

Lesson 11: Finding Part of Collections for Fractions

Purpose: To find a fractional part of a collection when a fraction is given

Materials: Colored markers, Masters #7-#10 "Sharing Sheets," Fraction Playing Cards, pencils and paper

TEACHER MODELING/STUDENT COMMUNICATION

Activity 1 Finding fractional parts of collections

colored
markers

Masters
#7 - #10

paper
and
pencils

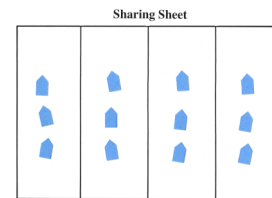
1. Pass out a sack of markers and a set of Master #7 through #10 "Sharing Sheets" (with 3, 4, 5 and 6 parts) to each pair of students.

- Look at the Sharing Sheets. What do you notice? (They are divided into 3, 4, 5 and 6 parts. The parts on each sheet have the same size.)

2. Tell the class Sharing Sheets can be used for solving problems involving collections.

- Count out a collection of 12 blue markers.

- Place your collection of markers onto a Sharing Sheet to divide it into 4 equal parts. Illustrate the "dealing out" method of placing the markers in equal groups, if necessary.



- What is $\frac{1}{4}$ of 12 markers? (3)
- What is $\frac{3}{4}$ of 12 markers? (9)
- Remove your markers for the next activity.

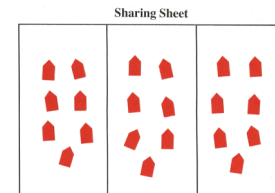
3. Give students the following instructions and questions.

- Count out 15 blue markers.
- Which Sharing Sheet would you use to determine the number of markers for each person, if they were shared among 3 people? (Sharing Sheet with 3 parts)
- Place your 15 markers on this Sharing Sheet to determine how many markers will each person receive? (Each will receive 5 markers.)
- What is $\frac{1}{3}$ of 15 markers? (5) What is $\frac{2}{3}$ of 15 markers? (10)

same
materials
as above

4. After using Sharing Sheets for the following activity, encourage students to solve the problem using pencils and paper and mental calculations.

- Which Sharing Sheet would you use to find $\frac{2}{3}$ of 21 markers? Explain your reasoning. (Sheet with 3 parts because the "3" in $\frac{2}{3}$ means to divide something into 3 equal parts.)



- Place 21 markers on your Sheet with 3 equal parts.
- What is $\frac{2}{3}$ of 21 markers? (14)

- Can you think of a way to solve this problem without using a Sharing Sheet? (Some students may suggest using mental calculations and reason that if 21 is divided into 3 equal parts, $7 + 7 + 7 = 21$ and two of these three 7's is 14.)

5. As you write the following problems, one at a time, ask the two questions below to encourage students to find the answers without using markers and Sharing Sheets.

$$\frac{1}{5} \text{ of } 20 \quad \frac{1}{4} \text{ of } 12 \quad \frac{3}{4} \text{ of } 12 \quad \frac{1}{3} \text{ of } 15 \quad \frac{4}{5} \text{ of } 20$$

- What sharing sheet could be used to solve this problem?
- How can this problem be solved without markers or Sharing Sheets?

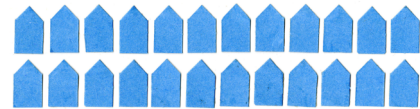
Discuss mental calculations and patterns. Some students may notice that $\frac{3}{4}$ of 12 can be found by dividing 12 by 4 and multiplying the result by 3. Or, to find $\frac{3}{4}$ of 12 markers, we first *divided* the markers into 4 groups and then took 3 of the groups.

Fraction
Playing
Cards

markers

Activity 2 Taking parts of collections for playing card fractions

Pass out a deck of playing cards and markers to each group. Place 24 markers on the overhead.



- Turn the playing cards face down and each person select a card. Determine the part of 24 markers for your fraction. Ask volunteers for solutions. Discuss the results for the fractions 0/4 (zero markers) and 4/4 (24 markers).

Colored
markers

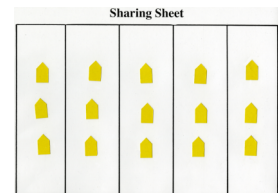
Sharing
Sheets

paper and
pencils

Activity 3 Solving story problems for collections

Sacks of markers, Sharing Sheets, and pencils and paper will be needed. Pose the following problems. Some students may find it helpful to represent the information with markers and Sharing Sheets, while others may be able to reason out the answer with mental calculations. Ask for student illustrations at the overhead.

- Nong-Nong has 24 cousins and $\frac{2}{3}$ of them will be at the family reunion. How many cousins will be at the reunion? (16)
- Jodi has 15 invitations to send out and she has sent $\frac{3}{5}$ of them. How many invitations does she have left to send? (6) An illustration of this problem will show two ways to find the answer. Once $\frac{3}{5}$ of 15 is found to be 9, the remaining number is $15 - 9$. Or, the Sharing Sheet shows that $\frac{2}{5}$ of 15 is 6.



INDEPENDENT PRACTICE and ASSESSMENT

Activity Sheet #11A and Activity Sheet #11B



fractionbars.com Set 1 Multiplication Game (Spinning fractions and taking parts of sets)