Grade 3 TEKS Companion Guide

A review guide for the Grade 3 Mathematics Texas Essential Knowledge and Skills
Student Edition

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3.3H The student is expected to compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.
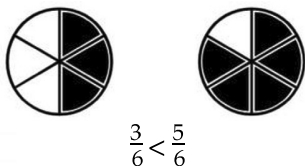
ⓘ TELL ME MORE...

Fractions can be compared only when the wholes are the same size. See the examples below to understand how to compare two fractions when the denominator is the same and how to compare two fractions when the numerator is the same.
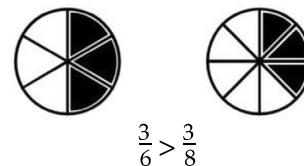
Equivalent Denominators	**Equivalent Numerators**
This means each whole is broken into same-size parts. So, look at the numerator and determine which fraction has more parts!	Each whole is broken into different-size parts. So, think about the size of each part!

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

$$\frac{3}{6} > \frac{3}{8}$$

$\frac{3}{6}$ is less than $\frac{5}{6}$ because it has fewer parts of the same-size whole shaded.
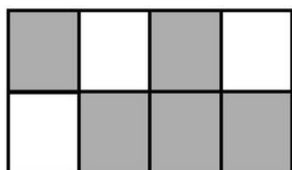
$\frac{3}{6}$ is greater than $\frac{3}{8}$ because sixths are greater than eighths. This is because the same-size whole is not divided into as many parts.
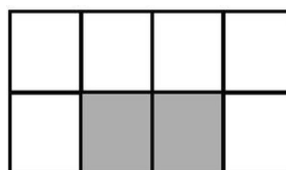
✓ EXAMPLES

EXAMPLE 1: Cameron planted two identical gardens. The models below are shaded to represent the fraction of each garden where Cameron planted vegetables.

Garden A   Garden B

Write a comparison of these two fractions using the <, >, or = symbol.

STEP 1 Determine the fraction that represents the portion of Garden A where Cameron planted vegetables.

- Garden A is divided into eight equal parts or eighths.

- 5 eighths or $\frac{5}{8}$ are shaded.

Cameron planted vegetables in $\frac{5}{8}$ of Garden A

STEP 2 Determine the fraction that represents the portion of Garden B where Cameron planted vegetables.

- Garden B is divided into eight equal parts or eighths.

- 2 eighths or $\frac{2}{8}$ are shaded.

Cameron planted vegetables in $\frac{2}{8}$ of Garden B.

STEP 3 Compare the two fractions represented in the models.

- Both models are the same size and divided into the same number of parts, which means each part in both models is the same size.

- Garden A has more parts shaded than Garden B.

Garden A represents a greater fraction than Garden B.

STEP 4 Write a comparison statement using the <, >, or = symbol.

- The fractions have the same denominator. However, the fraction for Garden A has a numerator of 5 and the fraction for Garden B has a numerator of 2.

- $5 > 2$, so $\frac{5}{8}$ is greater than $\frac{2}{8}$.

$\frac{5}{8} > \frac{2}{8}$

EXAMPLE 2: Both models below have been divided into equal parts. The models are shaded to show two fractions.

Model A   Model B

Write a comparison statement using the > symbol to compare the two fractions represented by the shaded portion of each model.

STEP 1 Write the fraction represented by Model A.

- Model A is divided into 6 equal parts or sixths.

- 4 sixths or $\frac{4}{6}$ are shaded.

Model A represents $\frac{4}{6}$.

STEP 2 Write the fraction represented by Model B.

- Model B is divided into 8 equal parts or eighths.

- 4 eighths or $\frac{4}{8}$ are shaded.

Model B represents $\frac{4}{8}$.

STEP 3 Compare the two fractions represented in the models.

- Each fraction has the same number of parts shaded.
- Model A is divided into 6 parts, and Model B is divided into 8 parts.
- The parts in model A are larger because the whole was partitioned into fewer parts.

The fraction represented by Model A is greater than the fraction represented by Model B.

STEP 4 Write a comparison statement using the > symbol.

- The symbol reads "greater than."
- This means the greater fraction will go in front of the symbol and the lesser fraction will go behind the symbol.
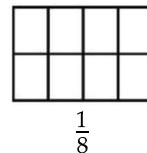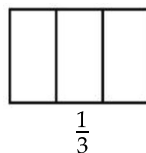- $\frac{4}{6}$ is greater than $\frac{4}{8}$.

$$\frac{4}{6} > \frac{4}{8}$$

MAKE A NOTE . . .

How can knowing fractions that are equivalent to $\frac{1}{2}$ help compare the two fractions in example 2?
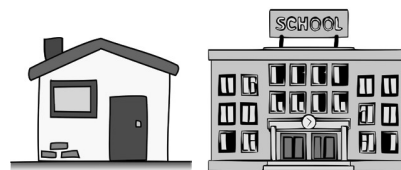
YOU TRY IT!

Use the models below to compare the two fractions below.

$\frac{1}{3}$ $\frac{1}{8}$

1. Shade $\frac{1}{3}$.

2. Shade $\frac{1}{8}$.

3. Compare the shaded areas and write a <, >, or = symbol between the two fractions.

EXAMPLE 3: Quinton and Carlos are racing home from school. Quinton has gone $\frac{1}{4}$ of the distance. Carlos has gone $\frac{1}{6}$ of the distance. Who has gone farther?

STEP 1 Draw a number line to represent Quinton's distance.

- Partition the number line into 4 equal parts.
- Use the number line to show that Quinton has traveled $\frac{1}{4}$ of the distance.

