Brick Math Multiplication

Chapter Assessment Answer Key

Chapter 1

1. Factors are the numbers that are multiplied together to get another number.

2. Product

3. Solutions will vary.

Chapter 2

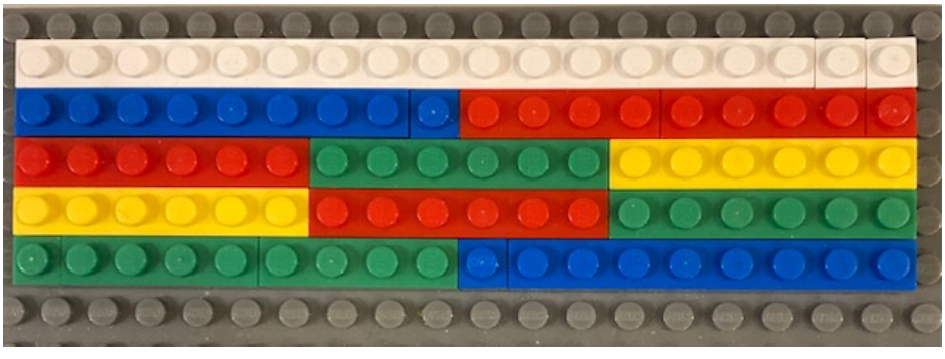
1. 4 and 3
2. 5
3. 6 and 3 are factors and 18 is the product. In this problem, 6 is the multiplier and 3 is the multiplicand.
4. Solutions will vary.

Chapter 3

1. A fact family is a collection of math facts that express the relation between the numbers. Example: 4 x 3 = 12; 3 x 4 = 12

2. 2 x 5 = 10; 5 x 2 = 10 (Note: Just multiplication fact family for this chapter)

3.



From top row, down:
1 x 18 or 18 x 1
2 x 9
6 x 3
3 x 6
9 x 2

Chapter 4

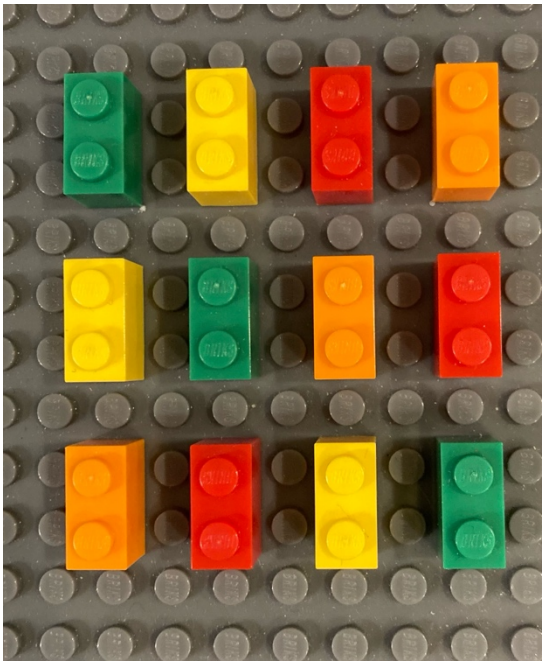
No assessment tasks

Chapter 5

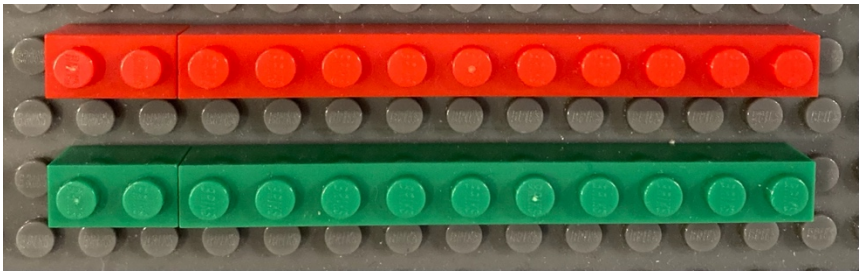
1. To bundle means to group the bricks that represent the same values together.

2. 23 x 2 means 23 sets of 2
2 x 23 means 2 sets of 23

3. 12 x 2: twelve sets of 2



2 x 12: two sets of 12



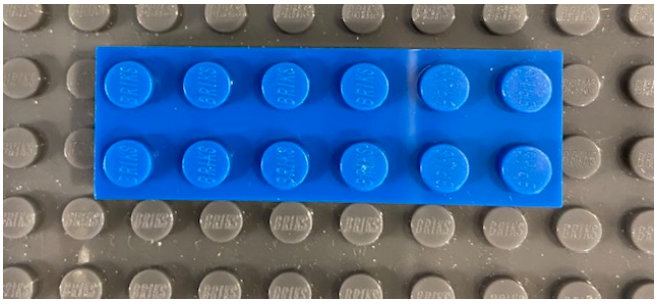
Chapter 6

1. An array is an arrangement of items in rows and columns.

2. In an array the number of rows is the height, and the number of columns is the length. The height is the multiplier, and the length is the multiplicand.

