

9.2d Make a whole

Objective

- Make a whole with two or more fractions with the same denominator.
- Using number lines to show fractions.

Materials

- Linking cubes
- Appendix 9.2d



Common Core State Standards

- 2.G.2
- 2.G.3
- 3.NF.1
- 3.NF.2a
- 3.NF.2b

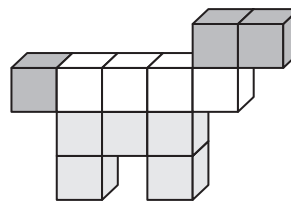
Mathematical Practices

- MP2
- MP4

Reinforcement 9.2d

Make a whole	Textbook, p. 64
<ul style="list-style-type: none"> • Either refer to the pictures in Task 7 on page 64 of the Textbook, draw similar figures on the board, or provide students some shapes that have been divided into equal parts and have them shade in some of the parts. The following suggestions assume you are using page 64. • For the first shape, ask students for the fraction of the shape that is colored and write it down, for example, $\frac{3}{7}$. • Then ask them for the fraction that is not colored and write it down, that is, $\frac{4}{7}$. • Ask them what both fractions together make. <i>The uncolored part plus the colored part make a whole, so the fractions for each part make 1 whole.</i> • Ask students what the top number represents for each of the two fractions. It represents the number of parts. Then ask them to add the top numbers together. The total is the same as the bottom number of each fraction. Three out of seven parts plus four out of seven parts is seven out of seven parts, or all of the parts. • Write the fraction $\frac{7}{7}$ and ask students what it means. All 7 parts out of 7 is the same as 1 whole. • Write some fractions on the board and ask students to write the fraction that makes a whole with it. • In groups, students can take turns saying out a fraction (with denominator ≤ 12) and the rest state another fraction that makes a whole with it. This continues till all the members in the group are perfect at this. • For the rest of Tasks 7, have students find the fraction that is colored and the fraction that is not colored. Write down each fraction and have students confirm that the total of the top numbers match the bottom numbers. <p>Answers:</p> <p>7. (a) $\frac{2}{5}$ (b) $\frac{6}{7}$ (c) $\frac{7}{9}$</p>	<p>7. (a) $\frac{3}{7}$ and $\frac{4}{7}$ make 1 whole.</p> <p>(b) $\frac{1}{7}$ and $\frac{6}{7}$ make 1 whole.</p> <p>(c) $\frac{2}{9}$ and $\frac{7}{9}$ make 1 whole.</p> <p>64</p>

- Provide students with linking cubes. Allow them to work in pairs.
- Have them use three or more colors to make a shape that has only one layer. The shape is the whole.
- Have them write the fraction for each color, and then write an addition equation.
- They should check that the total number of parts, or the top number of each fraction, adds to make the bottom number. They can copy their shape onto graph paper (Appendix 9.2d).
- Repeat this activity with students making two or three more shapes with different colors.
- Have them write the addition equation for each.

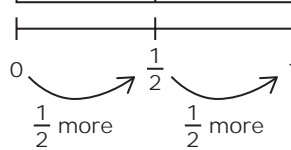
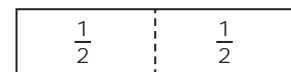


$$\frac{3}{12} + \frac{4}{12} + \frac{5}{12} = \frac{12}{12} = 1$$

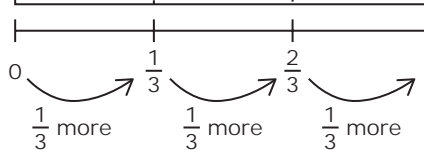
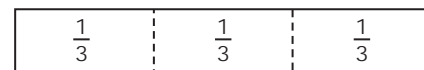
Number Lines

- Provide students with strips of paper. Fold one strip into half and place it on the board, marking out the fold line.
- Below the strip, draw a line, indicating a '0' at the start of the strip and a '1' at the end.
- Ask, "How many equal parts are there?"
"What is each part called?"
- Point out that if one end is '0' and the other is '1', ask where you should place the $\frac{1}{2}$ on the line.
As each part is $\frac{1}{2}$; you count on 0, $\frac{1}{2}$, 1.
- Repeat the same for thirds, quarters.
Ask, "How many parts are there?"
"Are the parts equal?"
- "Where do you place $\frac{1}{3}$ and $\frac{2}{3}$ on the line?"
- Point out to students they need to count on from zero.
As each part is $\frac{1}{3}$, you count on 0, $\frac{1}{3}$, $\frac{2}{3}$, 1.
- Repeat for fourths.

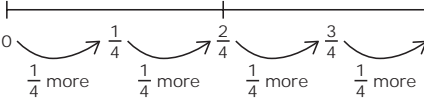
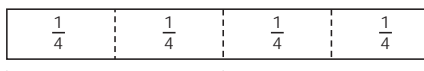
Textbook, p. 65



0, $\frac{1}{2}$, 1



0, $\frac{1}{3}$, $\frac{2}{3}$, 1



0, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, 1

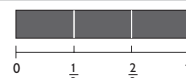
- Discuss Textbook page 65. Have students do Task 1.

Answers:

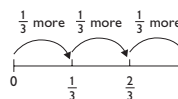
1. (a) $\frac{3}{4}$
(b) $\frac{1}{2}$

We can use number lines to show fractions.

This number line represents 1 whole. The number line is divided into 3 equal parts. Each part is $\frac{1}{3}$.



