Categories include area of mathematics, type of thinking, and source. The problems are simply stated, include diagrams, and solutions. It is a source of problems to use as warm-ups or as a part of a lesson.

4. **Word Problems for Kids** (<http://people.stfx.ca/rtmacdon/mathproblems/>)

This Web Site contains word problems for students and teachers. The problems are classified into grade levels from Grade 5 to Grade 12. Problems are carefully selected to help improve problem solving skills. Each problem includes an optional "hint" as well as a solution.

5. **Teaching Ideas—Maths Problem Solving**
(<http://www.teachingideas.co.uk/maths/contents02problems.htm>)

6. **Problems with a Point** (<http://www2.edc.org/mathproblems/>)

Problem solving is the heart of mathematical learning. This site complements existing curricula by providing a resource for teachers who use, or are only beginning to use, a problem-centered approach.

7. **Math Olympiads—Problem of the Month** (<http://www.moems.org/zinger.htm>)

8. **MATHCOUNTS—Problem of the Week** (<http://mathcounts.org/potw>)

9. **Inside Mathematics—Problems of the Month** (<http://www.insidemathematics.org/index.php/tools-for-teachers/problems-of-the-month>)

10. **Mathematics Assessment Project—Tasks** (<http://map.mathshell.org/materials/tasks.php>)

The project (Shell Center/MARS, University of Nottingham & UC Berkeley) is working to design and develop well-engineered assessment tools to support US schools in implementing the Common Core State Standards for Mathematics (CCSS). MAP summative assessment materials assess performance in mathematics, as described in the Common Core State Standards (CCSS).

Mathematics Assessment Project—Standards (<http://map.mathshell.org/materials/stds.php#standard1162>)

Aligns the various tasks for middle school and high school to the eight Common Core Mathematical Practices.

11. **Mathematics Assessment Resource Service—Tasks** (<http://map.mathshell.org.uk/materials/tasks.php>)

12. **NRICH: Enriching Mathematics** (<http://rich.maths.org/public/>)

The NRICH Project aims to enrich the mathematical experiences of all learners. All the resources are designed to develop subject knowledge, problem-solving, and mathematical thinking skills. The February 2011 issue is on "Thinking about solutions and solution methods." In this issue, the site explores different ways of solving particular problems with the idea that good problem solvers reflect on their methods once they have constructed a solution.