KCS@home
Summer Edition

Fourth Grade Math

This packet includes four sections that cover some of the major content of 4ᵗʰ Grade Math. Each section includes notes and practice for each topic. For additional support, visit KCS TV on YouTube for instructional videos that accompany each section.

The following content is included in this packet:

	Topic			
	I. Classify Two-Dimensional Figures	**II. Multiply and Divide Whole Numbers**	**III. Equivalent Fractions and Comparing Fractions**	**IV. Relate Decimals and Fractions and Compare Decimals**
Activity 1	Compare Quadrilaterals	Multiplying Whole Numbers	Equivalent Fractions	Fractions and Decimals
Activity 2	Sorting Shapes based on parallel and perpendicular sides	Dividing Whole Numbers	Compare Fractions- Common Denominators	Compare Fractions
Activity 3	Sorting Shapes based on angles		Compare Fractions- Using a Benchmark	Compare Tenths and Hundredths
Activity 4	Sorting Triangles based on angles and lengths of sides			

4th Grade Math- Activity Section III

Standards: 4.NF.A.1 and 4.NF.A.2

Study the example showing one way to model equivalent fractions. Then solve problems 1–8.

Example

A model can show equivalent fractions.

The model has 5 equal parts. It shows $\frac{3}{5}$.

Divide the model into 10 equal parts to show an equivalent fraction.

The model shows $\frac{6}{10}$.

$\frac{3}{5} = \frac{6}{10}$

1 Divide the model below to show $\frac{1}{2} = \frac{5}{10}$.

2 Draw a model to show $\frac{1}{6}$. Then divide the model into twice as many parts to find an equivalent fraction.

$\frac{1}{6} =$ _____

3 Multiply the numerator and denominator of $\frac{1}{6}$ by 2.

$\frac{1 \times 2}{6 \times 2} =$ _____

4 Why does it make sense that the fraction you wrote in problems 2 and 3 is the same?

_____

_____

Solve.

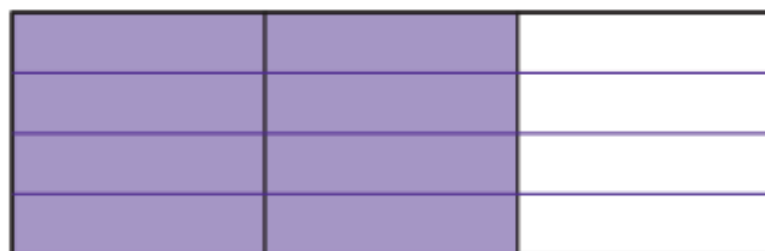**5** Fill in the missing numbers to find two equivalent fractions to $\frac{8}{10}$.

$$\frac{8 \div \boxed{}}{10 \div 2} = \frac{\boxed{}}{5} \qquad \frac{8 \times 10}{10 \times 10} = \frac{\boxed{}}{100}$$

6 Look at problem 5. Explain how $\frac{4}{5} = \frac{80}{100}$.

_____

_____

_____

_____

_____

_____

7 Shade the model below to show $\frac{1}{5}$. Then show 10 equal parts and write an equivalent fraction.

_____

8 Fill in the missing numbers to find a fraction that is equivalent to the fraction modeled below.

$$\frac{\boxed{}}{\boxed{}} \begin{array}{c} \div 4 \\ \div 4 \end{array} = \frac{\boxed{}}{\boxed{}}$$

Study the example problem showing how to compare fractions by finding a common denominator. Then solve problems 1–7.

Example

A length of ribbon is $\frac{3}{4}$ foot. Another length of ribbon is $\frac{5}{6}$ foot. Compare the lengths using a symbol.

Find a common denominator. $\frac{3 \times 3}{4 \times 3} = \frac{9}{12}$ $\frac{5 \times 2}{6 \times 2} = \frac{10}{12}$

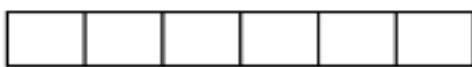Write the equivalent fractions. $\frac{3}{4} = \frac{9}{12}$ $\frac{5}{6} = \frac{10}{12}$

Compare the numerators. $\frac{9}{12} < \frac{10}{12}$

$9 < 10$ so $\frac{9}{12} < \frac{10}{12}$

$\frac{3}{4} < \frac{5}{6}$

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1 Shade the models below to show $\frac{3}{4}$ and $\frac{5}{6}$.

Fill in the blank to show the comparison. $\frac{3}{4}$ —— $\frac{5}{6}$

2 Divide each model in problem 1 into 12 equal parts to show an equivalent fraction. Write the equivalent fractions and symbol to show the comparison.

