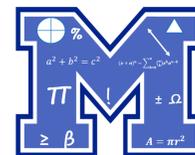


At-Home Math Connection

Grade 3 - Quarter 1



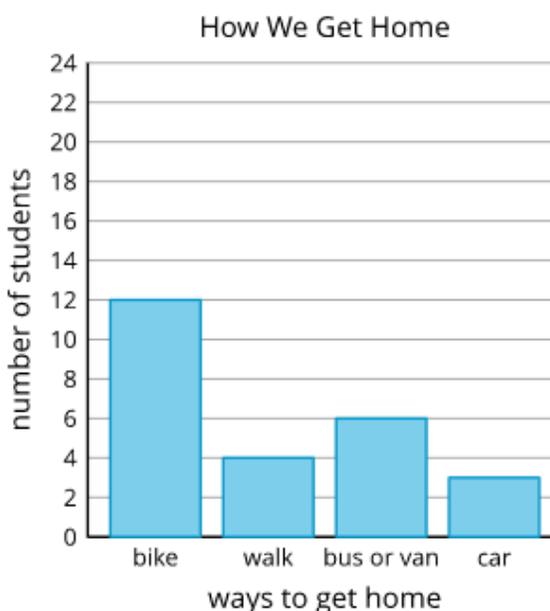
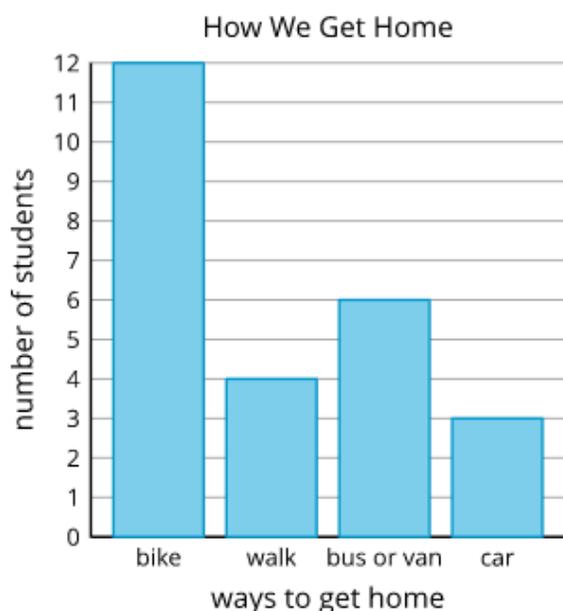
Dear Parents and Caregivers,

Below you will find a short description of the mathematics your child is working on this quarter. We recommend your child engage with the provided practice at home. Thank you for your continued support. Have fun with your mathematician(s)!

Quarter Focus:

Scholars represent and interpret data on scaled bar graphs and picture graphs. Then, they are introduced to the concept of multiplication. Scholars begin to learn about the concept of area and relate area to multiplication and addition.

Interpret and Represent Data on Scaled Graphs: Scholars make sense of and draw picture graphs and bar graphs. They see that each picture in a picture graph, or each step on a bar graph, can represent more than one object. They work with scales of 2, 5, and 10 (where each picture or step represents 2 objects, 5 objects, or 10 objects). Scholars use the scaled bar graphs to solve “how many more” and “how many fewer” problems where the numbers are within 100.

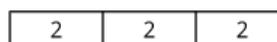


From Graphs to Multiplication: Scholars use the idea of "each picture representing multiple objects" to think about equal-size groups and learn about multiplication. They create drawings and tape diagrams to represent situations that involve equal-size groups.

drawing of equal groups



tape diagram



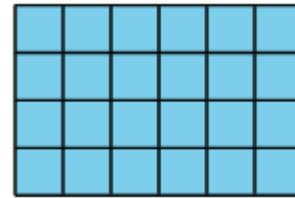
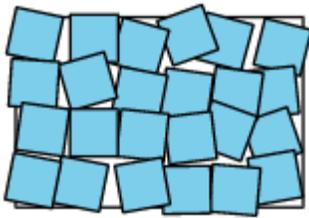
Scholars learn that we can write 3×2 to represent these drawings and interpret the expression to mean “3 groups of 2.” Later, they write equations to represent multiplication situations. They also find unknown factors and products in equations (for example, $4 \times ? = 12$ and $5 \times 4 = ?$).

Represent Multiplication with Arrays and the Commutative Property: Scholars connect the equal-group representations to arrays. An array is a set of objects organized in rows and columns. Scholars look for equal-size groups in arrays like in these diagrams:



Scholars write expressions to represent arrays. For example, in the shown arrays, we can write 2×5 (or 2 groups of 5) and 5×2 (or 5 groups of 2).

