

















## Ratio: Numerical Relationships

Materials: box of bead bars

Demonstrate a numerical relationship with a memorable activity. Ask for two helpers. Explain, “This may not seem very fair, but I want to show you something.” Have the first child take a 3-bar from the bead bar box. Ask the second child to take a 5-bar. Tell them to repeat this on your command, so that they take the same number of bars. After they have each taken about 8 bead bars, ask, “How can we be sure you kept up the pace with each other?” Have each child find the total value of his/her bead bars. Explain that their relationship was 3 for the first child to 5 for the other child. Record the skip counting:

	3	:	5	
	6	:	10	
	9	:	15	
	12	:	20	
	15	:	25	
	18	:	30	
	21	:	35	
	24	:	40	

Ask, “Has the relationship stayed the same?” Yes. (Equivalently unfair!) This relationship of “3 to 5” is called a ratio.

Show that this relationship can be written as equivalent fractions:

$$3/5 = 6/10 = 9/15 = 12/20 = 15/25 \dots$$

Or it can be shown another way. Remind students of the meaning of the fractus bar in fractions: “to break.” Note that the fractus bar is included in the division symbol:  $\div$ . Explain that in writing relationships between numbers, we aren’t really “breaking” anything, so the symbol can be  $:$ , as in  $3:5 = 6:10 = 9:15\dots$

Examples of ratios:

1. When making lemonade, to each can of lemonade concentrate, you add 4 cans of water. This is a ratio of 4:1.

Note that the order of the relationship is important. Four cans of lemonade concentrate, with one can of water, would be pretty tart!

Also, there is a variety of ways to state the relationship. E.g.

1:4 (cans of concentrate to cans of water)

1:5 (cans of concentrate to cans of lemonade)

2. When a store is having a “half-off” sale, the ratio of regular prices to sale prices is 2:1.