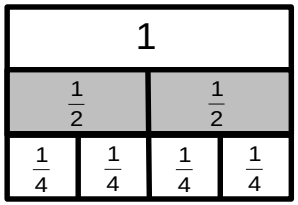
Fractions

Grade 4 students use visual fraction models to see how size of parts differ even though two fractions are the same size.

Model equivalent fractions

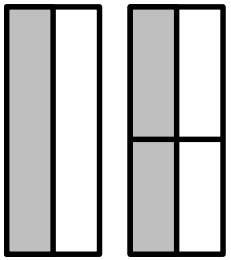


Write equivalent fractions

$$\frac{1}{2} = \frac{2}{4}$$

Relate equivalent fractions

The area models below show fractions equivalent to $\frac{1}{2}$.



$\frac{1}{2}$ $\frac{2}{4} = \frac{2}{2} \times \frac{1}{2}$

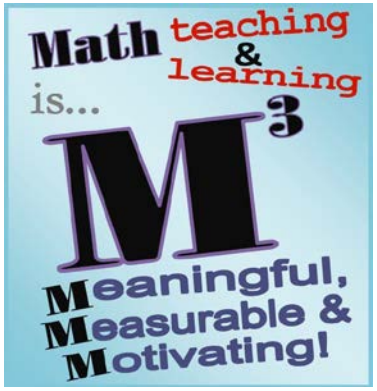
When a horizontal line is drawn through the center of the first model to obtain the second, students see that the number of equal parts are doubled yet the parts are smaller. They see that fourths are smaller than halves.

Grade 4 Mathematics

What's In?	What's Out?
Building conceptual understanding with manipulatives	~~Learning the steps, algorithm, without conceptual understanding~~
Explaining why the answer is correct and how they arrived at the answer	~~Giving the "number" as the correct answer and moving on without explanations~~
Understanding there are multiple strategies to arrive at a solution and attempting to solve a problem in more than one way	~~Thinking there is only one method to finding a solution to a problem~~
Applying mathematical understandings to new situations in order to solve a problem	~~Applying their understanding of mathematical concepts to only similar problems to find a solution~~

Long Beach Unified School District
K-5 Math Curriculum Office
Teacher Resource Center
1299 E. 32nd St., Room D
Signal Hill, CA 90755

Math Tools and Strategies Your Child Will Use in Grade 4



This brochure illustrates mathematical strategies students will be learning throughout the school year. Additional Parent Resources can be found at www.lbschools.net under Mathematics and Family Resources.

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K - 5 Mathematics Curriculum Leader

Using the Area Model With Multiplication

Grade 4 students extend multiplication and division to include whole numbers greater than 100.

The standards call for students to use visual representations. This helps students make connections between drawings and written numerical work.

Students need practice drawing rectangles. The product found is the total area of the rectangle.

Step 1: Draw a model to show
3 × 47 = 141

	40	+	7
3	120		21

Step 2: Add to find the product/area for the whole model.
120 + 21 = 141

Step 3: Write the equation using the Distributive Property.

3 x 47 = 3 x (40 + 7)
3 x 40 + 3 x 7
120 + 21
141

Using the Area Model With Division

The area model can also be used with division.

125 ÷ 5 = ?

Step 1: Draw a rectangle with side unknown.

	?
5	125

Step 2: "Multiply up" to find partial quotients.

	20	+ 5
5	100	25

125 − 100 = 25 | 25 − 25 = 0

Step 3: Then add the partial quotients to find the quotient.

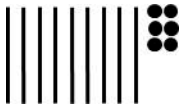
$$5\overline{)125}$$
$$\begin{array}{r} 5 \\ 20 \end{array} \Big\} 25$$
$$-\ 100$$
$$25$$
$$-\ 25$$
$$0$$

Division The Distributive Property

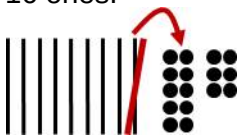
Students use distributive property to break apart numbers to make them easier to divide

96 ÷ 8

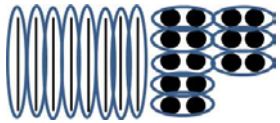
Step 1:
Draw a quick picture to show 96.



Step 2:
Think about how to break apart 96 into two numbers that are both divisible by 8. You know 8 tens (80) ÷ 8 = 10, so use 96 = 80 +16. Draw a quick picture to show 8 tens and 16 ones.



Step 3:
Circle 8 tens to show 80 ÷ 8 and circle 16 ones to show 16 ÷ 8.



The drawing shows the use of the Distributive Property.

96 ÷ 8 = (80 ÷ 8) + (16 ÷ 8)
= 10 + 2
= 12