Deriving Fractions from Text

Companion Text: Night Symphony, written by Lara Binn, and illustrated by Valia Ovseyko
Subject Area & Grade Level: Mathematics, Second grade

Objectives

>   After this lesson, students will be able to:

>   - Represent information presented as text with mathematical symbols
>   - Explain the meaning of simple fractions in words
>   - Derive fractions by dividing sets

Activity

This lesson is meant to follow introductory lessons on fractions, and can be used to deepen and extend students' basic understanding. It should be used as a direct lesson, and not as independent work at this grade level, or could be used as a review for third or fourth graders. The lesson works best if each student has his or her own a copy of the story, and as such would make a great teacher-directed station or learning center. Begin by reading the story out loud to the students.

Then, introduce the lesson with the following example:

>   Did you notice that the book, Night Symphony, was about the events that happened during one week? How many days are there in one week? How many Mondays are there in one week? Think of the days of the week as a set. Can you name all the days in the whole set? (Write them as a list as students recite them.) So, Monday is only ONE part of the whole set of SEVEN days. In math, the way we talk about sets and parts of sets is by using **fractions**.

>   A fraction is written as one number on top of another number, with a straight line between them. When you want use a fraction to describe a certain number of parts of a set, you always have to figure out how many parts are in the whole set first. The number of parts in the whole set is the **bottom number**, and the number of parts that you are interested in is the **top number**.

>   So, if we were interested in Mondays, and we wanted to use a fraction to show how many Mondays happen in one week, here is what we would do. Remember, first we have to figure out how many parts, or days, are in the whole set, one week. A good way to do this is to list or draw all the parts of the set, which we did when we listed the days of the week. So, how many parts of the set (days of the week) are there again? Seven. Ok, so we will make 7 the bottom number of our fraction, because the bottom number always shows the number of parts in the whole set. (Draw a 7 with a line over it.) Then, since we are interested in Mondays, we count how many Mondays are in our set. How many? Right— one. So, we make 1 the top number of our fraction. (Draw a 1 on top of the line over the 7 you drew above.)

Now, if we want to talk about how many Mondays happen in one week, we can use our new fraction. We can say that **one out of seven** (point to the parts of the fraction as you say this) days in a week is a Monday, or that Monday is **one-seventh** of the week.

Next, pass out the attached worksheet, and guide students through it, using the story as your reference. Be sure to point out the "What Do We Call the Bottom Numbers?" chart at the top of the page. Encourage students to draw pictures or make lists of the set of data they need from the book to solve each problem. This can help them to organize their thoughts, and keep them on track.

Answers to worksheet: 1.) 2/7, two-sevenths; 2.) 3/5, three-fifths; 3.) 2/3, two-thirds; 4.) 1/2, one-half; 5.) 5/6, five-sixths.

Reflection

Ask students what part of the activity they liked or did not like. Ask them if finding the fractions felt like any other kind of activity they have done before in math or other subjects. See if you can lead them toward making a connection between the activity they just did and any sorting or classifying of three-dimensional objects they have done before. Invite students to list other "wholes" that can be split into "parts" or fractions to re-connect this lesson to the real world; a common example that many students can relate to is a pizza (whole) , which can be sliced different ways to create different sizes and numbers of pieces (parts).

Finding Fractions

Directions: Use the book <u>Night Symphony</u> to fill in the blanks below. Use the chart at the top of the page to help you. Remember, find the bottom number first! ☺

1.) Number of Weekend Nights ☐

       Total Number of Nights ☐

    What fraction of the nights are weekend nights? _____-_____

2.) Number of Weeknights with Animals in the House ☐

       Total Number of Weeknights ☐

    On what fraction of the weeknights are there animals in the house? _____-_____

3.) Number of Nights the Cat Is Pictured Awake ☐

    Number of Nights the Cat Is Pictured At All ☐

    What fraction of the times the cat is pictured is the cat pictured awake? _____-_____

4.) Number of Weekend Nights with a Symphony Playing ☐

       Number of Weekend Nights ☐

    On what fraction of weekend nights is a symphony playing? _____-_____

5.)   Number of Weeknights ☐

    Number of Nights with Any Noise ☐

What fraction of nights with any noise are weeknights? _____-_____