

# Math Instructional Practices

## Grouping/Instruction Organization:

- **Focus of the day's instruction:** computation-related/skillsbased lesson
- **Focus of the day's instruction:** problem-solving strategy or application of problem-solving strategy
- **Focus of the day's instruction:** math other than computation skills or problem-solving
- Whole class: explanation, lecture or demonstration by teacher
- Whole class: teacher facilitated students using manipulatives or other math related materials to develop math concept
- Small group instruction by teacher
- Student assignment at learning center(s) and/or activity bulletin board
- Cooperative learning groups (several students working on a shared task and producing one product or paper)
- Students work together as partners on problem-solving
- Students work independently or together to generate questions and/or problems
- Teacher monitoring of students working independently at their desks
- Students work together as partners on text assignment or related worksheet Students complete worksheet, text page or workbook page(s) independently at desks
- Teacher and/or students work problems on the blackboard or overhead projector

## Lesson Content/Focus:

- Students solve math puzzlers, tangrams, pattern blocks, etc. Use manipulatives and/or illustrations (e.g., counting blocks, pattern blocks) to solve word problems
- Use manipulatives to introduce/reinforce new concept
- Use manipulatives to work on number sense concepts, e.g., place value
- Use manipulatives & illustrations to computation, e.g., problems with unknowns
- Use of hands-on materials to explore or construct measurement concepts or geometric shapes or objects
- Use newspapers, maps, catalogs or other "real life" items e.g., plan a garden plot, materials and costs
- Explain/write reasoning behind problem solution(s)
- Solve story/word problems (paper-pencil activity)
- Solve word problem(s) [single correct answer]; use specific problem-solving strategy, e.g., guess and check
- Solve story/word problem(s) with 2, 3 or more steps or related problems
- Write/create math problems from data
- Gather data and construct a graph, table, etc.
- Use a Calculator to support computation/problem solving
- Work math problems on computer (software program)
- Use computer to create spreadsheet, graphs, etc.
- Use computer software program to practice math skills, facts and/or computation
- Use protractor/compass to work with angles

- Complete mental computation activities
- Work problems involving money and/or time, e.g., making change, computing elapsed time
- Do a timed test or flash cards on basic facts
- Math journaling to take notes of teacher's step-by-step explanations of how to work problems
- Math journaling for student problem-solving and explanation of reasoning for the answer(s)
- Analyze data and/or predict outcomes using data

## Teaching Math Standards: Web-based Resources for Teachers

**Teacher Tools Math** <http://jc-schools.net/tutorials/tools/math-hs.html>

**Middle School Math** <http://jc-schools.net/tutorials/tools/math-ms.html>

**High School Math** <http://jc-schools.net/tutorials/tools/math-hs.html>

**Textbook Resources:** <http://jc-schools.net/curr/textbooks.htm>

**Math Month** <http://jc-schools.net/techupdate/april>

**AAA Math:** Simple interactive activities for practicing a variety of standards-based math skills. <http://www.aaamath.com/>

**SCORE Mathematics Resources:** Standards-based lesson plans for a wide range of grades and variety of topics as well as web-links to math resources. <http://score.kings.k12.ca.us/>

**The AIMS Puzzle Corner:** Variety of interesting puzzles that can be used to create a learning environment where students engage in doing mathematics just for the fun of it. <http://www.aimsedu.org/Puzzle/PuzzleList.html>

**Seven Musts for Using Manipulatives:** Article by nationally-known math educator Marilyn Burns for *Instructor Magazine Online*. <http://teacher.scholastic.com/lessonrepro/lessonplans/instructor/musts.htm>

**Basics for Cooperative Learning in the Classroom:** This site provides background information on cooperative learning with details about how to successfully implement cooperative learning in the classroom. <http://volcano.und.nodak.edu/vwdocs/msh/llc/is/cl.html>

**Cooperative Learning Center:** The Cooperative Learning Center is a research and training center focusing on how students should interact with each other as they learn the skills needed to interact effectively. <http://www.clcrc.com/>

**NCTM Site for teaching standards-based math:** Electronic examples for teaching math standards; links to NCTM overview information on national math standards for each grade group and math strand. <http://standards.nctm.org/document/eexamples/index.htm>

**Learning Network—Interactive Math Activities, Games, Flash Cards:**

This site allows the teacher to select appropriate standards-based math activities based on students' ages and math topics. <http://www.funbrain.com/teachers/index.html>

**Math.com:** A math website with a variety of teacher resources across the NCTM standards. <http://www.math.com/teachers.html>

**Math Goodies:** A site that delivers what it promises: math goodies that students will enjoy. This website provides a variety of standards-based math activities and resources to teach math concepts. <http://www.mathgoodies.com>