

BASIC CONCEPTS 3.NF.1

Introduction to Fractions

Purpose: To introduce unit fractions

Materials: *Fraction Bars*, activity sheet "Unit Fractions" (attached), pencils and paper

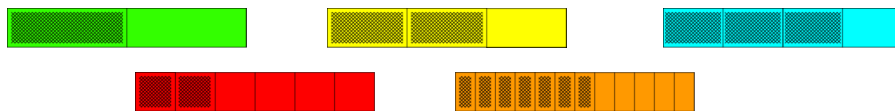
TEACHER MODELING/STUDENT COMMUNICATION

Activity 1 Becoming familiar with the deck of *Fraction Bars*.

1. Pass out a deck of *Fraction Bars* to each group.

Fraction Bars

- Spread the *Fraction Bars* face up and take a minute to look at the bars. What do you notice? Some students may sort the bars by color. Their observations might include: five different colors; some bars have more parts than others; etc.



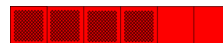
Some students may note that the bars represent fractions. Acknowledge their comments and point out that for the beginning of this lesson we will just use whole numbers to describe the bars.

2. Ask the following questions, if they were not discussed in #1.

- How many parts are there in the orange *Fraction Bars*? (12)
- Most parts of the orange bars are shaded. Select any orange bar and determine the number of shaded parts. Discuss a few examples, and in particular, the least number of shaded parts (0) and the greatest number of shaded parts (12).
- How many parts are there in the red *Fraction Bars*? (6) Select a red bar and determine its number of shaded parts. Ask for examples.
- How many parts are in each blue bar? (4) In each yellow bar? (3) In each green bar? (2)

Activity 2 Describing *Fraction Bars* with whole numbers

1. Show students the *Fraction Bar* at the right.



- How could this *Fraction Bar* be described so someone would know which bar you were talking about? Encourage different descriptions. Here are some possibilities: It is a red bar with 4 parts shaded. Or, it can be described without mentioning its color as a bar with 6 parts and 4 parts shaded. Or, it is a bar with 4 parts out of 6 shaded, etc.

Fraction Bars

2. Ask each student to select any bar. Describe your *Fraction Bar* so someone could find it.

To emphasize concepts, the descriptions should be informal without using fractions. It is important at this point that all students be comfortable in describing the *Fraction Bars* in their own words.

Fraction Bars

3. After a few descriptions, ask the following questions:

- Does anyone have a *Fraction Bar* with all parts shaded? A bar with all its parts shaded is called a **whole bar**. How many whole *Fraction Bars* are in the deck? (5)
- Does anyone have a *Fraction Bar* with no parts shaded? A bar with no parts shaded is called a **zero bar**. How many zero *Fraction Bars* are in the deck? (5)
- Does anyone have a *Fraction Bar* that is half shaded? Find all the bars that are half shaded. What are their colors? (green, blue, red and orange) A bar that is half shaded is called a **half bar**. Why isn't the yellow bar half shaded? (It has an odd number of parts. Or, one part is less than half shaded and 2 parts are more than half shaded.)

4. Place the students in pairs. One student describes a *Fraction Bar* and the other student finds the bar. Then reverse roles so that you both have a chance to describe and find a *Fraction Bar*.

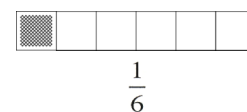
Activity 3 Unit fractions (1/b) as 1 part of b equal parts

Unit Fractions activity sheet

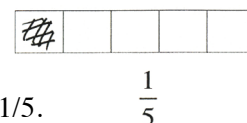
pencils and paper

1. Pass out a "Unit Fractions" activity sheet to each student.

- Complete #1 on the activity sheet. When this is finished, ask the question: Does anyone know the fraction for this bar? (1/6) Discuss this new type of number. Fractions are used to talk about parts of things. It is easier to describe the shaded amount of this bar by writing the fraction 1/6 than by writing that it has 1 part shaded out of 6 parts. Write 1/6 under its bar.

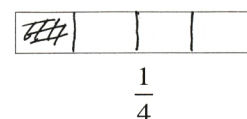


- Complete #2, #3, #4, and #5 on the activity sheet.



In activity #3, students shade the *Fraction Bar* to represent the fraction 1/5.

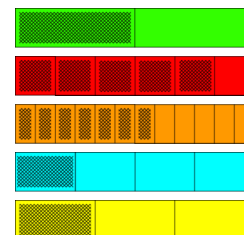
In activities #4 and #5, students divide the bars into equal parts and shade one of the parts. Point out that when drawing or sketching equal parts, students should try to make the parts approximately the same size.



Game/activity of 5-Bars

Fraction Bars and markers or chips

Each student selects five *Fraction Bars* and places them face up side by side in a column. One example is shown here. The teacher uses a separate deck, selects one *Fraction Bar* at a time, and describes the bar by giving its number of parts and number of shaded parts. Any player having this bar can place a marker beside the bar. The first player to get a marker beside each *Fraction Bar* shouts "five bars".

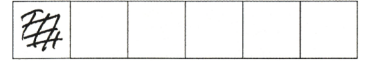


INDEPENDENT PRACTICE and ASSESSMENT

Unit Fractions

1. Describe the *Fraction Bar* shown here by filling in the blanks in parts **a** and **b**.

a. The number of shaded parts for this *Fraction Bar* is _____.

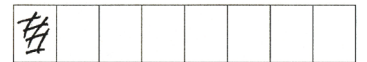


b. The total number of parts for this *Fraction Bar* is _____.

c. Write the fraction for this *Fraction Bar* under the bar.

2. Describe the *Fraction Bar* shown here by filling in the blanks in parts **a** and **b**.

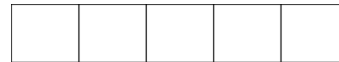
a. The number of shaded parts for this *Fraction Bar* is _____.



b. The total number of parts for this *Fraction Bar* is _____.

c. Write the fraction for this *Fraction Bar* under the bar.

3a. Shade the *Fraction Bar* shown here for the fraction $\frac{1}{5}$.



$\frac{1}{5}$

b. How many equal parts in this *Fraction Bar*? _____

c. How many shaded parts should there be in this *Fraction Bar*? _____

4a. Divide the *Fraction Bar* shown here into equal parts for the fraction $\frac{1}{4}$,
and shade the bar for this fraction.



$\frac{1}{4}$

b. How many equal parts in this *Fraction Bar*? _____

c. How many shaded parts should there be in this *Fraction Bar*? _____

5a. Divide the *Fraction Bar* shown here into equal parts for the fraction $\frac{1}{3}$,
and shade the bar for this fraction.



$\frac{1}{3}$

b. How many equal parts in this *Fraction Bar*? _____

c. How many shaded parts should there be in this *Fraction Bar*? _____