

# Fractions

## Equivalent, Greater/Less, Addition and Subtraction

### Grades 2 & 3

**Objective:** Students will demonstrate understanding of equivalent fractions, addition and subtraction with common denominator through use of pattern blocks and fraction fringes. 2NS4.0 and 3NS3.0

Concrete Understanding -developed through use of pattern blocks

Semi-Concrete Understanding -developed through use of fraction fringes (see attached patterns)

Abstract Understanding -developed in practice

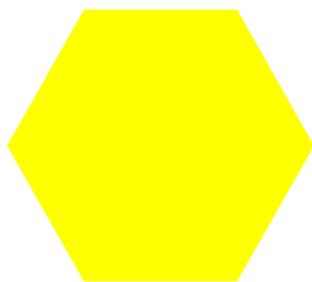
**Materials:** Pattern Blocks  
Prepared Fraction Fringes (see attached patterns)  
Paper/Pencil

**Vocabulary:** Fraction- a number that represents a piece of a whole  
Numerator- a number of equal parts  
Denominator- the number of equal parts that make up a whole

**Warm Up:** See Attached

**Introduction:** *Today students are looking at how objects can be divided into equal parts and how we identify each part numerically.*

**Pattern Block Fractional Representation:**



1



$\frac{1}{2}$



$\frac{1}{3}$

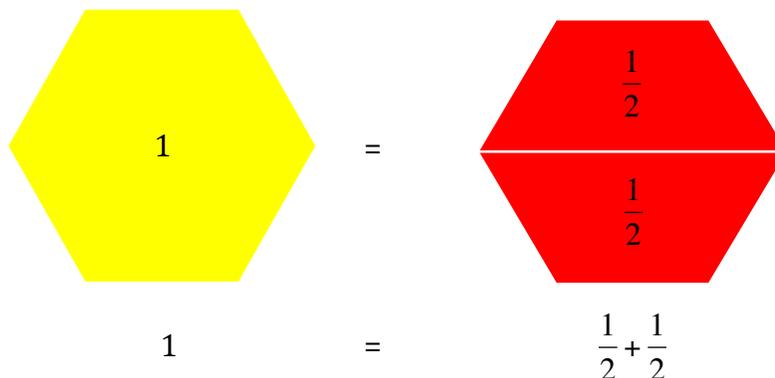


$\frac{1}{6}$

## BUILDING AN EQUIVALENT WHOLE

### Direct Instruction:

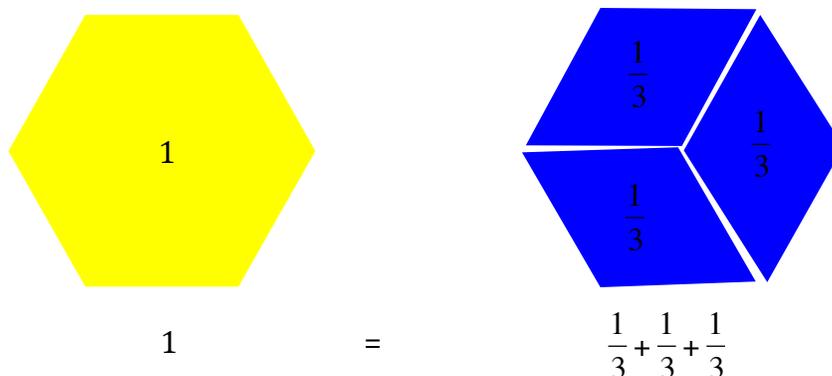
Show:



“We are looking at fractions, or parts of a whole. Fractions are written as shown with a numerator and a denominator. So one whole equals one half plus one half.” *Point out that the denominator indicates the number of parts of the whole.*

### Guided Practice:

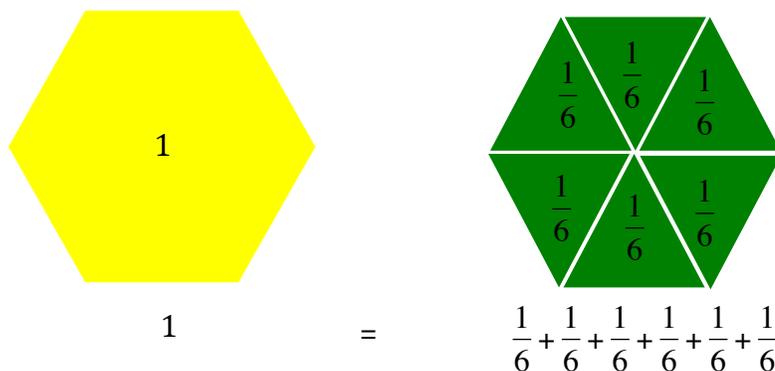
Build:



*Write and read the number sentence for the students and have students read the number sentence.* [one whole equals one-third plus one-third plus one-third].

