Rational Number Project

Level 1 / Lesson 17 / Overview

Students name fractions greater than 1 with fraction circles. Students name fractions using both mixed numbers and improper fractions.

Materials

- Fraction Circles for students and teacher
- Transparency 1
- Student Pages A, B, C

Teaching Actions

1. Ask students to use their fraction circles with the black circles as unit to show 2/2, 4/4, 5/5 and 12/12. In each example ask for another name for amount shown (1 whole or just 1).

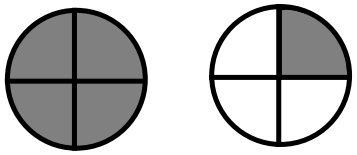
2. Have students show 6/8 using whole circle as unit. Ask if 6/8 is greater or less than 1 whole or 1?

3. Present this story and ask students to model it with their circles. Again use whole circles as the unit.

   Last night Margo ate 3/4 of a large pizza. (Show that with circles). In the morning she ate some leftover pizza that equaled 2/4 of a pizza.

4. Ask students to try and show the extra 2/4. They realize that they do not have enough pieces. Have them work with a partner and use 2 sets of fraction circles to model the story.

5. Continue with the story:
   How much pizza did Margo eat altogether?



Comments

1. Modeling fractions greater than one using fraction circles is easier than with chips, so we can concentrate on developing the concept of changing improper fractions to mixed fractions and vice versa with fraction circles.

2. Accept both names: 1 and 1/4 or 5/4. Do not rush any rules about changing improper fractions to mixed fractions. Our goal is for students to change from one notation to another using circles and then just with mental images of circles. No paper/pencil rules.

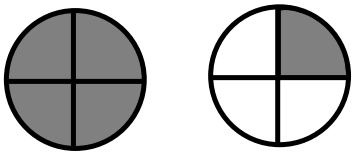
   You may want to label 1 1/4 a mixed fraction; 5/4 an improper fraction. Ask students why these names "make sense".

Teaching Actions

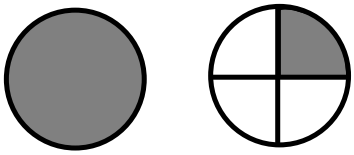
6. Questions to lead discussion for naming amount of pizza:

    1) Did Margo eat more than 1 whole pizza? How do you know?
    2) Let's count how many fourths she ate: 1/4, 2/4, 3/4, 4/4, 5/4.
    3) From the picture I see that 5/4 equals 4/4 and _____.
    4) What's another name for 4/4?
    5) What's another way of describing the amount of pizza Margo ate?

7. Draw a picture of what you did and restate how 5/4 = 1 1/4.



This shows 5/4; point to 3/4 and 2/4 more.



This also shows 5/4; 1 whole and 1/4 of another circle.

8. Ask students to use their fraction circles to show these amounts. In each case have children name the amount in another way.

$\frac{8}{6}$

$\frac{3}{4}$

$\frac{3}{2}$

$1\frac{1}{3}$

$1\frac{2}{4}$

$\frac{2}{3}$

Comments

3. Students may try to name the picture of two circles with 5 parts shaded as 5/8. If they do this, ask: what is the unit?

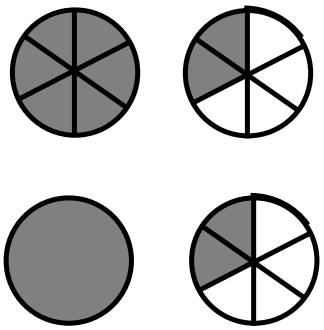
   Since the unit is one pizza, each part is named by comparing it to one pizza or one circle.

Teaching Actions

9. As students explain their models, ask if the amount is greater or less than one. Try to get them to verbalize concrete actions that show when a fraction is greater than one.

10. Have students draw pictures for each fraction to show the two ways to name the fraction.

Ex: $\frac{8}{6}$



11. To name fractions greater than 2 use pictures. Show transparency 1 and ask students to name each picture. [In each case the unit is one circle or one rectangle.]

12. Assign Student Pages A, B, C.

Comments

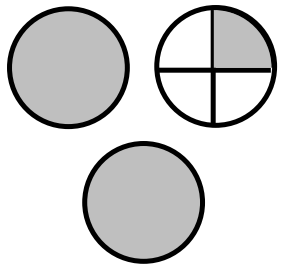
4. We want students to verbalize that, for example, 8/6 is greater than 1 because they need more than 1 whole circle to model it. 4/5 is less than 1 because they needed only 1 unit to model it.

