North Penn School District

Elementary Math Parent Letter

Grade 4

Unit 3 – Chapter 6: Fraction Equivalence and Comparison

Examples for each lesson:

Lesson 6.1

Equivalent Fractions

Write two fractions that are equivalent to $\frac{2}{6}$.

Step 1 Make a model to represent $\frac{2}{6}$.

The rectangle is divided into 6 equal parts, with 2 parts shaded.

Step 2 Divide the rectangle from Step 1 in half.

The rectangle is now divided into 12 equal parts, with 4 parts shaded.

The model shows the fraction $\frac{4}{12}$. So, $\frac{2}{6}$ and $\frac{4}{12}$ are equivalent.

Step 3 Draw the same rectangle as in Step 1, but with only 3 equal parts. Keep the same amount of the rectangle shaded.

The rectangle is now divided into 3 equal parts, with 1 part shaded.

The model shows the fraction $\frac{1}{3}$. So, $\frac{2}{6}$ and $\frac{1}{3}$ are equivalent.

Lesson 6.2

Generate Equivalent Fractions

Write an equivalent fraction for $\frac{4}{5}$.

Step 1 Choose a whole number, like 2.	
Step 2 Create a fraction using 2 as the numerator and denominator: $\frac{2}{2}$. This fraction is equal to 1. You can multiply a number by 1 without changing the value of the number.	
Step 3 Multiply $\frac{4}{5}$ by $\frac{2}{2}$: $\frac{4 \times 2}{5 \times 2} = \frac{8}{10}$.	
So, $\frac{4}{5}$ and $\frac{8}{10}$ are equivalent.	

Write another equivalent fraction for $\frac{4}{5}$.

Step 1 Choose a different whole number, like 20.
Step 2 Create a fraction using 20 as the numerator and denominator: $\frac{20}{20}$.
Step 3 Multiply $\frac{4}{5}$ by $\frac{20}{20}$: $\frac{4 \times 20}{5 \times 20} = \frac{80}{100}$.
So, $\frac{4}{5}$ and $\frac{80}{100}$ are equivalent.

More information on this strategy is available on Animated Math Model #23.

Lesson 6.3

Simplest Form

A fraction is in **simplest form** when 1 is the only factor that the numerator and denominator have in common.

Tell whether the fraction $\frac{7}{8}$ is in simplest form.

Look for common factors in the numerator and the denominator.

Step 1 The numerator of $\frac{7}{8}$ is 7. List all the factors of 7.	$1 \times 7 = 7$ The factors of 7 are 1 and 7.
Step 2 The denominator of $\frac{7}{8}$ is 8. List all the factors of 8.	$1 \times 8 = 8$ $2 \times 4 = 8$ The factors of 8 are 1, 2, 4, and 8.
Step 3 Check if the numerator and denominator of $\frac{7}{8}$ have any common factors greater than 1.	The only common factor of 7 and 8 is 1.
So, $\frac{7}{8}$ is in simplest form.	

More information on this strategy is available on Animated Math Model #24.

Lesson 6.4

Common Denominators

A **common denominator** is a common multiple of the denominators of two or more fractions.

Write $\frac{2}{3}$ and $\frac{3}{4}$ as a pair of fractions with common denominators.

Step 1 Identify the denominators of $\frac{2}{3}$ and $\frac{3}{4}$.	$\frac{2}{3}$ and $\frac{3}{4}$ The denominators are 3 and 4.
Step 2 List multiples of 3 and 4. Circle common multiples.	3: 3, 6, 9, ⑫ 15, 18 4: 4, 8, ⑫ 16, 20 12 is a common multiple of 3 and 4.
Step 3 Rewrite $\frac{2}{3}$ as a fraction with a denominator of 12.	$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$
Step 4 Rewrite $\frac{3}{4}$ as a fraction with a denominator of 12.	$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$
So, you can rewrite $\frac{2}{3}$ and $\frac{3}{4}$ as $\frac{8}{12}$ and $\frac{9}{12}$.	

Lesson 6.5

Problem Solving • Find Equivalent Fractions

Kyle's mom bought bunches of balloons for a family party. Each bunch has 4 balloons, and $\frac{1}{4}$ of the balloons are blue. If Kyle's mom bought 5 bunches of balloons, how many balloons did she buy? How many of the balloons are blue?