### You-Try:

Build:



*Write and read the number sentence for the students and have students read the number sentence.* [one whole equals one-sixth plus one-sixth plus one-sixth plus one-sixth plus one-sixth plus one-sixth].

## BUILDING AN EQUIVALENT HALF

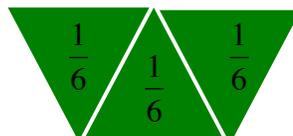
### Guided Practice:

Build:



$$\frac{1}{2}$$

=



$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$

*Write and read the number sentence for the students and have students read the number sentence. [one half equals one-sixth plus one-sixth plus one-sixth].*

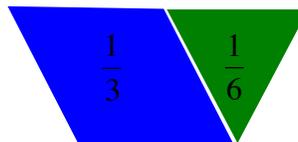
**You-Try:** “Show another way to make one-half”

Build:



$$\frac{1}{2}$$

=



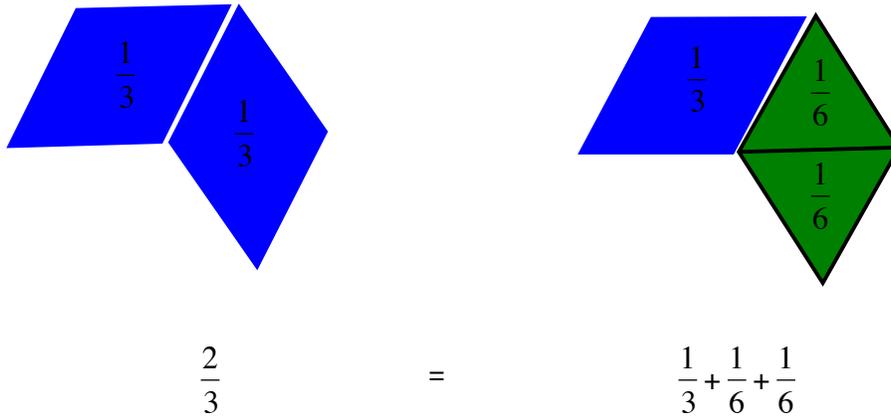
$$\frac{1}{3} + \frac{1}{6}$$

*Write and read the number sentence for the students and have students read the number sentence. [one half equals one-third plus one-sixth].*

## BUILDING AN EQUIVALENT TWO-THIRDS

### Guided Practice:

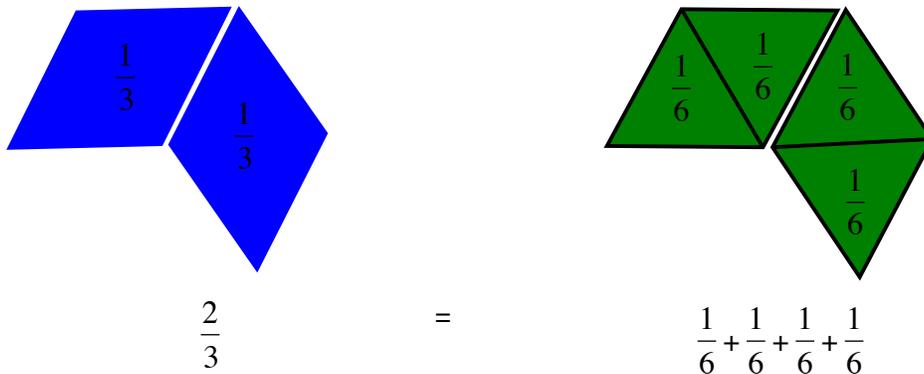
Build:



*Write and read the number sentence for the students and have students read the number sentence. [two-thirds equals one-third plus one-sixth plus one-sixth].*

