That's Not Fair

Summary

The activities in this lesson will help students understand the concept of equal values. In addition, students will understand that an equation is a number sentence that shows relationships.

Materials

M&Ms or other small candies
Balance scale
Unifix cubes
- Equations Review worksheet (pdf)

Additional Resources

Books

- *Thinking Mathematically--Integrating Arithmetic and Algebra in Elementary School*, by Thomas P. Carpenter, Megan Loef Franke, and Linda Levi; ISBN 0-325-00565-6
- *In the Balance--Algebra Logic Puzzles Grades 4-6*, by Lou Kroner (McGraw-Hill); ISBN 0-7622-0551-2

CDs

- *Equate The Equation Thinking Game*, http://www.lakeshorelearning.com; Item ZE511
- *Math Equation Match-Ups*, http://www.lakeshorelearning.com; Item GG269

Other Resources

You can quite easily make your own worksheets for your students to practice this skill.

Background for Teachers

Many students and adults are programmed to look for "the answer" at the end of the problem when doing math. They have difficulty understanding that math problems can be written in different forms. One of the most difficult forms for students, and often their parents, to understand is the equation. Students must be taught the concept of equal values. They must also understand that an equation is a number sentence that shows relationships, not just an operation. To become competent with equations requires a lot of practice and review throughout the year.

Intended Learning Outcomes

2. Become mathematical problem solvers.
3. Reason mathematically.

Instructional Procedures

Invitation to Learn

Pass out small candies to the students. Give different amounts to each student, some one, some two, some five, some none. Ask students if they were treated fairly. Why or why not? They should come up with the idea that they did not get the same (equal) amount. Explain that you will be working on math problems that require them to understand the concept of equal value and making sure that all parts are worth the same amounts. Pass out more candies so that each student gets five pieces. Tell them that they will be allowed to eat them when they have shown you they understand the math concept for the day.

Instructional Procedures

Invite two students to come up to the front of the class. Give one student five candies in one

hand and four candies in the other hand. Give the other student four candies in one hand and none in the other. Ask the class if you treated the two students fairly. Why or why not?
Ask students to figure out what you would need to do to make the second student's candies equal to the first student's candies. They should figure out that the second student needs five candies in his/her other hand.
Write the equation on the board to represent the candies. 5 + 4 = 4 + _____
Review what the equal sign means and point out that the number sentences on each side of the equal sign must have equal values.
If students are still having difficulty grasping the concept of "equal value," try using a simple balance scale to visually show "equal."
Example: Put six cubes on one side and two on the other. Ask how many cubes you need to add to make the scale balance. Explain that when the scale balances, the weights (values) are equal.
Do a number of equations on the board or overhead to help the students grasp the concept of different types of equations. Use the operations they are familiar with. At the beginning of the year use addition and subtraction, then as the year progresses you can add multiplication, division, fractions, and decimals.
Assign students to complete the *Equations Review* worksheet independently. Some students will struggle to understand these. Let them work with a partner or form skill groups to work with you.
When students have had several experiences working with equations you can assign equations as warm-ups/seat work. Give students a challenge such as: "How many equations can you make where one side is ten?" Give them a few minutes to work. Allow time for them to share their favorite equation--the discussion among the children about whether the equations are true helps them develop their understanding of equations and other math concepts.

Extensions

Write problems that need to be solved using an equation by using facts from your science or social studies curriculum.

Family Connections

Send an Equations Review worksheet home and assign your students to teach this concept to their parents. Ask their parents to reply with a comment on how hard they thought it was to understand this concept.

Assessment Plan

Use ongoing assessments throughout the year by correcting the students' assignments and evaluating the types of mistakes they are making. Reteach the difficult types of equations and continue working on them on a regular basis.
Teacher observation and interaction with students while they are writing their lists of equations will provide the teacher with information about how the students' skills are developing and provide opportunity for reteaching/correcting.

Authors

Utah LessonPlans