Student Learning Plan
February 22, 2010

Lesson Plan: Tiny Tumblers on Math Mountains

Context:
This thirty minute math lesson will be taught to a kindergarten class of nineteen students of varying ability levels. It is an introductory lesson introducing the concept of "Tiny Tumblers" on "Math Mountains" as a way to visually represent "partners" (addends) of a number. Students have been exposed to the concept of number partners, but this is their first exposure to this terminology and visual representation (used throughout the Math Expressions textbook series). The lesson will take ten minutes to teach and twenty minutes for individual work.

Lesson Objective:

- The student will identify and visually represent "partners" (addends) of numbers less than or equal to ten on a worksheet with 80% accuracy.

Intervention Objective:

- The student will complete at least 8 items on a 12-item worksheet accurately with minimal teacher prompting in twenty minutes.

This intervention objective is designed to help a special needs student focus on his work and complete tasks independently. Without intervention, this student becomes easily frustrated and constantly asks for teacher assistance. He rarely finishes seatwork with accuracy. To facilitate this objective, the teacher will use direct instruction to teach the material in a whole-group setting, re-teach in a small group, and then model individually. His worksheet will be divided into smaller chunks and checked for accuracy. He will be rewarded with a tangible item for meeting the objective. These research-based interventions should help the student focus and self-monitor his behaviors.

Standard:
VA Math K.6: The student will add and subtract whole numbers, using up to ten concrete items.

Resources/Materials:
Worksheet (attached) from Math Expressions workbook
Hardcover books
Counting bears
Document camera

Instructional Procedures:
1) Using the document camera, show the whole class (seated at desks) a handful of counting bears. Explain to them that they are going to practice figuring out partners of a number by using these Tiny Tumblers. Tiny Tumblers are bears who love to roll down the sides of Math Mountains. They always play in groups of the same number. For example, the Six Math Mountain always has six Tiny Tumblers, while the Ten Math Mountain always has ten.
2) Open a small hardcover book so that it forms a "mountain" with the spine facing up. Tell students that this is a Six Math Mountain. Have students help you count out six Tiny Tumblers to play on the Math Mountain. Remind them that there will always be exactly six Tiny Tumblers

on the Six Math Mountain; demonstrate by putting the rest of the counting bears away. Hold the six bears in a handful just above the book and drop them. Some bears should fall down each side of the book. These are the partners. With the students (preferably using the document camera), count how many bears are on one side of the book and then on the other. Emphasize the partners (for example, four and two) and that together there are still six bears, so, four and two are partners of six.
3) On the document camera, demonstrate how to visually represent Tiny Tumblers by drawing a peak with circles on the sides. Write the number of the Math Mountain (six) above the peak. In the above example, there would be four circles along one side of the peak and two along the other. Write the numbers of the partners below. See worksheet (attached) for examples.
4) Repeat steps two and three making sure a different number of bears falls on each side of the book (different partners), for example, three and three. Draw the new Math Mountain.
5) Have several students come to the document camera to demonstrate for the class. Use varying numbers (less than ten) of counting bears.
5) Show the students a Math Mountain with the partners already written but not drawn (as on the worksheet). There are two ways to solve the problem. One is to look at the partners and draw that number of circles on each side. Remind students to count all the circles at the end to make sure there is the right number of total Tiny Tumblers—demonstrate. The other way is to use the book and counting bears to check—demonstrate.
6) Show students the worksheet. Point out that there are different types of Math Mountains—some have six, some five, and some ten Tiny Tumblers. Remind students to always check the top of the mountain to see what type it is and how many Tiny Tumblers there are.
7) Instruct students to complete the worksheet using books as Math Mountains. Tell students that IF they have extra time they should draw their own Math Mountains on the back, using partners that they create with the manipulatives.
8) Pass out books, counting bears, and worksheets. Check that students get started right away.
9) Pull a small group of students who need extra help. Walk through and demonstrate the steps to creating a Math Mountain once again. Have these students take turns creating different Math Mountains. Show students the first completed problem on the worksheet and have them demonstrate it with their manipulatives. Demonstrate and talk through the second problem on the worksheet. Have students complete the next problem individually while being monitored—check and correct as necessary.
10) Send students back to their seats to continue their worksheet. Point out the areas where the Math Mountain changes numbers. For student with attention/self-monitoring issues (see intervention objective), highlight only the first line of the worksheet. Instruct the student to complete those problems independently and then to come to the teacher to check. Remind student that he will get a reward for completing the worksheet during the allotted time.
11) Check for accuracy and understanding of all students completing individual work.
12) When intervention student comes to check work, praise for specific accomplishments, check and correct work (reteaching as necessary), and then highlight the next four problems on the worksheet. Point out that the type of Math Mountain has changed from six to five and explain that it means the student should use only five bears instead of six. Continue to divide worksheet and check as each segment is completed.
13) If this lesson is part of a larger self-monitoring plan for the intervention student, provide a sticker on a chart if he finishes the worksheet on time; if not, provide a tangible reward.

14) Check to make sure that other students are completing the worksheet and, as appropriate for their ability level, creating their own Math Mountains on the back of the worksheet. With extra time, these students can be allowed to show their own Math Mountains to the rest of the class using the document camera.

Assessment:

- Monitor student comprehension during whole group instruction by asking questions, having students demonstrate, and checking facial expressions. Use this information to determine who is pulled for additional small group instruction in step 9.
- Collect students' worksheets. Check for completion and accuracy. For students with special needs, the worksheet need not be completed (depending on student ability level) but it should be accurate. Circle (but do not correct) mistakes. If worksheets are less than 80% correct (more than two problems wrong), pull those students to correct work. If mistakes are systematic, explicitly model and reteach as necessary.
- If a significant portion of the class makes significant mistakes, the entire lesson should be retaught. Research indicates that students need to have at least 80% mastery of material before new material is taught. In this case, students who showed mastery on the worksheet can be grouped for a different extension activity (for example, using Tiny Tumblers on Math Mountains to guess and check the unknown partner when one partner is given).
- For the intervention student, the worksheet should be checked and corrected as it is completed, so it should be accurate. Praise the student for staying on task and finishing on time if the student completes at least eight items, and reward student according to objective to promote self-monitoring. Also informally assess student's attention to and frustration with the worksheet to determine whether the intervention—reteaching in a small group and breaking up the worksheet—was successful.

Differentiation:

- For gifted students, creating their own Math Mountains on the back of the worksheet allows these students to practice the same content at a higher cognitive level (synthesis instead of application). Allowing these students to share at the end of the lesson provides a review for the rest of the students and gives the gifted students motivation to achieve.
- For lower ability or special education students, reteaching and explicitly modeling the worksheet a second time provides additional help. These students need only complete part of the worksheet accurately if they cannot finish the whole thing.
- For students with attention/self-monitoring issues, research-based instruction strategies are used: teaching and reteaching with direct instruction, dividing the worksheet into manageable chunks, and promoting self-monitoring. Ideally, this lesson plan would be a part of a greater self-monitoring program and completion of the worksheet would be one aspect of the program (for example, getting a sticker for math time).
- This lesson involves many visuals and hands-on activities so it should not pose a problem for English language learners.

4-14 Class Activity

Name _____

Vocabulary
Tiny Tumbler
Math Mountain

Draw **Tiny Tumblers** on the **Math Mountains**.