Read the Problem		
What do I need to find? I need to find how many balloons Kyle's mom bought and how many of the balloons are blue.	**What information do I need to use?** Each bunch has 1 out of 4 balloons that are blue, and there are 5 bunches.	**How will I use the information?** I will make a table to find the total number balloons Kyle's mom bought and the fraction of balloons that are blue.
Solve the Problem		

I can make a table.

Number of Bunches	1	2	3	4	5
Total Number of Blue Balloons	1	2	3	4	5
Total Number of Balloons	4	8	12	16	20

Kyle's mom bought 20 balloons. 5 of the balloons are blue.

More information on this strategy is available on Animated Math Model #23.

Lesson 6.6

Compare Fractions Using Benchmarks

A **benchmark** is a known size or amount that helps you understand a different size or amount. You can use $\frac{1}{2}$ as a benchmark.

Sara reads for $\frac{3}{6}$ hour every day after school. Connor reads for $\frac{2}{3}$ hour. Who reads for a longer amount of time?

Compare the fractions. $\frac{3}{6}$ ⬤ $\frac{2}{3}$

Step 1 Divide one circle into 6 equal parts. Divide another circle into 3 equal parts.
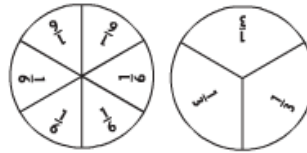
Step 2 Shade $\frac{3}{6}$ of the first circle. How many parts will you shade? **3 parts**

Step 3 Shade $\frac{2}{3}$ of the second circle. How many parts will you shade? **2 parts**

Step 4 Compare the shaded parts of each circle. Half of Sara's circle is shaded. More than half of Connor's circle is shaded.

$\frac{3}{6}$ is less than $\frac{2}{3}$. $\frac{3}{6}$ ⬤< $\frac{2}{3}$

So, Connor reads for a longer amount of time.

Sara   Connor

More information on this strategy is available on Animated Math Model #25.

Lesson 6.7

Compare Fractions

Theo filled a beaker $\frac{2}{4}$ full with water. Angelica filled a beaker $\frac{3}{8}$ full with water. Whose beaker has more water?

Compare $\frac{2}{4}$ and $\frac{3}{8}$.

Step 1 Divide one beaker into 4 equal parts. Divide another beaker into 8 equal parts.

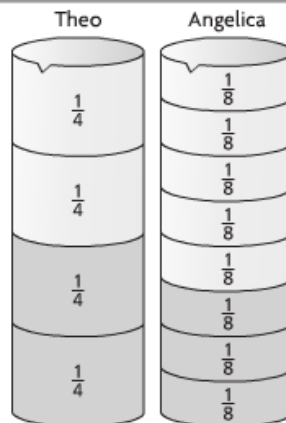**Step 2** Shade $\frac{2}{4}$ of the first beaker.

Step 3 Shade $\frac{3}{8}$ of the second beaker.

Step 4 Compare the shaded parts of each beaker. Half of Theo's beaker is shaded. Less than half of Angelica's beaker is shaded.

$\frac{2}{4}$ is greater than $\frac{3}{8}$.

$\frac{2}{4}$ ⬤> $\frac{3}{8}$

So, Theo's beaker has more water.

Theo   Angelica

Lesson 6.8

Compare and Order Fractions

Write $\frac{3}{8}$, $\frac{1}{4}$, and $\frac{1}{2}$ in order from least to greatest.

Step 1 Identify a common denominator.	Multiples of 8: ⑧ 16, 24
	Multiples of 4: 4, ⑧ 16,
	Multiples of 2: 2, 4, 6, ⑧
	Use 8 as a common denominator.
Step 2 Use the common denominator to write equivalent fractions.	$\frac{3}{8}$ $\frac{1}{4} = \frac{1 \times 2}{4 \times 2} = \frac{2}{8}$ $\frac{1}{2} = \frac{1 \times 4}{2 \times 4} = \frac{4}{8}$
Step 3 Compare the numerators.	$2 < 3 < 4$
Step 4 Order the fractions from least to greatest, using $<$ or $>$ symbols.	$\frac{2}{8} < \frac{3}{8} < \frac{4}{8}$

So, $\frac{1}{4} < \frac{3}{8} < \frac{1}{2}$.

More information on this strategy is available on Animated Math Model #26.

<u>**Vocabulary**</u>

Benchmark – a known size or amount that helps you understand a different size or amount

Common denominator – a common multiple of two or more denominators

Equivalent fractions – two or more fractions that name the same amount

Simplest form – A fraction is in its simplest form if the numerator and denominator have only 1 as a common factor