Now I See! Visualizing Fractions Through Models

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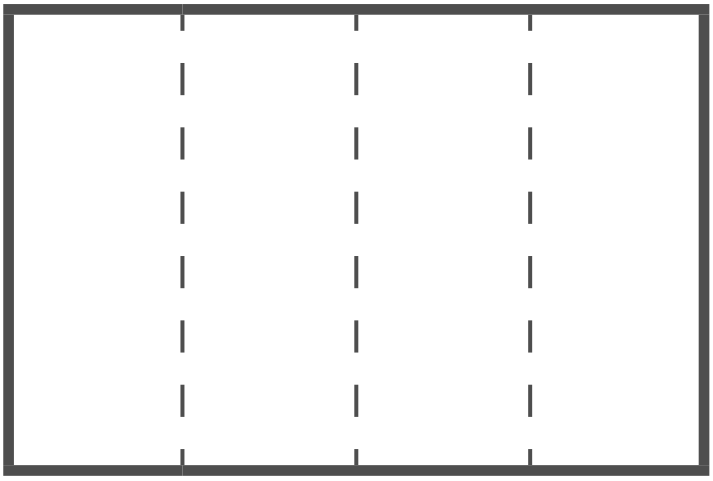
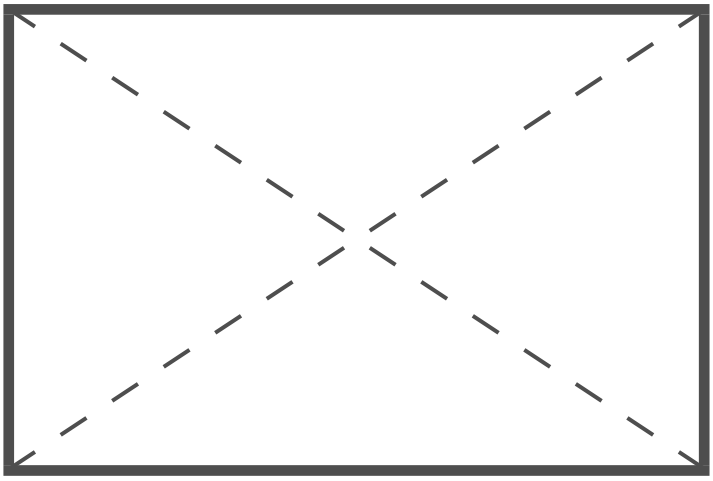
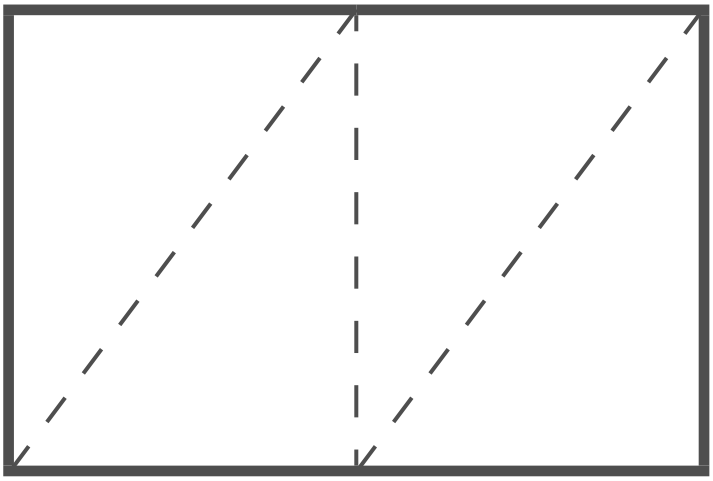
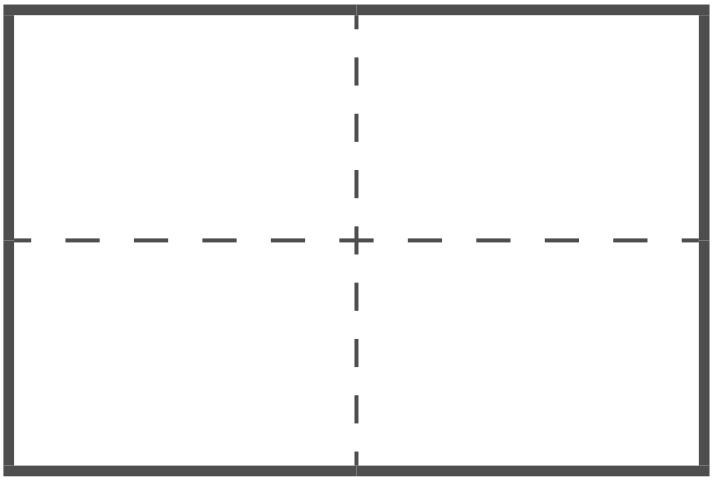
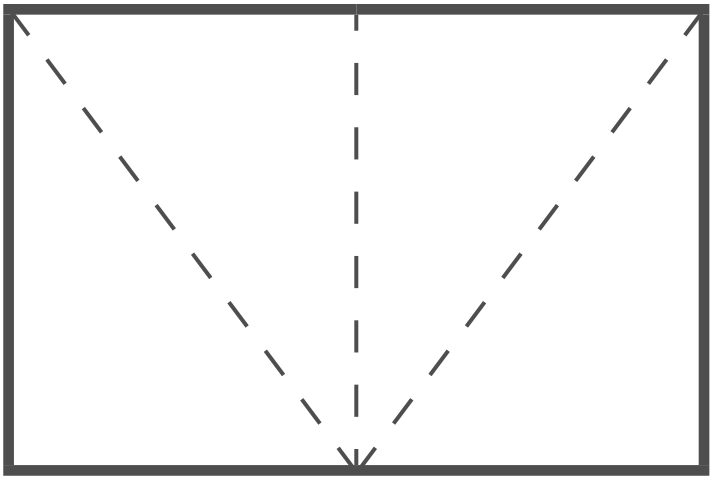
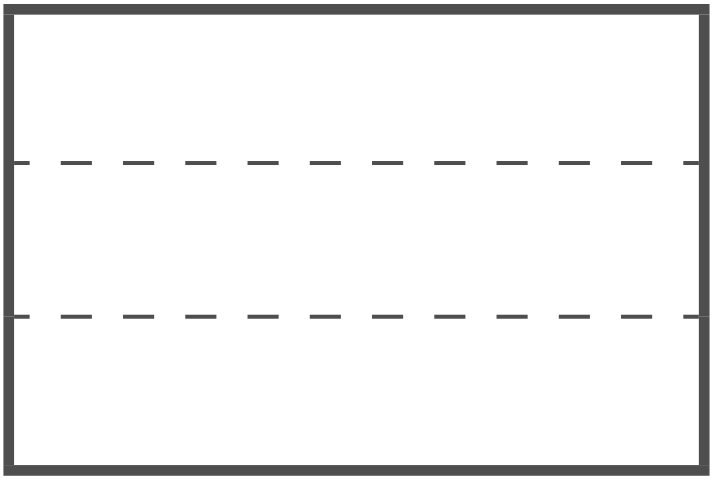










