Produce Stand – Fill the Baskets

Grade: 4th

Content Standard: 4.NF.1 Explain why a fraction a/b is equivalent to a fraction (n x a)/(n x b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size, Use this principle to recognize and generate equivalent fractions.

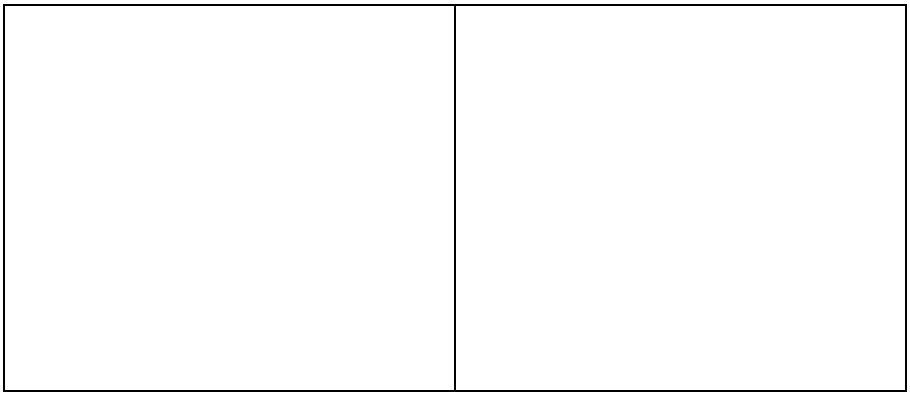
4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >,<, or =, and justify the conclusions, e.g. by using a visual fraction model.

Materials: Game board for each group of 2-4 players (attached pages 3-6 are images I used to make game board). Set of fraction factory pieces for each group consisting of 15 pieces each representing halves, thirds, fourths, sixths, eighths, and twelfths (You may need more pieces for eighths and twelfths). Spinner or other device that generates 8 random outcomes: 2 one- halves, 1 one-third, 2 one-fourths, 1 one-sixth, 1 one-eighth, 1 one-twelfth. Several single color tokens for each player (unifix cubes?). This game uses the metaphor developed in the Produce Stand Game: 1 basket (a 12 x 5 cm. rectangle) = 1. One orange piece (pumpkin 6 X 5cm. rectangle) = ½. One green piece (green pepper 4 x 5 cm. rectangle) is 1/3. One purple piece (tomato a 3 x 5 rectangle) is ¼. One red piece (watermelon 2 x 5 rectangle) is 1/6. One brown piece (corn 1.5 x 5 rectangle) is 1/8. One tan piece (squash 1 x 5 rectangle) is 1/12.

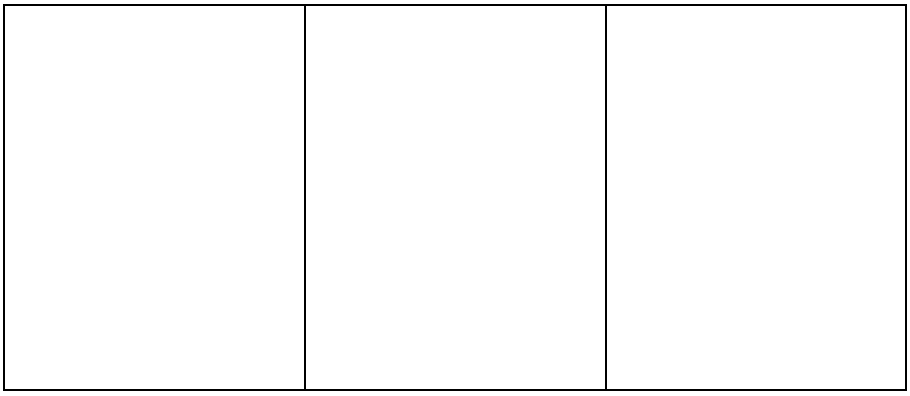
Shared experience and procedure details: Make groups of 2-4 students. Each group will need a game board, spinner, tokens, and fraction factory pieces. Player 1 spins. If the spin is ½, player takes an orange ½ piece from the bank and places it in one of the two ½ slots on the game board basket that shows halves. The player must place the piece that is generated by the spinner in the basket that is divided up into that size of pieces. A player cannot, for example, place a ½ piece and use it to cover 2/4 on the fourths basket. Player 2 spins and places and play continues. If a player spins and places a piece that fills a basket, that player has "won" that basket and marks it with a token. If a player draws a piece that goes with a basket that is already filled the player may exchange that piece in the bank for an equivalent amount of pieces of a different kind. The player then plays those pieces on the board. For example, a player can exchange a ¼ piece (if the ¼ basket is already full) for 3/12 and put those 3/12 on the board. The player cannot exchange and play a portion of the exchanged pieces. There must be room for all three of the twelfths on the board, and they must all be played). A player who could make an exchange and play is not required to do so. That player may choose to keep that piece and use it for an exchange during a later turn. Play continues until all baskets are filled. The winner is the one who has filled the most baskets.

