

LessonTitle: Pattern Block Fractions		2.0c
Utah State Core Standard and Indicators		
Summary See 2.0a		
Enduring Understanding See 2.0a	Essential Questions See 2.0a	
Skill Focus See 2.0a	Vocabulary Focus	
Assessment		
Materials: Pattern Blocks or online manipulatives, overhead pattern blocks		
Launch		
<p>Explore ideas: “Teachers were a little frustrated with the kids building with the tiles. We talked about giving them time to just do that. Some of the teachers were a little confused with the problem, red trapezoid is one whole and blue rhombus is the part. When they had to divide the shapes to put them in groups it got a little more confusing. All the teachers allowed their students to work in groups, and it took 2 to 3 days to complete the assignment. Overall, I think everyone really liked this assignment.”</p>		
<p>Summarize ideas: “Teachers liked the blocks. . . it was good to be able to have a visual, and they were finding that it was easy to use them in other examples of fractions to tie what the students were learning to this lesson. That makes it a good summary.”</p>		
Apply		

Teacher Instructions

Materials: Pattern Blocks or online manipulatives, worksheet, overhead pattern blocks

- 1) For overhead demo you will need 11 red trapezoids, 15 blue rhombuses (diamonds), 18 green triangles, and 3 yellow hexagons.
- 2) For students working in groups you may put 1 yellow hexagon, 3 green triangles, 3 blue rhombuses, and 2 red trapezoids in a baggie. This will be enough for them to do some measuring and mentally figure out the rest.
- 3) You may want them to visualize from drawings they make at the beginning of the worksheet.

Important concepts to bring into the modeling and the class discussion:

- 1) The numerator is a number.
- 2) The denominator is a name. (fourths, halves etc).
- 3) In order to know the name of the piece, you need to find out how many make one whole.
- 4) Counting the unorganized pieces and then giving them the right name, will give you the improper fraction.
- 5) Organizing the pieces into “wholes” and counting the left-over pieces will give you the mixed number. (Don’t forget the name you gave these pieces.) Also, this is a good time to talk about how a fraction is a division problem, with a whole number and a remainder, written as a fraction.
- 6) The Algorithm or steps used to change the whole number back into an improper fraction, is the reverse of division. 11 divided by 5 is 2 remainder 1. Backing up, 5×2 plus the remainder is 11.

Instructions:

1) Guide the students through a few of the problems, especially changing the value of the whole. Guide the students by questioning instead of doing it for them. Use the example below to model the first example with the students.

One Whole	Color and Shape	What is the name of this piece? (as a part of the whole)	You have this many.	Write using words and numbers	1) How many wholes? 2) How many left over?	What is the mixed number?	How do you change the mixed number back into an improper fraction?
Yellow	Blue rhombus	Blue is $\frac{1}{3}$ of yellow	8 blues	Eight thirds or $\frac{8}{3}$	W = 2 wholes R = two thirds	$2 \frac{2}{3}$	$3 \times 2 + 2 =$ 8 thirds or $\frac{8}{3}$

2) Upon completion of the worksheet, students can use the extra spaces in the worksheet to make up problems. They can exchange and solve each other’s problems.

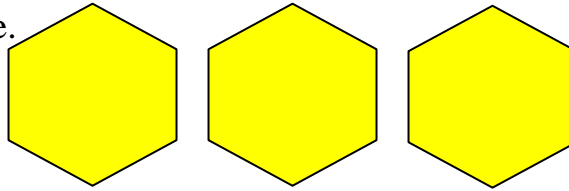
Pre 2.0c

Pattern Block Fractions

Consider the yellow hexagon as the whole.

Cover a yellow hexagon using...

- 1) green triangles
- 2) blue rhombuses
- 3) red trapezoids



Draw how the shapes fit on the hexagon drawings above. One green triangle is _____ (fraction) of the yellow hexagon. One blue rhombus is _____ of the yellow hexagon. One red trapezoid is _____ of the yellow hexagon.

Fill in the chart.

One Whole	Color and Shape	What is the name of this piece? (as a part of the whole)	You are given this many.	Write using words and numbers.	1) How many wholes? 2) How many left over?	What is the mixed number?	How do you change the mixed number back into an improper fraction?
Yellow	Blue rhombus		8 blues		W = R =		
Yellow	Red trapezoid		5 reds				
Yellow	Green triangle		13 greens				
Red	Green triangle		11 greens				
Red	Blue rhombus		5 blues				

2 yellows	Red trapezoid		9				
2 yellows	Blue diamond		14				
2 yellows	Green triangle		18				
1 yellow, 2 blues	Green triangle		17				
1 yellow, 2 reds	Blue diamond		15				
3 yellows	Red trapezoid		11				

Find an equivalent fraction to each:

$$\frac{1}{2} = \frac{\quad}{6}$$

$$\frac{2}{5} = \frac{\quad}{15}$$

$$\frac{2}{3} = \frac{\quad}{15}$$

$$\frac{4}{7} = \frac{\quad}{14}$$

$$\frac{5}{8} = \frac{\quad}{24}$$

$$\frac{3}{4} = \frac{\quad}{24}$$

$$\frac{3}{4} = \frac{\quad}{16}$$

$$\frac{3}{10} = \frac{\quad}{30}$$

$$\frac{7}{8} = \frac{\quad}{32}$$

$$\frac{5}{8} = \frac{\quad}{40}$$

$$\frac{4}{5} = \frac{\quad}{40}$$

$$\frac{4}{9} = \frac{\quad}{27}$$

Change from improper fraction to a mixed fraction:

$$\frac{10}{3} =$$

$$\frac{20}{7} =$$

$$\frac{25}{9} =$$

$$\frac{25}{12} =$$

$$\frac{29}{4} =$$

$$\frac{19}{5} =$$

$$\frac{39}{7} =$$

$$\frac{39}{10} =$$

$$\frac{23}{3} =$$

$$\frac{53}{7} =$$

$$\frac{23}{8} =$$

$$\frac{63}{9} =$$