Concepts of Area Measurement: Scholars make sense of the area of flat shapes. They learn that the area of a shape is the amount of space it covers, and it can be measured by the number of square units that cover it without gaps or overlaps. Students explore this idea by tiling shapes with squares and counting the number of squares.



We cannot measure area by the number of squares when they cover a shape with gaps and overlaps.

We can measure the area of this shape by the number of squares because the squares tile the shape.

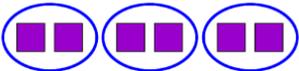
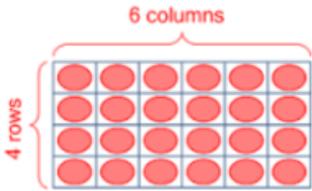
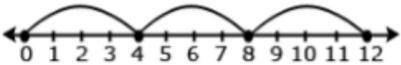
Number Patterns: Scholars learn the sequence of numbers in which the difference between any two consecutive numbers is the same. They understand that there are patterns on hundred charts, number lines and addition and multiplication tables. Scholars identify and model patterns on hundred chart, number line and addition and multiplication tables. They also accurately explain found patterns and apply patterns to larger numbers.

Curious about the Grade 3 Quarterly Assessment? *The assessment consists of 12 multiple choice questions worth 2 points each, 1 constructed response question worth 2 points, and 1 extended response question worth 3 points.*

Try it At Home!

Ask your student to find examples of equal-size groups or arrays at home, or use household objects to make such groups or arrays. Questions that may be helpful as they work:

- How many groups are there?
- How many are in each group?
- Represent the objects with a drawing, a diagram, and an expression. How does your drawing and diagram match the expression

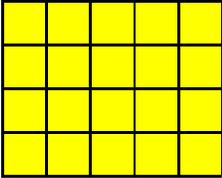
Multiplication Representations	Practice
<p>Repeated Addition</p> <p>$6 + 6 + 6 + 6$ $4 + 4 + 4 + 4 + 4 + 4$</p> <p>4×6 6×4</p>	<p>Write a repeated addition or subtraction sentence to solve.</p> <p>1. $5 \times 3 = \underline{\quad}$</p>
<p>Equal Groups/Sets</p> <p>3 groups of 2 = 3×2</p> 	<p>Draw a picture of equal groups to solve.</p> <p>2. $2 \times 7 = \underline{\quad}$</p>
<p>Array</p> <p>An arrangement of objects in equal rows.</p>  <p>$4 \times 6 = 24$</p>	<p>Draw an array to solve.</p> <p>3. $3 \times 6 = \underline{\quad}$</p>
<p>Number line</p> <p>$3 \times 4 = 12$</p> 	<p>Draw a number line to solve.</p> <p>4. $6 \times 2 = \underline{\quad}$</p>

1. Michael buys 6 boxes of cookies. Each box has 5 cookies. How many cookies does Michael have?

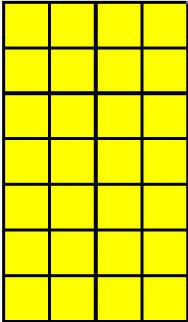
2. Matthew organizes his baseball cards in 4 rows of 3. How many baseball cards does Matthew have?

Area Practice:

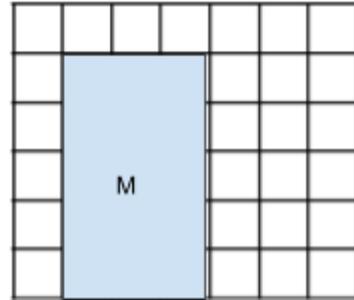
Find the area of the rectangles below:



1. Area = _____



2. Area = _____



3. Find the area of rectangle M.

Area = _____

Number Pattern Practice:

What comes next? What is the rule?

- 6, 12, 20, 28, 36 _____
- 35, 31, 27, 23, 19, _____
- Skip count by 5's and relate it to the multiplication equations. What is the pattern?
- List more patterns that you see from the multiplication table:

x	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Answer Key

Multiplication Representations Practice

1. 15	2. 14
3. 18	4. 12

Problem Solving with Multiplication and Division Practice

1. 30	2. 12
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Area Practice

1. 20	2. 28	3. 15
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Number Patterns Practice

1. 44, rule is +8
2. 15, rule is -4
3. 5, 10, 15, 20, 25 (5 x 1, 5 x 2, 5 x 3, 5 x 4, 5 x 5)
4. The third yellow column and row are all even numbers, the 6th yellow row and column skip count by 5, and other valid responses.

~Adapted from: Illustrative Math Family Materials, Howard County Public School District, Kansas Department of Education - Flip Book, Number Talks - by: Sherry Parrish, Teaching Student-Centered Mathematics - by: John A. Van de Walle, et al.