Standard 3.NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent if they are the same size, or the same point on a number line.

b. Recognize and generate simple equivalent fractions, such as 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent by using a visual fraction model, for example.

c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. For example, express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.

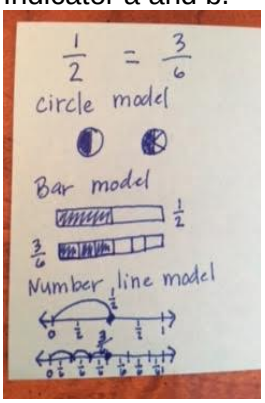
d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, for example, by using a visual fraction model.

Please Note: Develop understanding of fractions as numbers. Denominators are limited to 2, 3, 4, 6, and 8 in third grade.

Key Elements:

- It is good to show equivalent fractions with different representations such as bar models, circle models and number line models. That way their understanding isn't limited to any one representation.
- Dividing the different models into equal parts require different techniques, so be sure to monitor students carefully to prevent misconceptions about fractions being made up of equal parts.
- Using manipulatives as much as possible is essential when teaching fractions, especially when developing their understanding of equivalent fractions. If you don't have fraction bars or similar tools, make some out of paper. Have the student physically fold strips of paper into different sized equal pieces. This helps solidify the concept that as the denominator gets bigger, the pieces get smaller. If you can construct a lesson where the kiddos come up with this connection it will stick with them better rather than just telling them.

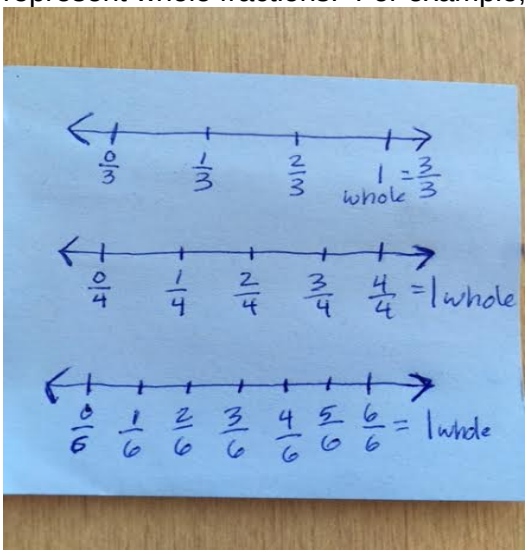
Example:
Indicator a and b.

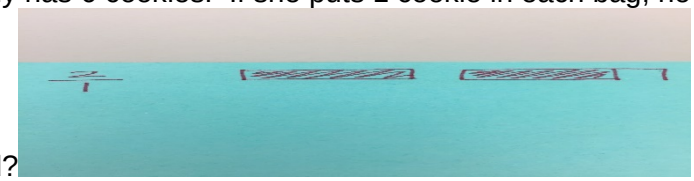


Fun equivalent fractions video: https://www.youtube.com/watch?v=D3Va4gt1bPY

Indicator c: Fractions as a whole number.

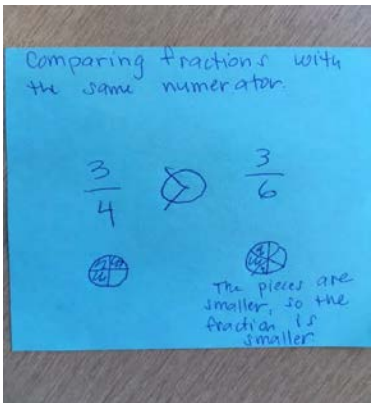
- When labeling number lines, one thing you can do to help with the concept that 4/4 is equal to 1 whole, is label the point on the number line that represents 1 as both 1 and the fraction that represents the whole according to the number of pieces in the whole indicated by the denominator. For example, if the number line is divided into 3 equal parts, 1 on the number line is also equal to 3/3. If the number line is divided into 6 equal parts, 1 on the number line is also 6/6. It is also good to compare numbers that represent whole fractions. For example, comparing 4/4 with 8/8 etc.



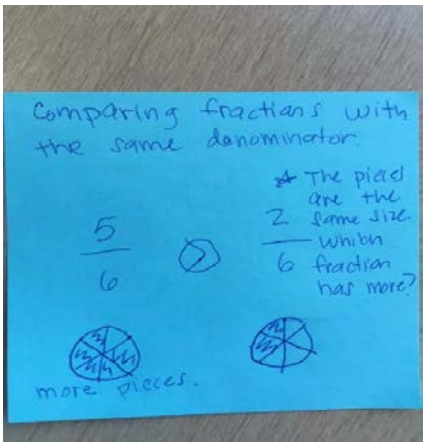
- To represent whole numbers as fractions, such as 61 or 21, be sure to connect to division. 61represents 6 because the numerator, 6 is being divided by the denominator, 1. 3rd grade students should have an understanding of division and know that anything divided by 1 equals itself. It is also very beneficial to relate it to a context.
    - Shelly has 6 cookies. If she puts 1 cookie in each bag, how many bags does she need? 
    - Mark needs to run 6 miles. If he runs 1 mile each day, how many days will it take him to run the distance?
    - DRAW PICTURES!!!!

Indicator d: Comparing fractions.

- In fourth grade they compare fractions with unlike denominators and unlike numerators. To help build the foundation necessary for this, in third grade they simplify it to comparing fractions with either the same numerator or denominator.
- When comparing fractions with like numerators, the essential concept to understand is the size of pieces that the denominator indicates.



- The essential concept when comparing fractions with the same denominators is to understand that the pieces are the same size, and the difference is the number of pieces that can be counted.



- When comparing fractions it is helpful to relate each fraction to benchmark fractions, meaning fractions that are used frequently, like ½ and 1 whole.