P.S. 103
Math Family Letter

Grade 3: Unit 3
Division and Area of a Composite Figure

Student Learning Goals:

- I can use tools and various models to divide.
- I can use repeated subtraction, partition models, multiplication to solve for division (understanding that they are inverse relationships).
- I can identify whether the group size is unknown or the number of groups is unknown based on the context of the number story.

Key Vocabulary: (quotient ÷ divisor = dividend)

- Division, quotient, divisor, dividend, remainder
- array, equal groups, area, rows, columns, unknown
- Place value, properties, partitioned equally, group size
- equations, expression, distributive property, composite

Website for Information:

https://www.khanacademy.org/math/cc-third-grade-math/intro-to-division

Tools/Models/Strategies

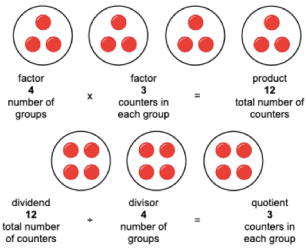
(Relating Multiplication to Division)

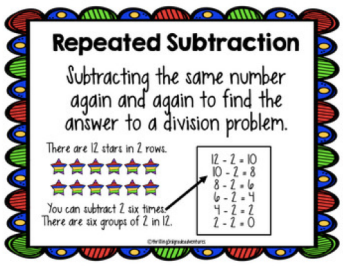
Multiplication Table:

1-12 Multiplication Chart

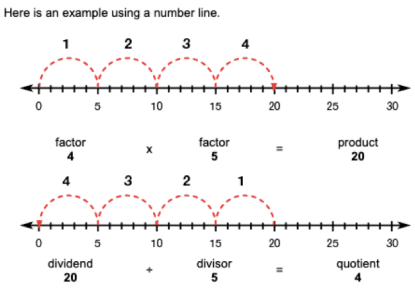
	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Equal Groups:

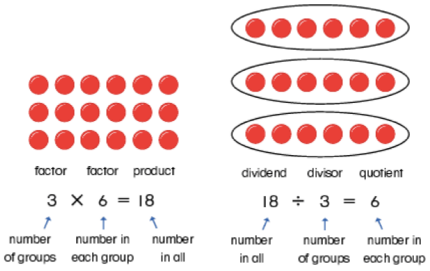




Skip-counting using a Number line: (20 ÷ 5):



Arrays:



Symbols for Division (with examples):

÷ (18 ÷ 3 = 6) / (18/3 = 6) – $\left(\frac{18}{3} = 6\right)$

Properties of Division

Zero Property: Zero divided by any whole number (other than zero) gives the quotient as zero.
Identity Property: Any whole number divided by 1 gives the quotient as the number itself.
Related Facts: If a ÷ b = c, then c x b = a and b x c = a (example: If 18/3 = 6, then 3 x 6 = 18 and 6 x 3 = 18.)

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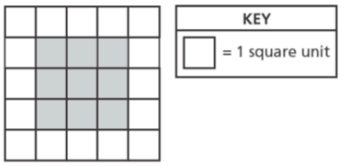
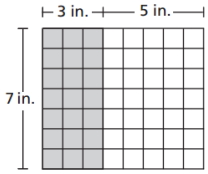
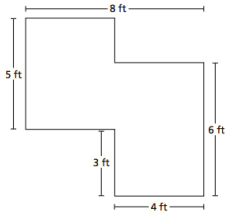
Division and Area of a Composite Figure

What is Area?

The measure of how much space there is in a flat object.

In 3rd grade, they explore the area of a rectangle using unit squares and composite figures of rectangles.

EXAMPLES: (continued from Unit 2)

In this problem, the diagram is drawn and they must use the square tiles to come up with the area. They can either count the squares one by one, or as time goes on they will learn that the length and width of a rectangle multiplied together can give them the area. Length of shaded space = 3 square units Width of shaded space = 3 square units Area = Length x width 9 square units = 3 square units x 3 square units	23 Brandon used square tiles to find the area of the shaded part of the picture below.  What is the area of the shaded part of the picture? A 3 square units B 6 square units C 8 square units D 9 square units
In this problem, they have to combine their understanding of the distributive property and area.	Ryan used square tiles to make the design shown below. He used gray tiles and white tiles.  Which expression could be used to find the total area, in square inches, of Ryan's design? A $(7 \times 3) + (7 \times 5)$ B $(7 + 3) \times (7 + 5)$ C $3 \times 5 \times 7$ D $3 + 5 + 7$
The following problem shows a composite figure. They have to see that this shape is made up of two rectangles. So if they split the shape (figure) in two to make two rectangles, they can take what they have learned about area (area = length x width) to find the area of each rectangle and then add them together.	51 A gardener is drawing plans for a new yard. She creates the picture below to represent the size and shape of a new lawn.  How can the gardener find the total area of the new lawn? Describe the process she can use. _____ _____ _____ What is the total area of the new lawn?

Website about Area:

https://www.khanacademy.org/math/basic-geo/basic-geo-area-and-perimeter/basic-geo-unit-squares-area/v/introduction-to-area-and-unit-squares