

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

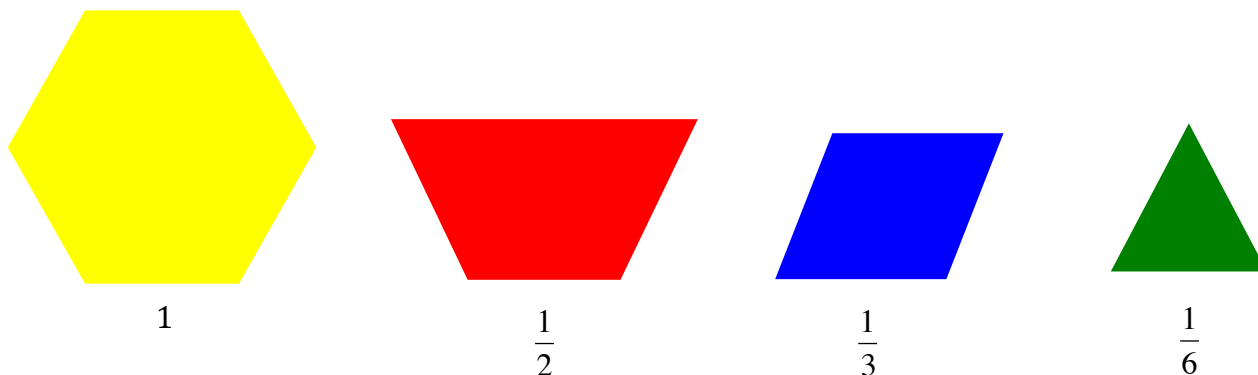
Materials: Pattern Blocks
Prepared Fraction Fringes (see attached patterns)
Paper/Pencil

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.*

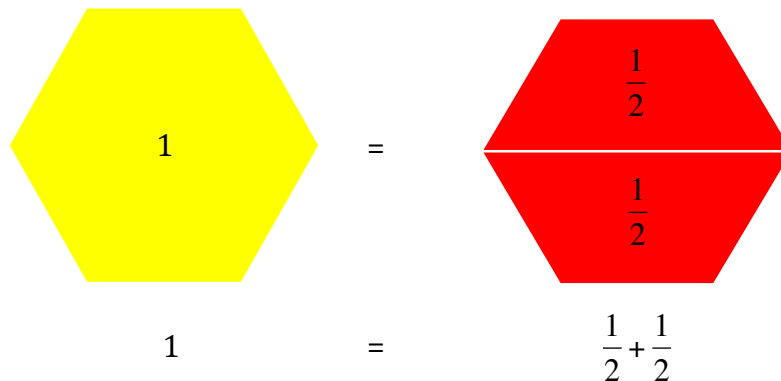
Pattern Block Fractional Representation:



BUILDING AN EQUIVALENT WHOLE

Direct Instruction:

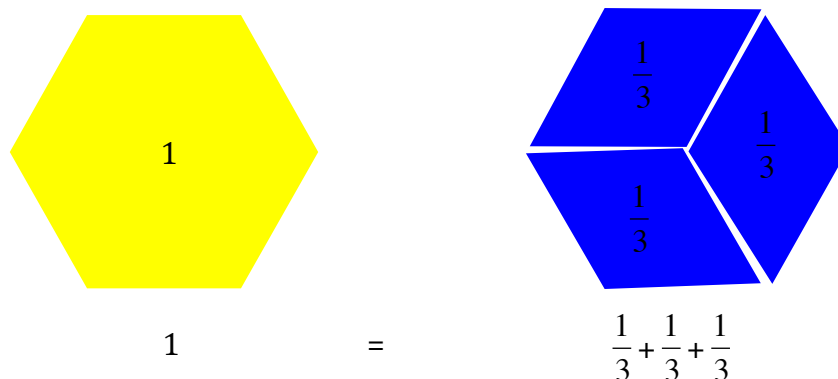
Show:



“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:

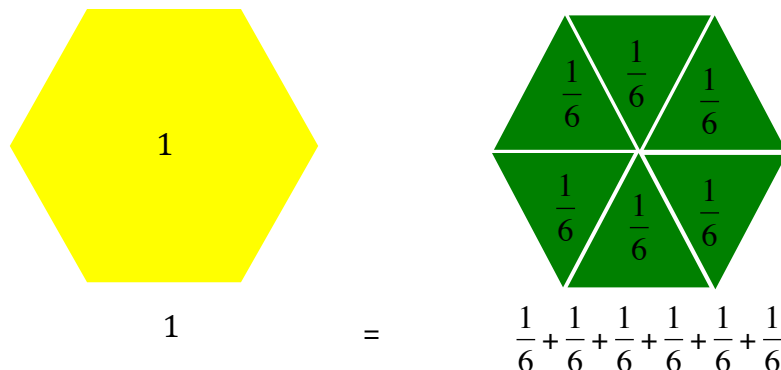
Build:



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:

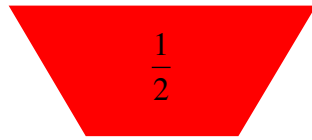


Write and read the number sentence for the students and have students read the number sentence. [one whole equals one-sixth plus one-sixth plus one-sixth plus one-sixth plus one-sixth plus one-sixth].

BUILDING AN EQUIVALENT HALF

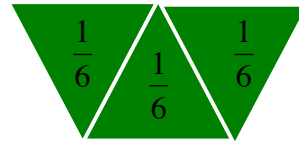
Guided Practice:

Build:



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

=

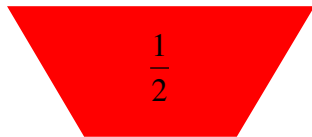


$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$

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].

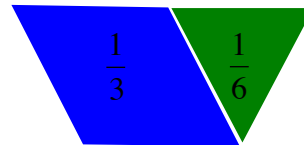
You-Try: “Show another way to make one-half”

Build:



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

=



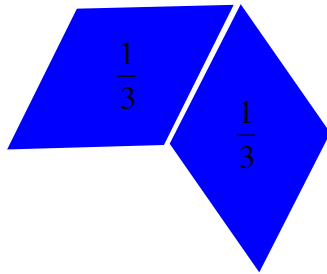
$$\frac{1}{3} + \frac{1}{6}$$

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

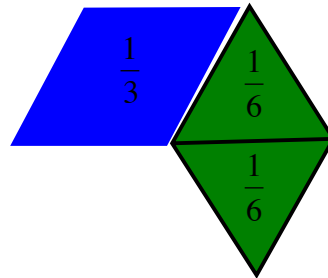
Guided Practice:

Build:



$$\frac{2}{3}$$

=

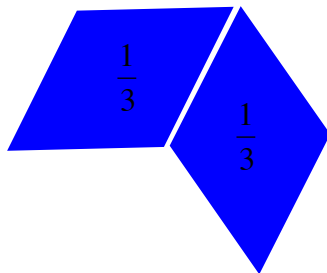


$$\frac{1}{3} + \frac{1}{6} + \frac{1}{6}$$

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].

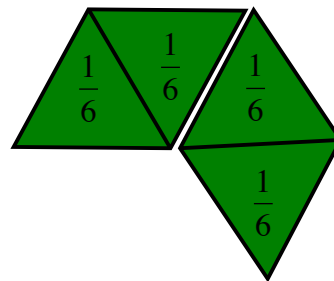
You-Try: “Show another way to make two-thirds”

Build:



$$\frac{2}{3}$$

=



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

Write and read the number sentence for the students and have students read the number sentence. [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:


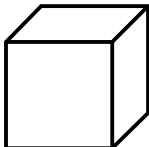
We have a pizza cut in twelfths. If I eat $\frac{2}{12}$ and you eat $\frac{3}{12}$ what fraction of the pizza did we eat? What fraction of the pizza is remaining?

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 nd grade CST/#9	Review:
<p>Which number sentence is true?</p> <p>A) $359 < 375$</p> <p>B) $359 > 375$</p> <p>C) $359 < 359$</p> <p>D) $359 > 359$</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

