Name _____ Date_____

Introduction to Fractions with Apples

Wash your hands before beginning this activity. Students and one partner will receive one apple, one knife, and one cutting board and one bowl between the two of them.

Common Core Standards Addressed:

3.NF.1. Understand a fraction 1/*b* as the quantity formed by 1 part when *a* whole is partitioned into equal parts; understand a fraction *a*/*b* as the quantity formed by a parts of size 1/*b*

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

3.G.2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.

4.NF.1. Explain why a fraction *a*/*b* is equivalent to a fraction $(n \times a)/(n \times b)$ 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 1/2. 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.

4.NF.3. Understand a fraction a/b with a > 1 as a sum of fractions 1/b.

4.G.3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Natural Common Core Extensions:

5.NF.3. Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?

5.NF.4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
Interpret the product (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)

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5.NF.6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

5.NF.7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?

Preparation: If your apple skin is tough or if you prefer not to have it in your applesauce, Begin by skinning your apple.

Step 1 Cutting in Half:
Working with a partner to check the middle of the apple, cut the apple in half as shown by the dotted line.

How many pieces of apple are there in total now? _____

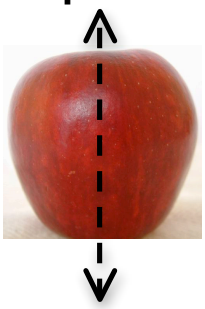
Give one of the pieces to your partner.
How many pieces of the apple do YOU have? _____

Write your piece as a fraction of the whole apple:

How many pieces you have: _____ (This top number is the numerator)

Total number of pieces: _____ (This bottom number is the denominator)

Step 2 Cutting into Quarters:



With your half and your partner's half of the apple lying flat on the cutting board. Take turns cutting your pieces in half again as shown.

Counting both your pieces, how many pieces are there in total? _____
Write the fraction that describes 1 of the total pieces: **1**
Total number of pieces:

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Step 3 Cutting into Eighths:
First, carefully cut out the seeds and core from the middle of your pieces.
Next, take turns cutting each of your quarters in half.
Counting both your pieces, how many pieces are there in total? _____
Write the fraction that describes 1 of the total pieces:

_____

Step 3 Cutting into Sixteenths:
Take turns cutting each of your sixteenths in half.
You and your partner each set aside 2 pieces of apple in the bowl to add to the applesauce pot.

How many pieces are in the bowl?

How many pieces do you and your partner still have on the cutting board?
_____

Write the fraction that describes the pieces in the bowl:

_____

Write the fraction that describes the pieces on the cutting board:

_____

Put all of your pieces in the bowl
Write the fraction that describes the pieces in the bowl:

_____

Take the bowl of your apple pieces to your teacher to be cooked.

Class Applesauce Recipe:

1. Put apples in a large pot and add ½ inch of water to cover the bottom of the pot
2. Bring the water to a boil
3. Lower the heat, add 1/8 teaspoon cinnamon per medium sized apple, cover the pot with a lid, and simmer 15-20 minutes until apples are soft enough to mash. (You may want to allow apples to cool.)
4. Mash with a fork, potato masher, immersion blender, or transfer to a blender.
5. Serve and Enjoy!