Rational Number Project

Initial Fraction Ideas Lesson 3: Overview	Materials
Students model and name (orally and in written words) unit fractions with denominators greater than 4.	∞ Fraction Circles for students and teacher ∞ Student Page A

Teaching Actions

Warm Up

Find the piece that is 1-half of each of these colors: yellow, blue, brown, orange.

Large Group Introduction

1. Show one yellow piece. Ask students to divide it into six equal parts.

2. Explain that since 6 reds cover 1 yellow, 1 red is one-sixth of the yellow.

3. Ask students to divide a black circle into 6 equal parts. What fraction piece is one-sixth of the black?

4. Make this chart to show the relationship between the number of equal parts a unit is divided into and the word name for that number of divisions.

Number of Equal Parts Unit is divided into	Word Name	
2	half	halves
3	third	thirds
4	fourth	fourths
5	fifth	fifths
6	sixth	sixths
7	seventh	sevenths
[Continue to include 8, 9, 10, 12, 15]		

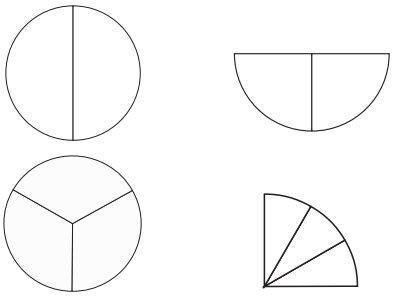
Comments

Make a large classroom chart for students to use as a reference for the rest of the fraction unit. You might include a third column showing a picture of a unit (not always a whole circle) divided into the appropriate number of equal parts.

You may want to have students make their own personal chart.

Teaching Actions

For each item in the chart show at least 2 physical models. For example:



Halves

Thirds

Students should model each example with their fraction circles.

5. Students should help you find these different representations.
   - ∞ You may suggest the unit and ask them to divide it into a certain number of equal parts.
   - ∞ You might ask students to suggest the unit. For example, say: *"The next value in the chart is to model sixths. What unit can we use?"*

6. Once the chart is completed, work through these problems:
   - ∞ Using the black circle as the unit, ask students to find the color that divides the unit into 4 equal parts. Hold up 1 of 4 parts, call it "one-fourth", and record the written name as 1-fourth.
   - ∞ Using the yellow circle as the unit, ask students to find the color that divides the unit into 4 equal parts. Hold up all for parts; call it "one-fourth"; record 1-fourth.
   - ∞ Ask: "How are the two models for 1-fourth alike? Different?

7. Repeat for sixths and twelfths using two different units.

Comments

Students initially record fractions in words like: *1-fourth*; *1-sixth*. Research suggests that students make fewer reversals with the symbols (for example, writing 3/2 for 2/3) when they first write fractions in words.

You may want to do more examples.

Teaching Actions	Comments
8. To prepare students for Student Page A ask the following questions. Have students record answers using word names. o The blue piece is the unit. What fraction name can you give 1 gray piece? 1 red piece? o The brown piece is the unit. What fraction name can you give 1 pink? 1 white? 1 gray?	You might consider assigning students Page A without this introduction. This will make the activity more of a problem solving activity.
Small Group/ Partner Work 9. Assign Student Page A.	
Wrap Up 10. End the class with this game: Teacher says: "Two of the colors I am thinking of equal one yellow. What color is it? What fractional name can I give each piece?	Extra challenges: If the yellow piece is the unit, what value does the black circle have? If the blue piece is the unit, what value does the yellow piece have? The black one? These questions may lead to a nice discussion. Students may question how to express the answer. If the yellow piece is the unit (or one) then the black circle is 2 units, 2 wholes or just 2.

Translations

∞ Manipulative to verbal to written symbols

Find the piece that is 1-half of each of these pieces:

- 1- yellow
- 1- blue
- 1- brown
- 1-orange

Naming Fraction Amounts Using Circles

Use fraction circles to find the names of the different fraction pieces.

I. The black circle is the unit. What fraction name can you give these pieces?

1 yellow 1-half 1 brown _____

1 blue _____ 1 gray _____

1 white _____ 1 green _____

1 red _____ 1 pink _____

II. Now make 1 yellow unit. What fraction name can you give these pieces?

1 blue _____ 1 gray _____

1 pink _____ 1 red _____

III. Change the unit to 1 blue. What fraction name can you give these pieces?

1 gray _____ 1 red _____

IV. Change the unit to 1 orange. What fraction name can you give these pieces?

1 purple _____ 1 green _____