Building Mathematical Thinkers: Mini-Activities

*The Great Counter Divide**

Objective: 3rd grade Number Sense – Multiplication & Division Models

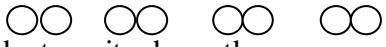
Theoretical Foundation: Third graders should develop the concept of division as fair shares using concrete materials. In addition, this activity makes clear connections between multiplication and division and introduces or reinforces the concept of a remainder.

Estimated Time: 20 minutes

Materials: Counters of any sort (enough for each student or pair of students to have 30)

Description:

1. Select a number that is easy to work with such as 8. Students count out eight counters.
2. Tell students to make 4 equal sets or to share the 8 among 4 imaginary people.



3. Have the students write down the corresponding multiplication facts: 8=4x2 and 8=2x4
4. They should, then, write the division equations: 8÷2=4 and 8÷4=2
5. Move on to a more challenging number such as 24 counters shared as 6 equal parts
6. As students become more comfortable try two variations:
   - Use numbers that result in remainders (ex. 29 counters in 7 groups)
   - Instead of telling the students how many groups/fair shares to make, tell them how many are in each set. For example, "With 18 counters make as many groups of 5 as possible"

Differentiation Suggestions:

- To be sure each student has a solid foundation with this concept, use a smaller number of counters first so that students can work independently. Later, have them combine counters with a partner so that you can use larger numbers.
- Pair students with others of *similar ability* so that the more advanced students don't monopolize
- This activity can be extended by using the counters to make arrays instead of groups. These arrays could easily be transferred onto grid paper.

Probing Questions:

- What strategies are you using to group your counters?
- Why are some counters left out? What does this mean? What does it mean if there are remainders?
- What patterns are you noticing?
- What differences did you notice between the problems where I told you how many groups to make and the problems where I told you how many should be in each group?

Assessment:

- Can students accurately perform the grouping problems?
- Can students accurately write the corresponding multiplication and division equations?
- How do students make sense of remainders?
- What relationships can students identify between the counters, multiplication, and division?

* This lesson adapted from *Teaching Student-Centered Mathematics Grades 3-5* by J. Van de Walle and L. H. Lovin