3. 2 x 6: two studs across and six studs down

6 x 2: six studs across and two studs down



The arrays are different because 2 x 6 means 2 sets of 6 studs and 6 x 2 means 6 sets of 2 studs.

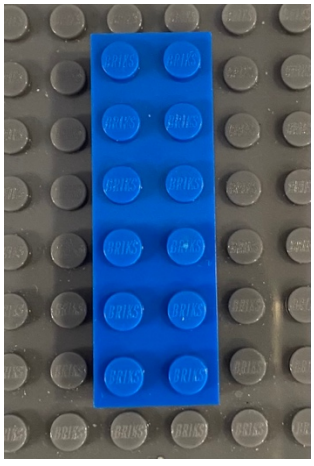
They are alike because the product (12) is the same for both sets.

Chapter 7

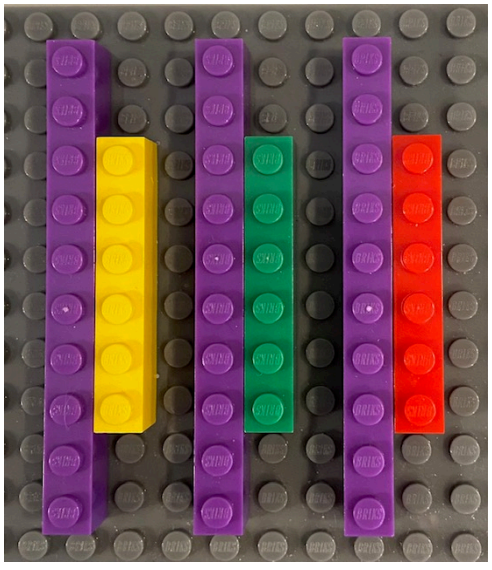
1. A set model shows the multiplier and multiplicand as the parts of the problem in set formation. It shows how many sets and how many in each set.

2. A place value model shows the number of times each place in a number is iterated.

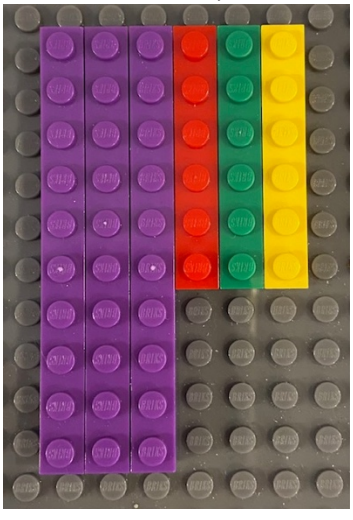
3. This model shows an array of 2 x 6. The product is the total number of studs (12).



4. The place value model shows three groups of ten studs and six studs, each representing 16.



The same model, bundled to show the product of 3 x 16, which is 48.

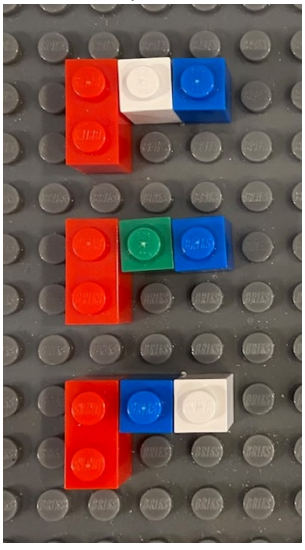


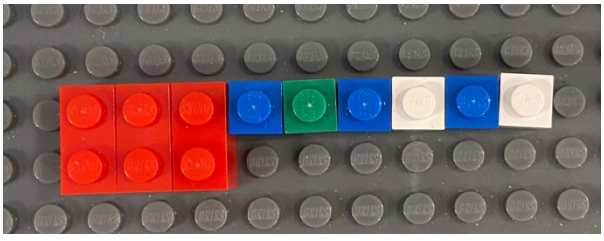
Chapter 8

1. a. 5
   b. 7

2. a. 35
   b. 20

3. 3 x 12: the multiplier is 3 and the multiplicand is 12. The first model shows 3 sets of 12 using the place value method of modeling, where the 1x1 bricks model numbers in the ones place, and the 1x2 bricks model numbers in the tens place. The second model shows the solution to 3 x 12 as 36, with the 3 tens bricks bundled together and the 6 ones bricks bundled together.





Chapter 9

1. The expanded form shows the value of the digit in each place of the number.

2. The set multiplier shows how many sets are in the multiplicand or how many times the multiplicand is repeated.

3. The first model shows 225 three times using 1x3, 1x2 and 1x1 bricks. The set multiplier of 3 is shown with 3 white 1x1 bricks next to each group of bricks.
The second model shows the bricks that represent each place value bundled together.
The third model shows regrouping and decomposing the ones because there are more than 10.
To get the product of 675, count the number of sets of each place value (6 hundreds, 7 tens, 5 ones).