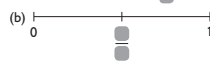
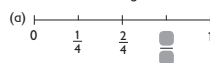
Count on by $\frac{1}{3}$: 0, $\frac{1}{3}$, $\frac{2}{3}$, 1.



Each part is $\frac{1}{4}$.
Count on.

$\frac{1}{4}$, $\frac{2}{4}$

1. What are the missing fractions?



Exercise 9, page 111-112

EXERCISE 5

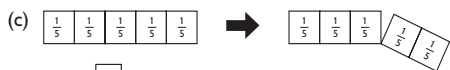
1. Write the correct fraction.



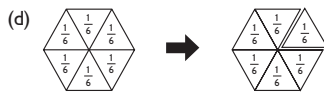
$\frac{1}{3}$ and $\frac{2}{3}$ make 1 whole.



$\frac{2}{8}$ and $\frac{6}{8}$ make 1 whole.



$\frac{2}{5}$ and $\frac{3}{5}$ make 1 whole.

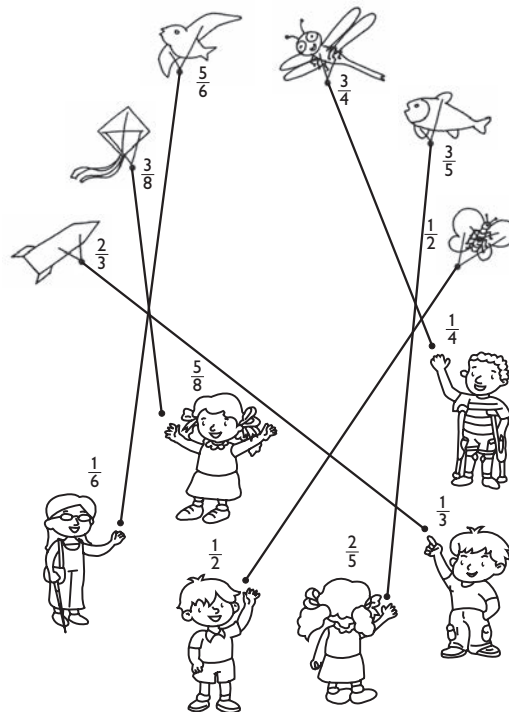


$\frac{1}{6}$ and $\frac{5}{6}$ make 1 whole.

Unit 9: Fractions

111

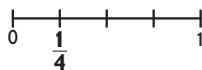
2. Join each pair of fractions that add up to 1.



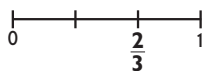
Unit 9: Fractions

112

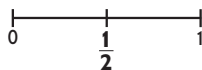
3. (a) Show the fraction $\frac{1}{4}$ on the given number line.



(b) Show the fraction $\frac{2}{3}$ on the given number line.

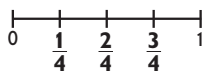


(c) Show the fraction $\frac{1}{2}$ on the given number line.

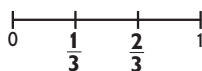


4. Fill in the required fractions on the given number line.

(a) $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$



(b) $\frac{1}{3}$, $\frac{2}{3}$



Unit 9: Fractions

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8.3c

Group game

Purpose: Practice adding and subtracting money.

Material

- Cards with pictures of items and cost of items, or simply money amounts, under \$10.

Procedure

- Shuffle cards and place them facedown in the middle.
- Players take turns drawing two cards each.
- They record the items and write an equation to find how much more one item costs than the other.
- Repeat two more times. They will have three differences recorded. Students then add their three values together.
- The student with the highest sum wins.

9.2c

Group game

Purpose: Practice comparing unit fractions.

Material

- Four sets of unit fractions with the following fractions written on index cards:

$$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{7}, \frac{1}{8}, \frac{1}{9}, \frac{1}{10}, \frac{1}{11}, \frac{1}{12}$$

Procedure

- Shuffle cards and place them facedown in the middle.
- For each round, players take turns drawing a card and turning it over.
- The one with the largest fraction gets all the cards.
- If it is a tie, the tied players draw another card and compare.
- The player with the most cards at the end wins.

9.2d

Group game

Purpose: Match fractions that make a whole.

Material

- A set of fraction cards with the following fractions written on index cards:

$$\frac{1}{2}, \frac{1}{2}, \frac{1}{3}, \frac{2}{3}, \frac{1}{4}, \frac{2}{4}, \frac{2}{4}, \frac{3}{4}, \frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}, \frac{1}{6}, \frac{2}{6}, \frac{3}{6}, \frac{4}{6}, \frac{5}{6}, \frac{1}{7}, \frac{2}{7}, \frac{3}{7}, \frac{4}{7}, \frac{5}{7}, \frac{6}{7}, \frac{1}{8}, \frac{2}{8}, \frac{3}{8}, \frac{4}{8}, \frac{4}{8}, \frac{5}{8}, \frac{6}{8}, \frac{7}{8}, \frac{1}{9}, \frac{2}{9}, \frac{3}{9}, \frac{4}{9}, \frac{5}{9}, \frac{6}{9}, \frac{7}{9}, \frac{8}{9}$$

Procedure

- Shuffle cards and place facedown in the middle.
- Turn over the top card and put it face up in the middle.
- Players take turns turning over a card. If there is a card in the middle that makes a whole with the card they turned over, they keep both cards. If there is not, they place their card face up in the middle.
- Play continues until all cards are paired.