Equivalent Fractions

Virtual Learning Tool Activity

Go to the website http://nlvm.usu.edu/.
Click the cell for **Number and Operations** and **3 – 5.**
Scroll down and click **Fractions - Equivalent**

Day 1

1. Determine a fraction equivalent to the fraction shown and record the numerator and denominator in .

2. After you have created what you believe is an equivalent fraction, use the model to represent your new fraction by clicking  to match the denominator of the fraction you recorded. How do you know the two fractions are equivalent?

3. Click [Check]. Are you correct? Find another name for the same fraction or click [New Fraction] and repeat steps one through three.

Following Days

1. Complete the above steps to represent different sets of equivalent fractions.

2. Over the next several days, help your child find patterns and develop generalizations about equivalent fractions. Three generalizations are listed below. Following each generalization is a series of questions you might ask your child to help them develop understanding. It often takes children multiple experiences with a concept and multiple discussions to see the patterns and understand that a generalization is always true.

   Generalization 1: *If the numerator and denominator of a fraction are the same, the fraction is equal to one.*

   Name a fraction that is equal to one. What does the denominator tell you? (The total number of equal parts in the unit or whole.) What does the numerator tell you? (The number of shaded parts.) Why must a fraction that is equal to one have the same numerator and denominator? (The number of shaded parts is equal to the total number of parts.)

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Generalization 2: *All fractions equal to one are equal to each other.*

Name a fraction equal to 3/3. (2/2, 4/4, 5/5, 6/6, 7/7, etc.) How do you know your fraction is equal to 3/3? (If you shade all the parts, you are shading the whole thing, so the fraction is equal to one.) Name another fraction equal to 3/3. How many different fractions are equal to 3/3? (Since numbers go on forever, fractions equal to one go on forever. We can say there are an infinite number of fractions that equal 3/3 or one.)

Generalization 3: *If you multiply the numerator and the denominator of a fraction by the same number, the result is an equivalent fraction.*

Compare two equivalent fractions like 1/6 and 2/12. How do you know they are equivalent fractions? (They both represent the same amount. The same amount is shaded.) What happens to the number of total parts when you change 1/6 to 2/12? (The number of total parts doubles. Twelve is twice as much as six.) What happens to the number of shaded parts? (The number of shaded parts also doubles. Two is twice as much as one.) Compare the model of 1/6 and 2/12 to prove that the total number of parts double and the shaded number of parts double.

Compare two equivalent fractions like 3/4 and 9/12. How do you know that the fractions are equivalent? (They both represent the same amount. The same amount is shaded.) What happens to the number of total parts when you change 3/4 to 9/12? (The total parts triple. Twelve is three times as much as four.) What happens to the number of shaded parts? (The number of shaded parts also triple. Nine is three times as much as three.) Compare the model of 3/4 and 9/12 to prove that the total number of parts triple and the number of shaded parts triple.

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