Lesson Plan—Kindergarten Fractions

Context: This lesson is designed for a kindergarten class at Matthew Whaley elementary school. The class has 21 students. It is an inclusion class, and there are students with behavioral problems and students that are developmentally delayed. This is an introductory lesson on fractions (focusing simply on halves), and is intended to be a starting point; the whole SOL is not covered.

Objectives: Students will use explore the concepts of “part” and “whole” through the fraction “one-half.” Students will be able to represent “one-half” pictorially.

SOL:
K.5. [from new SOLs updated 2/09] The student will identify the part of a set and/or region that represents a fraction for halves and fourths.
1.6 [from old SOLs] The student will identify and represent the concepts of one-half and one-fourth, using appropriate materials or a drawing.

Materials/Resources:
Give Me Half! by Stuart Murphy
Document camera or overhead projector and markers
Granola bar (or paper-cut out)
Cookies, granola bars, etc. for snack (optional)
Fraction worksheets (attached)
Pictures of household objects that show fractions

Content and Instructional Strategies:
1. Tell a fraction story that is relevant to the students, for example: “Today, Ms. Armbruster forgot her snack. Ms. Hutcheson brought a granola bar for snack, and she wants to share it with Ms. Armbruster.” Ask the students to brainstorm what Ms. Hutcheson can do—give part to Ms. Armbruster. How can she do it so they each get the same amount? Split the bar in half.
2. Lead a discussion with the class using relevant fraction vocabulary (half, part, whole) appropriately. Sample: “What does a half mean? What does a whole mean? If Ms. Hutcheson gives half her granola bar to Ms. Armbruster, does she still have a whole granola bar to eat? No, she just has a part left.” Demonstrate with an actual granola bar (or a paper cut-out of one).
3. Explain to students that when we split one whole thing (like the granola bar) into parts, the part is called a fraction.
4. Read the book Give Me Half! by Stuart Murphy, in which siblings fight over a pizza and eventually decide to split it in half.
5. Ask the students to think of other things that they can split in half. Discuss ideas with children. Draw some of the suggestions on an overhead or document camera so that students can informally connect the concept of a fraction with a visual representation.

Examples: A pizza divided in half. A sheet cake divided in half.
6. Be sure to reinforce throughout the discussion and drawing that parts of a fraction, like halves, are the same as each other (equal). Emphasize this in terms that the children can understand—it wouldn’t be “fair” if one half was bigger than the other half. Also emphasize that when you split something in half, you make a fraction by taking a whole and turn it into two parts.

7. Pass out worksheet to students. Read and clarify instructions: For each picture, draw a line that divides the object in half. Remember that each part has to be the same size to be fair. Then, draw a fraction on your own (don’t forget, a fraction is a whole object divided into equal parts).

8. If possible, for snack/lunch that day, give every two students one snack (cookie, granola bar, etc.) and have them share with their neighbor by dividing it in half.

9. For homework, have parents help students to find fractions: objects in their house that are divided into parts. They can be two parts (halves) or more than two parts. Possible examples: closet doors, window panes, and couch cushions. This will help to reinforce the concept of fractions and introduce the idea that there can be fractions other than just halves (thirds, fourths, etc). The next day, show students pictures of fractions that you found in your house and discuss.

**Evaluation:** Informally assess for understanding during whole-group discussion. Formally assess students’ comprehension by checking the worksheets—the lines should split the object into equal parts.

**Differentiation and Adaptations:** Most kindergarten students cannot read, so teacher should be willing to reiterate the directions for the worksheet for students who do not remember or understand the instructions. Take care to involve all students in class discussion of fractions and in coming up with examples of halves. Students with speech difficulties or developmental delays may be reluctant to volunteer, but they should be included in the discussion nonetheless to promote a sense of self-efficacy and to informally assess understanding of the concepts. While students are completing worksheet, travel through the classroom helping students where necessary. If certain students seem to be struggling with the concept, give them further practice for homework or work with them separately using manipulatives (for example, two joined unifix cubes can be separated—this is the same as making halves). If gifted students seem bored, challenge them to hypothesize what other fractions might be called: “If you divide a whole into three equal parts, they are called thirds. What do you think fractions that are four equal parts of a whole are called? What about five?” Gifted students can also create models of fractions to show the rest of the class. Finally, they can be challenged to find more than one way to divide something in half (for example, a sandwich can be cut horizontally or diagonally).

**Reflection:** This lesson covers only a very small portion of a concept. It is important to take fractions slowly because it is an entirely new mathematical idea to which most five-year-olds have not been exposed. After this introductory lesson, the teacher can make an effort to incorporate mathematical language like “fraction,” “part,” “whole,” and “half” into everyday classroom dialogue to reinforce the concept. Be sure to use the terms correctly—do not say “half the class” when you mean about half, because then students will forget that fractions must be equal parts.
Name: ____________________________________________

Directions:
Draw a line to divide each whole into two halves.

Draw a fraction of your own.