

# Grades 4-5: Fraction Boot Camp

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Subjects:

Common Core, Math

Grades:

4, 5

In this lesson, students will review core fraction concepts with a mini-lesson and a rotation of fun fraction centers that connect fractions to real world problem solving.

## Goal

Students will review core fraction concepts.

## Common Core State Standard

- Math.4.NFB.3 Understand a fraction  $a/b$  with  $a > 1$  as the sum of fractions  $1/b$ .
- Math.4.NFB.3a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- Math.4.NFB.3b Decompose a fraction into a sum of fractions with the same denominator in more than one way. Use a visual fraction model to justify decompositions.
- Math.4.NFB.3d Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.

## Objective

Students will demonstrate knowledge of fractions as parts of a whole.

Students will apply knowledge of fractions to decompose fractions.

Students will order fractions with different denominators.

Students will compare fractions with unlike denominators.

Students will solve word problems that require addition and subtraction of fractions.

## Materials and Preparation

During this lesson, students will participate in four center rotations. Divide your class into 4 or 8 groups. Prepare enough materials for each group of students to experience each center one time. Put center materials into a box or bin and have students rotate places, or have one student from each group move the box of materials to switch centers.

Prepare the following for each group that students will rotate through.

- Hotchalk.com Zombie fraction cards and answer sheets (1 set of fraction cards per center, 1 answer sheet per student)
- Hotchalk.com Fraction Boot Camp Word Problem Cards (print, cut, and laminate these cards. Provide 1 set of cards per center).
- Hotchalk.com Fraction Game Board (print and laminate 1 game board per group)
- Sets of clothespins with fractions written on them (prepare a chain of 10 fractions for students to order)
- A string to hang clothespins on
- Decks of playing cards with the face cards (joker, queen, ace, king) removed

## Review and Introduction (5 minutes)

Remind students that they have learned about fractions before. Write “fraction = a part of a whole” on the board. Have students brainstorm ways that they have experienced fractions in school or at home. Record student ideas. (Suggestions: baking, grades, petals of a flower, portions of a chocolate bar, pieces of pizza). After the brainstorm, ask students if fractions are more or less than a whole. Review the components of fractions. Ensure that students understand that when a fraction denominator is larger than the numerator, the fraction is smaller than one. The denominator tells the number/quantity in the whole that the fraction (numerator) is taken out of. So, the fraction  $1/8$  is less than  $1/4$  because, even though the numerator is the same, the parts (the denominator) are smaller in  $1/8$ .

## Fraction Boot Camp

**(45 minutes: 5 minute introduction and 10 minutes in each center)**

Tell students that they will be working through four math centers today to practice fraction skills. Model and give directions for each center.

### Center 1: Zombie Fractions

**Objective:** Students will use a visual model to decompose fractions.

**Materials:** Zombie fraction cards, Zombie answer sheets

At this center, students will be decomposing fractions, which is a math word for separating fractions into pieces. To do this, students will choose a fraction card, then they will write as many ways to decompose the fraction as possible.

For example:  $5/6$

- $1/6 + 1/6 + 1/6 + 1/6 + 1/6 = 5/6$
- $3/6 + 2/6 = 5/6$
- $2/6 + 1/6 + 1/6 + 1/6 = 5/6$
- $4/6 + 1/6 = 5/6$
- $3/6 + 1/6 + 1/6 = 5/6$

### Center 2: Clothespin Fraction Line

**Objective:** Students will order fractions with different denominators.

**Materials:** Clothespins and string

Provide students with clothespins with fractions of various denominators and a string to sort them on. Have students mix the clothespins, then put them in order. Students record their ordered fractions on a number line. You can differentiate this center by providing different numbers of clothespins to order or by requiring students to estimate the amount that exists between each clothespin on the number line and space the clothespins accordingly.

### Center 3: Fraction Card Comparison

**Objective:** Students will compare fractions with unlike denominators.

**Materials:** Fraction game board, Playing Cards

Provide students with a fraction game board (a paper with two fraction bars that specify where the numerator and denominator are) and playing number cards. The game is played like war. Students place cards on the numerator and denominator spaces at the same time. The first person to identify the larger fraction by tapping or placing their hand on the fraction that is larger gets all four cards. As students develop their knowledge of fractions, you can write a denominator for students to use consistently. (For example, have students write 10 in the bottom of the fraction, so that all the fractions are consistently less than one).

### Center 4: Fraction Word Problems

**Objective:** Students will solve word problems that require addition and subtraction of fractions.

**Materials:** Fraction Boot Camp Word Problem Cards

Provide students with note cards with fraction word problems written on them. Have students work in pairs to solve each problem. Make these problems more challenging by requiring students to reduce their answers. The fraction word problems:

- Kayla is making cookies. The recipe requires  $\frac{3}{4}$  cup of sugar. She wants to make three batches of cookies. How many cups of sugar does she need?
- Kyle orders a large pizza that has 9 pieces. He eats 2 pieces and gives 3 to Juan. What fraction of the pizza do Kyle and Juan eat? What fraction of the pizza is left?
- Mia counts 20 girls on the beach. 4 have purple flip flops on. 8 have yellow flip flops. 6 have black flip flops and the rest are barefoot. What fraction of the girls are wearing flip flops? What fraction of the girls are barefoot?
- Diego has 18 Skittles. 6 are red, 3 are yellow, 4 are green and 5 are purple. What fraction of the Skittles are primary colors? What fraction are secondary colors? What fraction are NOT purple?
- Shawna has a cheesecake sampler. There are 12 pieces. Of those pieces, 2 are chocolate chip, 4 are blueberry, 5 are regular, and 1 is raspberry. What fraction of the cheesecake slices are fruit flavored? What fraction are NOT regular flavored?

### Exit Slip (5 minutes)

1. Put the fractions in order from least to greatest:  $\frac{6}{7}$ ,  $\frac{1}{8}$ ,  $\frac{2}{5}$ ,  $\frac{1}{4}$
2. Pablo, Susan, and Troy baked a batch of 25 cookies. Pablo eats 5, Susan eats 4 and Troy eats 7. What fraction did the kids eat together? What fraction of the cookies is left?

## Answers:

### Fraction Word Problems:

1. She needs 3 cups.
2. They eat  $\frac{5}{9}$  of the pizza. There is  $\frac{4}{9}$  of the pizza left.
3.  $\frac{18}{20}$  are wearing flip flops.  $\frac{2}{20}$  are not.
4.  $\frac{9}{18}$  are primary colors.  $\frac{13}{18}$  are not purple.
5.  $\frac{5}{12}$  are fruit flavored.  $\frac{7}{12}$  are not regular flavored.

### Exit Slip:

1.  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{2}{5}$ ,  $\frac{6}{7}$
2.  $\frac{16}{25}$  of the cookies have been eaten.  $\frac{9}{25}$  have not been eaten.

### Resources:

51bb4bb3a8fda2.45097974\_hotchalk\_fraction\_boot\_camp\_fractions [\[DOWNLOAD\]](#),  
51bb4bb3abff89.08015261\_Hotchalk\_Zombie\_Fractions [\[DOWNLOAD\]](#),  
51bb4bb3ae10c2.21381937\_Hotchalk.com\_Fraction\_Gameboard [\[DOWNLOAD\]](#)