Quinton's Distance

$$0 \qquad \frac{1}{4} \qquad \frac{2}{4} \qquad \frac{3}{4} \qquad 1$$
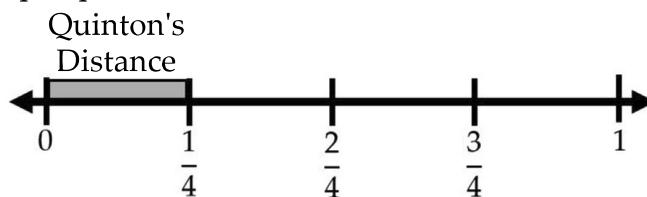
**STEP 2** Draw a number line to represent Carlos' distance.

■ Make sure the length of the number line is equal to the length of the number line that represents Quinton's distance.
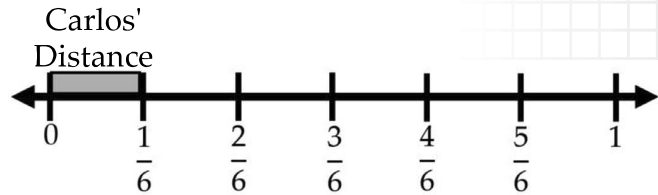
■ Partition the number line into 6 equal parts.

■ Use the number line to show that Carlos traveled $\frac{1}{6}$ of the distance.

Carlos'
Distance

STEP 3 Use the number lines to compare Quinton and Carlos' distances.

Quinton's
Distance
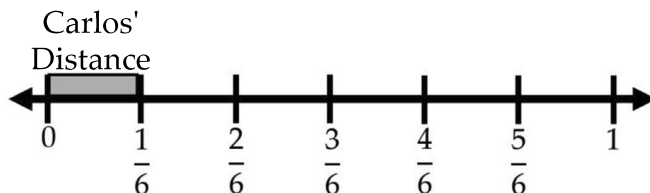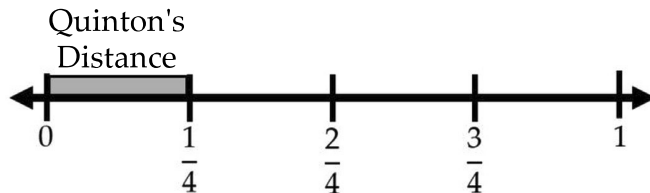
Carlos'
Distance

$\frac{1}{4} > \frac{1}{6}$ **since the $\frac{1}{4}$ is a greater distance from 0 on the number line than $\frac{1}{6}$.**

Quinton has gone farther than Carlos.

PRACTICE

For questions 1-3, write the fraction represented by the shaded portion of each model in the two blanks. Write a symbol, <, =, or >, in the box to write a comparison statement.

1.

_____ ▢ _____

3.

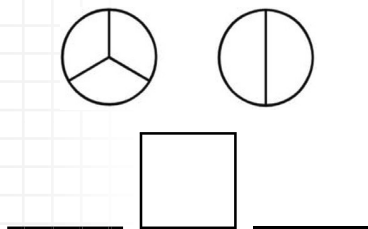_____ ▢ _____

2.

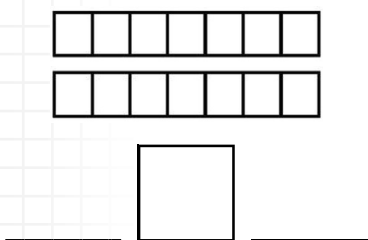_____ ▢ _____

For questions 4-6, use the models given to represent each fraction and then write a comparison statement with a symbol, <, =, or >.
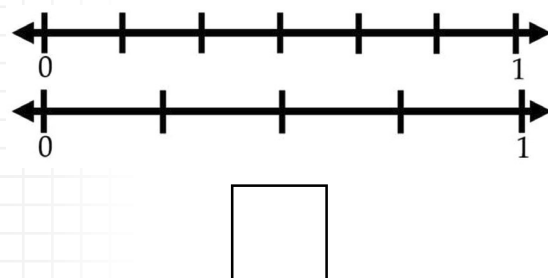
4. Write a comparison statement to compare $\frac{1}{3}$ and $\frac{1}{2}$.

_____ ☐ _____

5. Write a comparison statement to compare $\frac{5}{7}$ and $\frac{4}{7}$.

_____ ☐ _____

6. Write a comparison statement to compare $\frac{2}{6}$ and $\frac{2}{4}$.

0   1

0   1

_____ ☐ _____

7. Karen and Ted each ordered a large pizza. Karen ate $\frac{3}{10}$ of her pizza. Ted ate $\frac{5}{10}$ of his pizza. Who ate more pizza?

8. Aracely is making dresses for her doll. One dress uses $\frac{7}{8}$ of a yard of fabric and another dress uses $\frac{7}{10}$ of a yard. Compare these two fractions using the > symbol.

9. Sherry and Dina each had candy bars that were the same size. Sherry ate $\frac{3}{4}$ of her candy bar. Dina ate $\frac{3}{6}$ of her candy bar. Which statement is true?

A The girls ate the same amount of candy, because both fractions have a numerator of 3.

B Dina ate more candy, because a denominator of 6 is larger than a denominator of 4.

C Sherry ate more candy, because each part of a candy bar cut into 4 parts is larger than each part of a candy bar cut into 6 parts.

D There is not enough information to determine who ate more candy bar.

10. Eddy shaded the following same-sized models to represent two different fractions.

Based on these models, which comparison is true?

F $\frac{2}{8} = \frac{2}{10}$

G $\frac{2}{8} > \frac{2}{10}$

H $\frac{2}{10} > \frac{2}{8}$

J $\frac{2}{10} > \frac{6}{8}$