$\frac{\square}{12}$ —— $\frac{\square}{12}$

3 Compare $\frac{2}{3}$ and $\frac{9}{12}$ by finding a common denominator.

a. Write a fraction equivalent to $\frac{2}{3}$ with a denominator of 12.

$\dfrac{2 \times \square}{3 \times \square} = \dfrac{\square}{12}$

b. Compare the fractions. $\frac{\square}{12}$ —— $\frac{9}{12}$. So, $\frac{2}{3}$ —— $\frac{9}{12}$.

Vocabulary

denominator the number below the line in a fraction. It tells how many equal parts are in the whole.

$\frac{3}{4} \longrightarrow$

4 equal parts

numerator the number above the line in a fraction. It tells how many equal parts are described.

$\frac{3}{4} \longrightarrow$

3 parts described

Solve.

4 Compare $\frac{1}{5}$ and $\frac{2}{12}$ by finding a common numerator.

   a. Write a fraction equivalent to $\frac{1}{5}$ with a numerator of 2.

$$\frac{1 \times \square}{5 \times \square} = \frac{2}{\square}$$

   b. Compare the fractions. $\frac{2}{\square}$ —— $\frac{2}{12}$. So, $\frac{1}{5}$ —— $\frac{2}{12}$.

5 Compare the fractions. Use the symbols $<$, $>$, and $=$.

   a. $\frac{2}{5}$ —— $\frac{8}{10}$

   b. $\frac{5}{12}$ —— $\frac{1}{3}$

   c. $\frac{3}{5}$ —— $\frac{60}{100}$

   d. $\frac{9}{100}$ —— $\frac{9}{10}$

6 Tell whether each sentence is *True* or *False*.

   a. $\frac{2}{3} > \frac{5}{6}$ ☐ True   ☐ False

   b. $\frac{4}{10} < \frac{4}{5}$ ☐ True   ☐ False

   c. $\frac{70}{100} = \frac{7}{10}$ ☐ True   ☐ False

   d. $\frac{1}{3} > \frac{3}{1}$ ☐ True   ☐ False

   e. $\frac{3}{4} < \frac{2}{3}$ ☐ True   ☐ False

7 Can two fractions with the same numerator and different denominators be equal? Use words and numbers to explain.

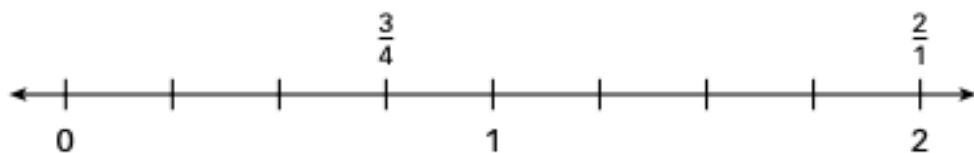_____

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Study the example problem using 1 as a benchmark to compare fractions. Then solve problems 1–4.

Example

Carol compared $\frac{3}{4}$ and $\frac{2}{1}$. She says $\frac{3}{4} > \frac{2}{1}$ because both the numerator and the denominator in $\frac{3}{4}$ are greater than the numerator and denominator in $\frac{2}{1}$.

$3 > 2$ and $4 > 1$. Is Carol correct?
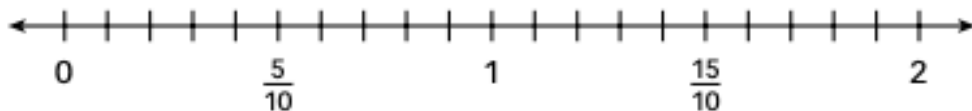
Compare each fraction to the benchmark 1.

$\frac{3}{4} < 1$ and $\frac{2}{1} > 1$.

$\frac{3}{4} < \frac{2}{1}$ and $\frac{2}{1} > \frac{3}{4}$. Carol is not correct.

1 Compare $\frac{9}{10}$ and $\frac{3}{2}$.

   a. Label $\frac{9}{10}$ and $\frac{3}{2}$ on the number line below.
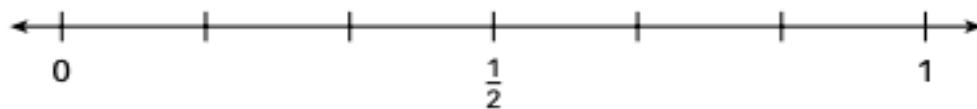

   b. Which fraction is greater than 1? _____

   c. Which fraction is less than 1? _____

   d. Fill in the blank. Explain how you found your answer. $\frac{9}{10}$ ____ $\frac{3}{2}$

   _____

   _____

   _____

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Solve.

