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9458 Technology and Assessment

Online Tools for Assessing Higher Order Thinking and Problem-Solving -

Provide the url and a description of the online assessment activity. Include the grade/content area/topic it's appropriate for.

<http://www.mathplayground.com/thinkingblocks.html>

For the Thinking Blocks complete description, please go to <http://thinkingblocks.com>

Thinking Blocks is an interactive math tool designed to help students in grades 2-6 learn how to solve multi-step word problems. Students are guided through the thinking process and learn to draw models illustrating the relationships among the quantities in the problem. There are three sets available: addition and subtraction, multiplication and division, and ratio word problems. Each of these sets is subdivided into 6 guided practice modules plus one independent practice set for assessment purposes.

I used this with my special education students who have difficulty with word problems due to language issues. The students are 5th graders. The Thinking Blocks we used were Multiplication and Division Sets 1, 2, 4, and 5 plus the Level 1 Independent Practice for assessment.

List the learning objectives/outcomes you want students to meet.

The learners will:

Solve multiplication and division word problems involving whole numbers through two-digit multipliers and one-digit divisors requiring one or two steps.

- Identify information needed to determine the appropriate operation to solve a problem.
- Write number sentences for word problems that involve multiplication or division.

Describe how this resource engages students in activities that require the cognitive processes, social skills, etc., which you have stated as learning objectives/outcomes.

Thinking Blocks engages students in solving word problems by helping them construct mental models with moveable blocks and step-by-step guided directions. Students check their work as they work through the problem solving process and feedback is provided. After completing the problem sets, students do the independent practice for assessment purposes and receive feedback and their final score. On the independent practice students must apply their skills by drawing their models on paper since the blocks and guided directions are not available on this task. The problem solving process this program takes the students through is so visual and clear that it worked well with my deaf students.

Discuss why this was (or was not) an effective assessment resource. Did it align with the activity and learning outcomes? If it did not fully meet your needs/expectations, what would you change?

This was a very effective learning tool and assessment resource. It targeted a problem area for my students and helped me assess my students' thought processes through observation of their interaction with the program. The problems are presented randomly and there are conceptual variations of the

problem type. There is also a bank of story and number elements so that the problems presented are different every time even if you repeat the same practice set. The feedback and score given at the end of the independent practice reports how many problems the student solved correctly on the first try and how many on the second try. It gives the total number of problems solved and the percentage score. It gives half credit for problems that required a second try.

I was very satisfied with this assessment resource and will use it again. It exceeded my expectations in everything but the report for the independent practice. The report doesn't have a printable form. You can print the screen, have the children record their results, or have the children call you when they are done so you could see them for yourself. The only change I would suggest is to have a print results option.