### You-Try: “Show another way to make two-thirds”

Build:



*Write and read the number sentence for the students and have students read the number sentence. [two-thirds equals one-sixth plus one-sixth plus one-sixth plus one-sixth].*

**Think Pair Share:** *Ask students what they see in relationship to the size of each piece and the denominator [the smaller the piece the larger the denominator].*

## USING FRACTION FRINGES

### **Introduction of Fraction Fringes:**

*The fraction fringes are a great way to show students equivalent, greater than, less than, addition and subtraction of fractions with a common denominator.*

*“We are going to look at another way to see fractions.” Pass out prepared fraction fringes to students. As a class label the fringes explaining how each piece is numbered.*

*“This section has three equal pieces, therefore, the numerator on each piece is one and the denominator on each piece is three because the 3 pieces make 1 whole.”*

### **Direct Instruction on Equivalency:**

Show:

*“ $\frac{1}{3}$  is equal to what?  $\frac{2}{6}$  and  $\frac{4}{12}$ ” Show students how when you lift up  $\frac{1}{3}$ ,  $\frac{2}{6}$  and  $\frac{4}{12}$  are lifted up. This is a great way to show equivalency. Write and read the number sentence,  $\frac{1}{3}$  is equal to  $\frac{2}{6}$  and  $\frac{4}{12}$ .*

### **Guided Practice on Equivalency:**

Show:

*“ $\frac{2}{3}$  is equal to what?  $\frac{4}{6}$  and  $\frac{8}{12}$ ” Students lift up  $\frac{2}{3}$ , as you do so,  $\frac{4}{6}$  and  $\frac{8}{12}$  also are lifted up. Write and read the number sentence, then have the students read [ $\frac{2}{3}$  is equal to  $\frac{4}{6}$  and  $\frac{8}{12}$ ].*

### **You Try:**

*“ $\frac{3}{6}$  is equal to what?” [ $\frac{6}{12}$ ] Note- $\frac{1}{2}$  is not in this set because it does not match up with the thirds.*

*Teachers can develop questions as they go along spending more time where needed and/or adding more challenging questions as students gain understanding.*

**Greater than/Less than question examples:** *Write and read the number sentence for all questions you ask, then have the students read the number sentences.*

I have 2 pizzas. 1 is cut in thirds, 1 is cut in sixths. You may have 1 piece of pizza, which do you want  $\frac{1}{3}$  or  $\frac{1}{6}$ ?

We have 1 cake cut into sixths and 1 cake cut into twelfths. If I eat  $\frac{1}{6}$  of the cake and you eat  $\frac{3}{12}$  of the cake, who ate more?

**Addition/Subtraction question example:**

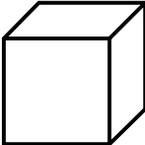
We have a pizza cut in twelfths. If I eat  $\frac{2}{12}$  and you eat  $\frac{3}{12}$  what fraction of the pizza did we eat? What fraction of the pizza is remaining?

**Extending the lesson:**

Allow students to use pattern blocks or fraction fringes to ask and/or write questions for classmate.

Move to problems that don't have a common denominator. Students can easily add  $\frac{1}{3} + \frac{1}{6}$  because when using the pattern blocks and fraction fringes they can easily see that  $\frac{1}{3} = \frac{2}{6}$  therefore  $\frac{1}{3} + \frac{1}{6} = \frac{2}{6} + \frac{1}{6} = \frac{3}{6}$

# Warm-Up

2 <sup>nd</sup> grade CST/#9	Review:
<p>Which number sentence is true?</p> <p>A) <math>359 &lt; 375</math></p> <p>B) <math>359 &gt; 375</math></p> <p>C) <math>359 &lt; 359</math></p> <p>D) <math>359 &gt; 359</math></p>	<p>Add</p> $\begin{array}{r} 247 \\ + 34 \\ \hline \end{array}$
Current:	Other:
<p>How much of the box is shaded?</p> 	<p>Identify the figure below:</p> 

**Today's Objective/Standards:** Demonstrate understanding of equivalent fractions through use of pattern blocks and fraction fringes. Gr 2:NS 4.1, Gr 3:NS 3.1