5. You might want to make an overhead of Student Pages A and B to facilliate the review of answers.

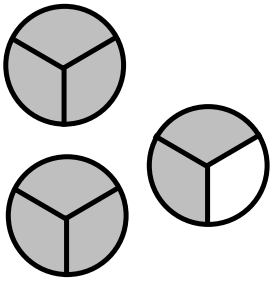
Transparency 1

Write Two Fraction Names

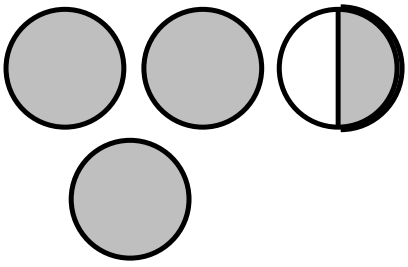
(1)



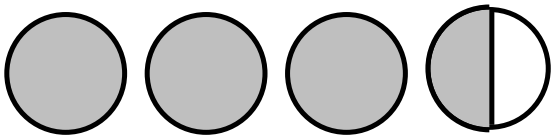
(2)



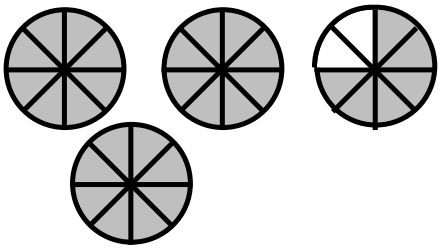
(3)



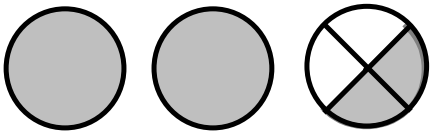
(4)



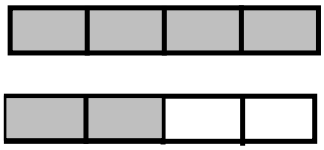
(5)



(6)



(7)

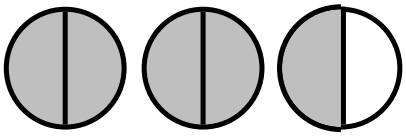
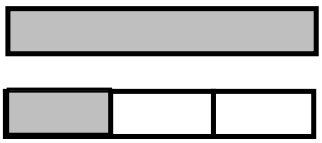
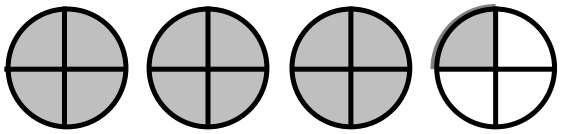
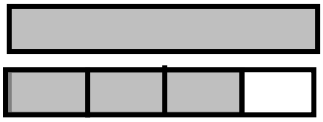
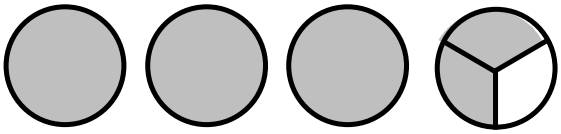
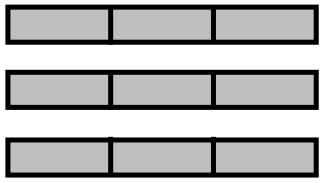


(8)

Name _____

Lesson 17
Student Page A

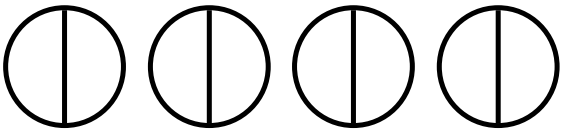
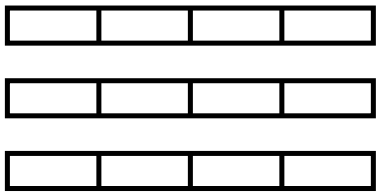
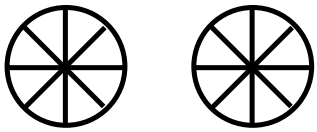
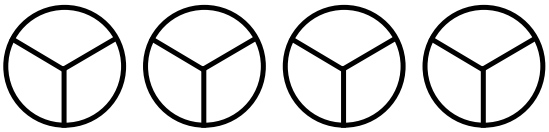
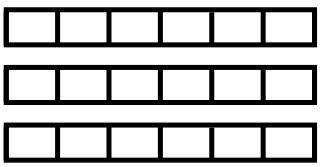
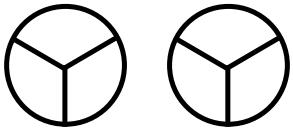
Write two fraction names for each picture.

Improper Fraction		Mixed Number
		
		
		
		
		
		

Name _____

Lesson 17
Student Page B

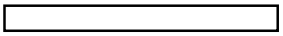
Shade in the pictures to show each fraction. Write another name for each amount.

Mixed Number	Shade-In	Improper Fraction
$3\frac{1}{2}$		
$2\frac{3}{4}$		
		$\frac{11}{8}$
		$\frac{10}{3}$
$2\frac{4}{6}$		
		$\frac{4}{3}$

Draw a picture for each story. Write the fraction name.

1. Brenda ate 2/3 of a candy bar before lunch. She finished it after lunch and ate 1/3 more of a second candy bar of the same type. How much candy did Brenda eat?

2. Marcia's dad was making pancakes. He added 2/3 cup milk to the pancake mix. He decided to make a bigger batch so he poured another 2/3 cup of milk in. How much milk did he use?
(Use  as a picture of a cup)

3. The dress designer needed some yellow ribbon for 3 dresses. He needs 2/3 yard for one dress, 1/3 for another, and 2/3 for the third. Draw a picture to show how many yards of ribbon he bought.
( = 1 yard)

Post Lesson Reflection

Lesson _____

1) Number of class periods allocated to this lesson: _____

2) Student pages used: _____

3) Adaptations made in lesson development part:
[For example: added extra problems, eliminated problems, changed fractions used]

4) Adaptations made on Student pages:

5) To improve lesson, next time I should: