

Name \_\_\_\_\_

### Subtract Fractions Using Models

**Essential Question** How can you subtract fractions with like denominators using models?



Numbers and Operations—  
Fractions—4.NF.B.3d Also 4.MD.A.2

**MATHEMATICAL PRACTICES**  
MP1, MP2, MP4, MP5

## Unlock the Problem

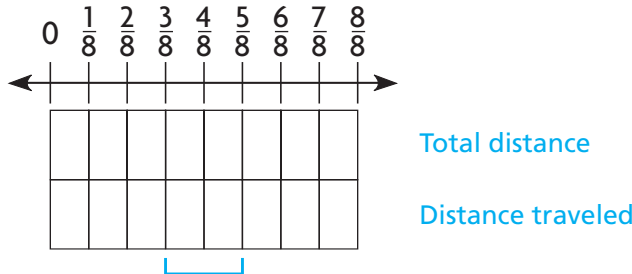
A rover needs to travel  $\frac{5}{8}$  mile to reach its destination. It has already traveled  $\frac{3}{8}$  mile. How much farther does the rover need to travel?

**Compare fractions to find the difference.**

**STEP 1** Shade the model.

Shade the model to show the total distance.

Then shade the model to show how much distance the rover has already covered.



Think: The difference is \_\_\_\_\_.



**STEP 2** Write the difference.

$$\frac{5}{8} - \frac{3}{8} = \frac{\square}{8}$$

So, the rover needs to travel \_\_\_\_\_ mile farther.

1. Explain how the model shows how much farther the rover needs to travel.

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2. Explain how you can use the model to find  $\frac{6}{8} - \frac{2}{8}$ .

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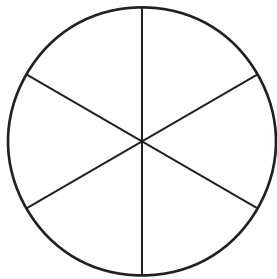
## Example

Sam ordered a small pizza, which was cut into 6 equal slices. He ate  $\frac{2}{6}$  of the pizza and put the rest away for later. How much of the pizza did he put away for later?

Find  $1 - \frac{2}{6}$ .

## One Way Use a picture.

Shade 1 whole.



Cross out the parts Sam ate.

**Think:** He ate  $\frac{2}{6}$  of the pizza, or 2 sixth-size parts.

How many sixth-size parts are left? \_\_\_\_\_

So, Sam put \_\_\_\_\_ of the pizza away for later.

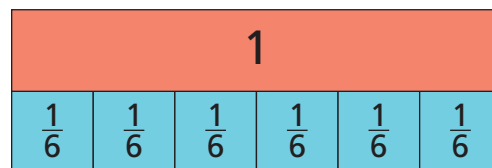
- How much pizza did Sam begin with?  
\_\_\_\_\_

- How many slices are in the whole? \_\_\_\_\_

- How many slices did Sam eat? \_\_\_\_\_

## Another Way Use fraction strips.

Use six  $\frac{1}{6}$ -size parts to model the whole pizza.



How many  $\frac{1}{6}$ -size parts should you cross out to model the slices Sam ate? \_\_\_\_\_

How many  $\frac{1}{6}$ -size parts are left? \_\_\_\_\_

Write the difference.

$$1 - \frac{\quad}{6} = \frac{\quad}{6}$$

**Math Talk**

**MATHEMATICAL PRACTICES** 4

**Use Models** Explain why it makes sense to think of 1 whole as  $\frac{6}{6}$  in this problem.

3. Explain how the equation  $\frac{6}{6} - \frac{2}{6} = \frac{4}{6}$  is related to the problem situation.

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4. Sam ate  $\frac{2}{3}$  of the pizza and put the rest away for later. Explain how you can use the circle to find how much of the pizza Sam put away for later.

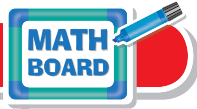
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Name \_\_\_\_\_

## Share and Show



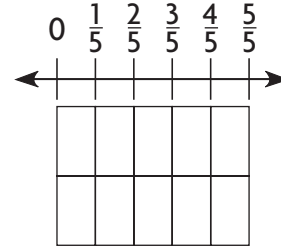
1. Lisa needs  $\frac{4}{5}$  pound of shrimp to make shrimp salad. She has  $\frac{1}{5}$  pound of shrimp. How much more shrimp does Lisa need to make the salad?

Subtract  $\frac{4}{5} - \frac{1}{5}$ . Use the model to help.

Shade the model to show how much shrimp Lisa needs.

Then shade the model to show how much shrimp Lisa has.

Compare the difference between the two shaded rows.

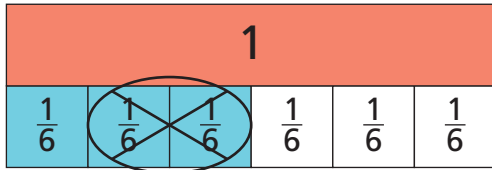


$$\frac{4}{5} - \frac{1}{5} = \frac{\quad}{5} \text{ pound}$$

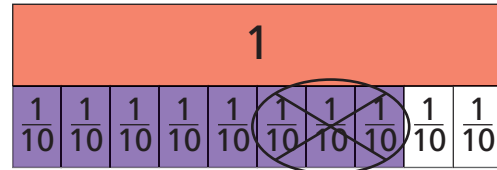
Lisa needs \_\_\_\_\_ pound more shrimp.

Use the model to find the difference.

2.  $\frac{3}{6} - \frac{2}{6} = \frac{\quad}{6}$



3.  $\frac{8}{10} - \frac{3}{10} = \frac{\quad}{10}$



Subtract. Use models to help.