2 Compare $\frac{5}{6}$ and $\frac{1}{3}$ using the benchmark fraction $\frac{1}{2}$.

   a. Label $\frac{5}{6}$ and $\frac{1}{3}$ on the number line below.

   b. Which fraction is greater than $\frac{1}{2}$? _____

   c. Which fraction is less than $\frac{1}{2}$? _____

   d. Fill in the blank. Explain how you found your answer.

        $\frac{5}{6}$ ____ $\frac{1}{3}$

     _____

     _____

     _____

3 Use a benchmark fraction to compare the fractions $\frac{7}{10}$ and $\frac{5}{12}$. Explain how you found your answer.

_____

_____

_____

4 Tell whether each number sentence is *True* or *False*.

  Then write the benchmark you could use to compare the fractions.

                                              Benchmark

  a. $\frac{9}{8} > \frac{11}{12}$ ☐ True ☐ False   _____

  b. $\frac{2}{5} < \frac{5}{6}$ ☐ True ☐ False   _____

  c. $\frac{7}{10} < \frac{2}{4}$ ☐ True ☐ False   _____

  d. $\frac{4}{5} > \frac{2}{2}$ ☐ True ☐ False   _____

  e. $\frac{3}{2} < \frac{9}{10}$ ☐ True ☐ False   _____

▶ **1** Divide the model below to show $\frac{1}{2} = \frac{5}{10}$.

▶ **2** Draw a model to show $\frac{1}{6}$. Then divide the model into twice as many parts to find an equivalent fraction.

Drawings will vary. Possible drawing: Students might draw a circle or other model to solve the problem.

$\frac{1}{6} = \frac{2}{12}$

▶ **3** Multiply the numerator and denominator of $\frac{1}{6}$ by 2.

$\frac{1 \times 2}{6 \times 2} = \frac{2}{12}$

▶ **4** Why does it make sense that the fraction you wrote in problems 2 and 3 is the same?

Answers will vary. Possible answer: Multiplying by 2 is the same as making twice as many equal parts and twice as many shaded parts.

▶ **5** Fill in the missing numbers to find two equivalent fractions to $\frac{8}{10}$.

$\frac{8 \div \boxed{2}}{10 \div 2} = \frac{\boxed{4}}{5}$ $\frac{8 \times 10}{10 \times 10} = \frac{\boxed{80}}{100}$

▶ **6** Look at problem 5. Explain how $\frac{4}{5} = \frac{80}{100}$.

Explanations will vary.

Possible explanation: You can multiply both the numerator and the denominator in $\frac{4}{5}$ by 20 to find an equivalent fraction: $4 \times 20 = 80$ and $5 \times 20 = 100$. So $\frac{4}{5} = \frac{80}{100}$. Problem 5 also shows that $\frac{4}{5}$ and $\frac{80}{100}$ are both equivalent to $\frac{8}{10}$. So I know $\frac{4}{5}$ and $\frac{80}{100}$ are also equivalent to each other.
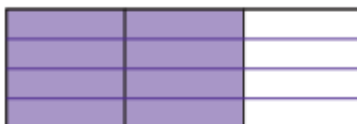
▶ **7** Shade the model below to show $\frac{1}{5}$. Then show 10 equal parts and write an equivalent fraction.

$\frac{1}{5} = \frac{2}{10}$

Possible dividing lines shown. Students may draw horizontal or vertical lines to divide each part into 2 equal parts.

▶ **8** Fill in the missing numbers to find a fraction that is equivalent to the fraction modeled below.

$\frac{8}{12} \div 4 = \frac{2}{3}$ $\frac{8 \div 4}{12 \div 4} = \frac{2}{3}$

▶ **1** Shade the models below to show $\frac{3}{4}$ and $\frac{5}{6}$. Fill in the blank to show the comparison. $\frac{3}{4} \leq \frac{5}{6}$

▶ **2** Divide each model in problem 1 into 12 equal parts to show an equivalent fraction. Write the equivalent fractions and symbol to show the comparison.
$\frac{9}{12} \leq \frac{10}{12}$

▶ **3** Compare $\frac{2}{3}$ and $\frac{3}{12}$ by finding a common denominator.

a. Write a fraction equivalent to $\frac{2}{3}$ with a denominator of 12. $\frac{2 \times \boxed{4}}{3 \times \boxed{4}} = \frac{\boxed{8}}{12}$

b. Compare the fractions. $\frac{\boxed{8}}{12} \leq \frac{9}{12}$. So $\frac{2}{3} \leq \frac{9}{12}$.

