Instructor's Guide for Curriculum Based Assessment/Measurement

Topic Area: Assessment

Module: Curriculum Based Assessment/Measurement

Case Study: What's With All the Tally Marks?

Summary: Chris is a third grade student who, although able to grasp math concepts on grade level, struggles to learn the basic addition and subtraction facts required to work quickly and efficiently. Her teacher, Mrs. Campbell, helps her learn new strategies and graph her progress using Curriculum Based Measurement. With her visual CBM graph, weekly monitoring checks, and her own motivation, Chris is able to make the progress needed to learn her basic addition and subtraction facts and remain successful in the general math curriculum.

Characters and Roles:
- Mrs. Campbell, third grade teacher
- Chris, third grade student
- Mrs. Lawrence, resource teacher

Tools:
- Using Curriculum Based Measurement
- Creating Baselines and Aimlines
- Using Data

Artifacts:
- Sample Manipulatives Worksheet
- Blank CBM Math Probes
- District Norm Table
- Chris's Baseline Graph
- Audio of Student Interview
- Sample Multiplication Probes
- Chris's Graph After Six Weeks

Glossary Terms:
- Manipulatives

Web Sites:
- http://www.nctm.org/
- http://matti.usu.edu/nlvm/nav/index.html
- http://illuminations.nctm.org/index2.html
- www.brainchild.com

Discussion Points:
• How much emphasis should be placed on helping students learn basic math facts?
• When should a calculator be used in an elementary classroom?
• Under what circumstances should students have access to charts with basic math facts?
• Discuss the developmental levels of learning math concepts (concrete, connecting, and abstract) and why educators should keep them in mind when planning and teaching math lessons.
• What are other interventions or strategies for helping a student learn basic math facts?
• Is it more important for students to learn basic facts or how to problem solve?

Activities:
• Research strategies for helping students learn basic math facts.
• Plan a lesson using manipulatives to teach a math lesson.
• Debate the value of learning basic facts as compared to problem solving.

Reflective Question: Scene 4, Question 3 - What strategies would you use for teaching basic subtraction facts? There are several strategies that could be used to teach addition and subtraction facts. First of all, students should learn the concept of "fact families" or "related facts." For example: 2+3=5, 3+2=5, 5-3=2, 5-2=3. Working with a "tens frame" can be helpful. It is a 2 by 5 grid, on which a student puts concrete objects, like beans, in a certain number of boxes and then determines how many more it would take to "make a ten." For example: If there were 7 beans on the tens frame, 7+3=10. Students usually find it easy to learn the "doubles" like 3+3=6 and 7+7=14. When they know the "doubles," they should be taught the strategy of "near doubles." For example: 8+8=16, therefore 8+9=17. "Counting on" is a strategy that involves beginning with the largest number when adding and counting on the number of the second addend. For example: 12+4=? Start with 12 and count 13, 14, 15, 16. Children who learn these strategies in kindergarten, first, and second grade, should master their basic facts more quickly than students who are not introduced to them.

Connections:
• Topic Area: Instruction; Module: Mathematics
• Topic Area: Assessment; Module: Data Driven Decision Making