

Compare Decimals and Fractions

Planning Your Time		
Intro & Demo	Activity	Sum It Up
15 min	20 min	5 min
		

Objective

Compare and order fractions and decimals. Represent fractional numbers on a number line.

Materials

- Fraction Tower Equivalency Cubes
- Overhead Fraction Tower Cubes
- Fraction Master 6: Fraction Tower Number Lines

Grouping

Whole class, then small groups

Open It Up

Distribute sets of Fraction Tower Equivalency Cubes to students. Ask them to model a fraction and then find the decimal equivalent using the cubes.

Ask: How do you show a tower for $\frac{5}{8}$? [Use 5 blue Fraction Tower Cubes.] How can you use the Fraction Tower Equivalency Cubes to find the decimal equivalent to $\frac{5}{8}$? [Turn the tower to the left to see 0.125, 0.125, 0.125, and 0.125. The total is 0.625.]

Introduce students to decimals that are modeled using two different colors of Fraction Tower Cubes.

Ask: How could you model the decimal 0.65 with the Fraction Tower Cubes? Hint: You can use different two colors. [Sample: 2 green cubes represent 0.4 and 1 yellow cube represents 0.25, so $0.4 + 0.25 = 0.65$] Could you model 0.65 another way with tower cubes? [4 purple cubes and 1 yellow cube, $0.4 + 0.25 = 0.65$]

Also ask students to recall how to find a decimal equivalent for any fraction—divide the numerator by the denominator. (Refer to Unit 2, Lesson 2.)

Demonstrate & Discuss

Write the problem $0.45 \bigcirc \frac{4}{5}$ on the overhead.

Ask: Look at the problem. The fraction and the decimal have the same digits. Are the numbers equivalent? Explain. [Samples: $0.45 < \frac{4}{5}$ because 4 green tower cubes are taller than 1 yellow and 1 green tower cube. Also, $0.45 < \frac{4}{5}$ because when I turn the $\frac{4}{5}$ tower I see four 0.2s on the other side. The total of four 0.2s is 0.8 and $0.8 > 0.45$. Using common sense, 0.45 is less than $\frac{1}{2}$ and $\frac{4}{5}$ is greater than $\frac{1}{2}$, so $0.45 < \frac{4}{5}$.]

Ask: Which number is greater, $1\frac{1}{2}$ or 1.2? [Sample: Since the whole numbers are the same, focus on the fractional parts $\frac{1}{2}$ and 0.2. Since $\frac{1}{2} = 0.5$ and $0.5 > 0.2$, then $1\frac{1}{2} > 1.2$.]

Student Activity

Prepare ahead: Each small group will need a set of Fraction Tower Equivalency Cubes.

Urge students to use Fraction Tower Equivalency Cubes to compare the fractions and decimals to literally see which number is greater than the other before they convert all the fractions to decimals to make the comparisons. Students should use the results of Problems 1, 3, 5, 7, and 9 to locate the numbers on the number line.

Informal Assessment

Observe students as they model the fractions and decimals and then compare each pair of numbers. /OBSERVE/

Sum It Up

Say: Today we learned how to compare fractions and decimals.

Ask: Which number is greater, 0.25 or $\frac{3}{8}$? [$\frac{3}{8}$] How do you know? [Sample: Since $\frac{2}{5} = 0.375$, it is greater than 0.25.] /DESCRIBE/

Extension

Materials: Fraction Master 6: Fraction Tower Number Lines; Equivalency Tower Cubes

Challenge students to locate the fractions and decimals in Problems 2, 4, 6, 8, and 10 on a number line.