4.  $\frac{5}{8} - \frac{2}{8} = \underline{\hspace{2cm}}$

5.  $\frac{7}{12} - \frac{2}{12} = \underline{\hspace{2cm}}$

6.  $\frac{3}{4} - \frac{2}{4} = \underline{\hspace{2cm}}$

## On Your Own

Subtract. Use models to help.

7.  $\frac{2}{3} - \frac{1}{3} = \underline{\hspace{2cm}}$

8.  $\frac{7}{8} - \frac{5}{8} = \underline{\hspace{2cm}}$

9. **THINK SMARTER** Explain how you could find the unknown addend in  $\frac{2}{6} + \underline{\hspace{1cm}} = 1$  without using a model.

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### MATHEMATICAL PRACTICES 2

**Reason Abstractly** Why does the numerator change when you subtract fractions with like denominators, but the denominator doesn't?



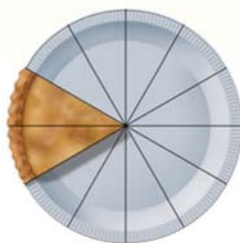
# Unlock the Problem

10. **Go DEEPER** Mrs. Ruiz served a pie for dessert two nights in a row. The drawings below show the pie after her family ate dessert on each night. What fraction of the pie did they eat on the second night?

First night



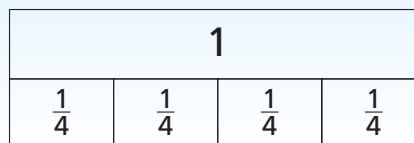
Second night



- a. What do you need to know? \_\_\_\_\_  
\_\_\_\_\_
- b. How can you find the number of pieces eaten on the second night? \_\_\_\_\_  
\_\_\_\_\_
- c. Explain the steps you used to solve the problem.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- d. Complete the sentences.  
After the first night, \_\_\_\_\_ pieces were left.  
After the second night, \_\_\_\_\_ pieces were left.  
So, \_\_\_\_\_ of the pie was eaten on the second night.

11. **MATHEMATICAL PRACTICE 6** **Make Connections Between Models** Judi ate  $\frac{7}{8}$  of a small pizza and Jack ate  $\frac{2}{8}$  of a second small pizza. How much more of a pizza did Judi eat?  
\_\_\_\_\_

12. **THINK SMARTER** Keiko sewed  $\frac{3}{4}$  yard of lace on her backpack. Pam sewed  $\frac{1}{4}$  yard of lace on her backpack. Shade the model to show how much more lace Keiko sewed on her backpack than Pam.



Keiko sewed \_\_\_\_\_ yard more lace on her backpack than Pam.

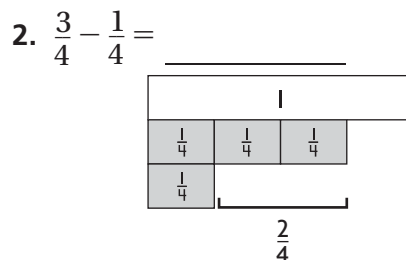
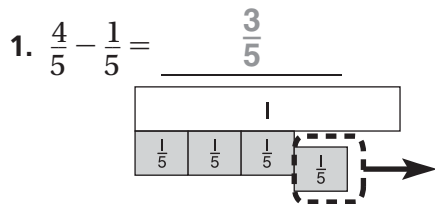
Name \_\_\_\_\_

### Subtract Fractions Using Models



**COMMON CORE STANDARD—4.NF.B.3d**  
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

Subtract. Use fraction strips to help.



3.  $\frac{5}{6} - \frac{1}{6} =$  \_\_\_\_\_

4.  $\frac{7}{8} - \frac{1}{8} =$  \_\_\_\_\_

### Problem Solving



Use the table for 5 and 6.

5. Ena is making trail mix. She buys the items shown in the table. How many more pounds of pretzels than raisins does she buy?

\_\_\_\_\_

6. How many more pounds of granola than banana chips does she buy?

\_\_\_\_\_

Item	Weight (in pounds)
Pretzels	$\frac{7}{8}$
Peanuts	$\frac{4}{8}$
Raisins	$\frac{2}{8}$
Banana Chips	$\frac{3}{8}$
Granola	$\frac{5}{8}$

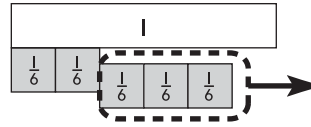
7. **WRITE** *Math* List and describe the steps you would use to model  $\frac{7}{10} - \frac{4}{10}$ .

\_\_\_\_\_  
\_\_\_\_\_

## Lesson Check (4.NF.B.3d)

1. Lee reads for  $\frac{3}{4}$  hour in the morning and  $\frac{2}{4}$  hour in the afternoon. How much longer does Lee read in the morning than in the afternoon? Use models to help.

2. What equation does the model below represent?



## Spiral Review (4.NBT.B.5, 4.NF.A.2, 4.NF.B.3d)

3. A city received 2 inches of rain each day for 3 days. The meteorologist said that if the rain had been snow, each inch of rain would have been 10 inches of snow. How much snow would that city have received in the 3 days?

4. At a party there were four large submarine sandwiches, all the same size. During the party,  $\frac{2}{3}$  of the chicken sandwich,  $\frac{3}{4}$  of the tuna sandwich,  $\frac{7}{12}$  of the roast beef sandwich, and  $\frac{5}{6}$  of the veggie sandwich were eaten. Which sandwich had the least amount left?

5. Deena uses  $\frac{3}{8}$  cup milk and  $\frac{2}{8}$  cup oil in a recipe. How much liquid is this?

6. In the car lot,  $\frac{4}{12}$  of the cars are white and  $\frac{3}{12}$  of the cars are blue. What fraction of the cars in the lot are either white or blue?