After playing for a time, stop play and instruct the student to put the following pieces on the board: 2 pumpkins, 1 green pepper, 1 tomato, 2 watermelons, 3 corn, and 6 squash. Tell the students that they have spun a pumpkin. Ask them to find all the possible exchanges that they can make with the pumpkin and draw pictures and write about the exchanges.
Possible picture: Pictures may show scaled drawing of 1 pumpkin equaling 6 squash, 4 corn, 3 watermelon, and 2 tomatoes. Pictures most likely will show the 2 dimensions of the pieces, but might also show equivalency in one-dimensional lines.
Possible People Talk: A pumpkin is the same as 2 tomatoes, etc. A pumpkin cannot be exchanged and made to fit with the green peppers. Only the pumpkin/squash exchange will fill a basket.
Feature Talk: tomato, green pepper, tomato, corn, watermelon, squash, basket, exchange, equal, the same as, fill, add, put in, halves, thirds, fourths, sixths, eighths, twelfths, game board, vegetable pieces, spinner, tokens, one, numbers. Have students write feature words on individual sticky notes, sort, and use notes to show the equivalencies they discovered.
Symbolic language: some symbolic/pictorial form of the following: ½ = 2/4 = 3/6 = 4/8 = 6/12 Reinthal 3/21/17

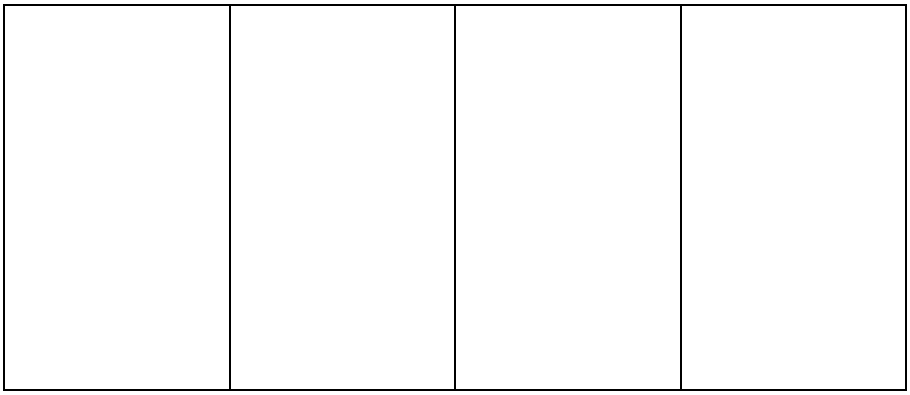
Halves – pumpkins - orange



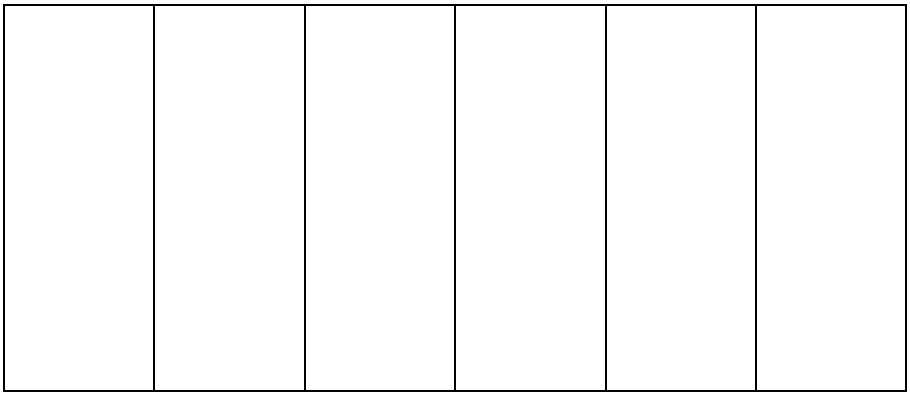
Thirds – green peppers - green



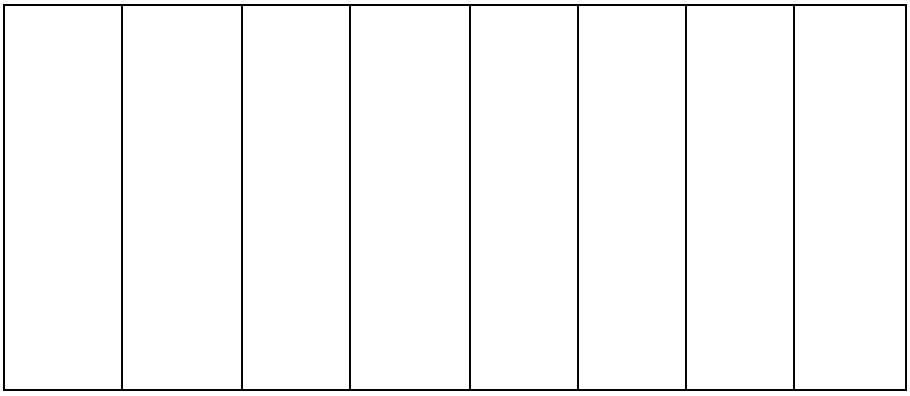
Fourths – tomatoes – purple



Sixths – watermelons - red



Eighths – corn - brown



Twelfths – squash - tan