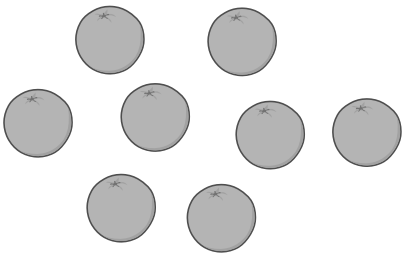


Show $\frac{1}{4}$ in each of these models.

For each model, consider the following questions:

- What attribute is the focus?
- What is the whole?
- What does equal-sized mean?
- What does the fraction indicate?

Set Model:



Area Model:

Length Model:

Number Line Model:

Representing Fractions

Type of Model	Type of Quantity	Whole	Meaning of Equal-Sized Parts	What the Fraction Indicates
Set model	discrete	determined by a defined count of a collection or set	same number of items	the count of objects in the subset compared to the defined set of objects
Area model	continuous	determined by a defined area or region	same area	the area of the indicated part compared to the area of the indicated whole
Length model	continuous	determined by a defined length	same length	the length of the indicated part compared to the length of the indicated whole
Number line model	continuous	unit of distance from 0 to 1	same distance	the location of a point in relation to the distance from 0 with regard to the defined unit

Interpreting Fractions

Fractions as…	Numerator	Denominator	Meaning of 3/4
Part of a Whole	number of equal-sized parts indicated	number of equal-sized parts in the whole	3 parts out of 4 equal-sized parts
Numbers or Measures	number or count of equal-sized parts (unit fractions)	number of equal-sized parts (unit fractions) needed to create the whole	• 3 counts (repetitions) of the unit fraction 1/4 • 1/4 + 1/4 + 1/4
Quotients	number of items in the whole	number of shares or equal-sized parts	• 3 ÷ 4 • the result when divided or shared

Texas Essential Knowledge and Skills Grades 1-5 Fraction Progression

	Representation & Interpretation	Equivalence & Comparison
Grade 1	**1.6.G** Partition two-dimensional figures into two and four fair shares or equal parts and describe the parts using words. **1.6.H** Identify examples and non-examples of halves and fourths.	**1.6.H** Identify examples and non-examples of halves and fourths.
Grade 2	**2.3.A** Partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words. **2.3.C** Use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole. **2.3.D** Identify examples and non-examples of halves, fourths, and eighths.	**2.3.A** Partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words. **2.3.B** Explain that the more fractional parts used to make a whole, the smaller the part; and the fewer the fractional parts, the larger the part. **2.3.C** Use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole. **2.3.D** Identify examples and non-examples of halves, fourths, and eighths.
Grade 3	**3.3.B** Determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line. **3.3.C** Explain that the unit fraction 1/b represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number. **3.3.D** Compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts 1/b. **3.3.E** Solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8. **3.7.A** Represent fractions of halves, fourths, and eighths as distances from zero on a number line.	**3.3.F** Represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines. **3.3.G** Explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model. **3.3.H** Compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.