▶ **4** Compare $\frac{1}{5}$ and $\frac{2}{12}$ by finding a common numerator.

a. Write a fraction equivalent to $\frac{1}{5}$ with a numerator of 2. $\frac{1 \times \boxed{2}}{5 \times \boxed{2}} = \frac{2}{\boxed{10}}$

b. Compare the fractions. $\frac{2}{\boxed{10}} \geq \frac{2}{12}$. So $\frac{1}{5} \geq \frac{2}{12}$.

▶ **5** Compare the fractions. Use the symbols <, >, and =.

a. $\frac{2}{5} \leq \frac{8}{10}$

b. $\frac{5}{12} \geq \frac{1}{3}$

c. $\frac{3}{5} = \frac{60}{100}$

d. $\frac{9}{100} \leq \frac{9}{10}$

▶ **6** Tell whether each sentence is True or False.

a. $\frac{2}{3} > \frac{5}{6}$ ☐ True   ☒ False

b. $\frac{4}{10} < \frac{4}{3}$ ☒ True   ☐ False

c. $\frac{70}{100} = \frac{7}{10}$ ☒ True   ☐ False

d. $\frac{1}{3} > \frac{3}{1}$ ☐ True   ☒ False

e. $\frac{3}{4} < \frac{2}{3}$ ☐ True   ☒ False

▶ **7** Can two fractions with the same numerator and different denominators be equal? Use words and numbers to explain.

No. Possible explanation: Fractions with the same numerator have the same number of parts, but the size of the parts is different when the denominators are different. The fractions can't be equal, because the fraction with the smaller-size parts will be the smaller fraction. For example: $\frac{3}{4}$ is greater than $\frac{3}{5}$ because fourths are greater than fifths, $\frac{3}{4} > \frac{3}{5}$.

2 Compare $\frac{5}{6}$ and $\frac{1}{3}$ using the benchmark fraction $\frac{1}{2}$.

a. Label $\frac{5}{6}$ and $\frac{1}{3}$ on the number line below.

$$\text{0} \qquad \frac{1}{3} \qquad \frac{1}{2} \qquad \frac{5}{6} \qquad 1$$

b. Which fraction is greater than $\frac{1}{2}$? ___$\frac{5}{6}$___

c. Which fraction is less than $\frac{1}{2}$? ___$\frac{1}{3}$___

d. Fill in the blank. Explain how you found your answer.

$$\frac{5}{6} \;\geq\; \frac{1}{3}$$

Answers will vary. Possible answer: $\frac{5}{6}$ **is greater than** $\frac{1}{3}$ **because** $\frac{5}{6}$ **is greater than** $\frac{1}{2}$ **and** $\frac{1}{3}$ **is less than** $\frac{1}{2}$.

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3 Use a benchmark fraction to compare the fractions $\frac{7}{10}$ and $\frac{5}{12}$. Explain how you found your answer.

Answers will vary. Possible answer: $\frac{1}{2}$ **is equal to** $\frac{5}{10}$ **so** $\frac{7}{10}$ **is greater than** $\frac{1}{2}$. $\frac{1}{2}$ **is also equal to** $\frac{6}{12}$ **so** $\frac{5}{12}$ **is less than** $\frac{1}{2}$. $\frac{7}{10}$ **is greater than** $\frac{5}{12}$.

1 Compare $\frac{9}{10}$ and $\frac{3}{2}$.

a. Label $\frac{9}{10}$ and $\frac{3}{2}$ on the number line below.

$$0 \qquad \frac{5}{10} \qquad \frac{9}{10} \quad 1 \qquad \frac{3}{2} \qquad \frac{15}{10} \qquad 2$$

b. Which fraction is greater than 1? ___$\frac{3}{2}$___

c. Which fraction is less than 1? ___$\frac{9}{10}$___

d. Fill in the blank. Explain how you found your answer. $\frac{9}{10} \;\leq\; \frac{3}{2}$

Answers will vary. Possible answer: $\frac{9}{10}$ **is less than** $\frac{3}{2}$ **because** $\frac{9}{10}$ **is less than 1 and** $\frac{3}{2}$ **is greater than 1.**

4 Tell whether each number sentence is *True* or *False*. Then write the benchmark you could use to compare the fractions.

				Benchmark
a. $\frac{9}{8} > \frac{11}{12}$	☒ True	☐ False		1
b. $\frac{2}{5} < \frac{5}{6}$	☒ True	☐ False		$\frac{1}{2}$
c. $\frac{7}{16} < \frac{2}{4}$	☐ True	☒ False		$\frac{1}{2}$
d. $\frac{4}{3} > \frac{5}{6}$	☐ True	☒ False		1
e. $\frac{5}{2} < \frac{7}{10}$	☐ True	☒ False		1