Unit 2: Family Letter

Home Link 1-14

NAME DATE TIME

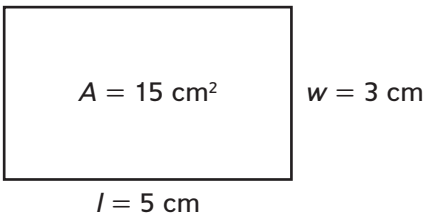
Multiplication and Multiplicative Comparison

In Unit 2 students build on prior work multiplying whole numbers. The focus is on multiplication in a variety of contexts, including rectangular-array patterns and work with factors, factor pairs, multiples, prime numbers, and composite numbers.

This unit introduces the concept of multiplicative comparison, or using multiplication to compare one quantity to another. Take the following number story: *Mike earned $4. Sue earned 7 times as much as Mike*. Here Sue's earnings are compared to Mike's as being 7 times as much. Based on this comparison, we can find how much Sue earned ($4 * 7 = $28).

Measurement work in Unit 2 is tied to multiplication. Working with units of time, students multiply to convert from hours to minutes and minutes to seconds. They are introduced to the area formula for rectangles, $A = l * w$, in which A is area, l is length, and w is width.

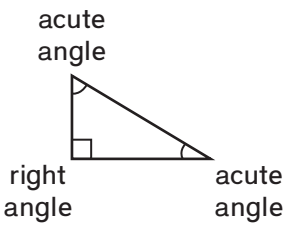
Applying the formula for the area of a rectangle:



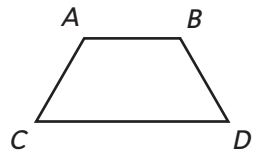
Students also work with patterns found in square numbers, multiples, factors, and "What's My Rule?" tables. They practice looking more deeply into patterns by identifying ones that are apparent but are not stated in the rule. For example, students may notice in the pattern based on the rule *multiply a number by itself* that every other square number is even.

Classifying Geometric Figures; Symmetry

Students build on their study of geometry in Unit 1 by identifying properties of shapes. They explore the properties of angles and triangles by identifying right, obtuse, and acute angles in triangles. Students begin work with classification, an important geometry skill, by sorting quadrilaterals according to the number of pairs of parallel sides.



Identifying properties of right triangles



The trapezoid has one pair of parallel sides: $\overline{AB}$ and $\overline{CD}$.

Symmetry is another focus in Unit 2. Symmetry is found in natural objects like flowers, insects, and the human body, as well as in buildings, furniture, clothing, and paintings.

Please keep this Family Letter for reference as your child works through Unit 2.

Vocabulary

Important terms in Unit 2:

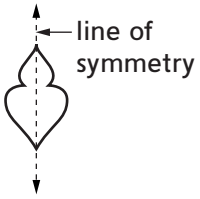
array An arrangement of objects in a regular pattern, usually in rows and columns.

composite number A counting number that has more than two different *factors*. For example, 4 is a composite number because it has three *factors:* 1, 2, and 4.

factor One of two or more numbers that are multiplied to give a *product*. For example, $4 * 5 = 20$; so 20 is the *product,* and 4 and 5 are the factors.

formula A general rule for finding the value of something. A formula is often written using letters to stand for the quantities involved. For example, the formula for the area of a rectangle may be written as $A = l * w$, where A represents the area of the rectangle, l represents its length, and w represents its width.

line of symmetry A line drawn through a figure that divides the figure into two parts that are mirror images of each other. The two parts look alike but face in opposite directions.



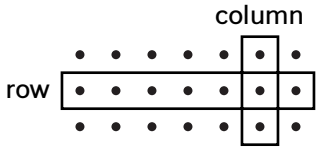
line symmetry A figure has line symmetry if a line can be drawn dividing it into two parts that are mirror images of each other. The two parts look alike but face in opposite directions.

multiple A *product* of a number and a counting number. The multiples of 7, for example, are 7, 14, 21, 28, and so on.

prime number A counting number greater than 1 that has exactly two *factors:* itself and 1. For example, 5 is a prime number because its only *factors* are 5 and 1.

product The result of multiplying two numbers called *factors*. For example, in $4 * 3 = 12$, the product is 12.

rectangular array An arrangement of objects into rows and columns that form a rectangle. All rows and columns must be filled. Each row has the same number of objects and each column has the same number of objects.



square array An arrangement of objects into rows and columns that form a square. All rows and columns must be filled. All of the rows and all of the columns have the same number of objects, making the number of rows and columns equal. A square array can be a representation of a *square number.*

square number A number that is the product of a counting number multiplied by itself. For example, 25 is a square number because $5 * 5 = 25$. The square numbers are 1, 4, 9, 16, 25, and so on.

Do-Anytime Activities

To work with your child on concepts taught in this unit, try these activities:

1. Ask your child to list the first 5 or 10 multiples of different 1-digit numbers.
2. Help your child recognize real-world examples of right angles, such as the corner of a book, and of parallel lines, such as railroad tracks.
3. Encourage your child to look for symmetrical objects and if possible to collect pictures of symmetrical objects from magazines and newspapers. For example, the right half of the printed letter T is the mirror image of the left half.

Building Skills through Games

In this unit your child will play the following games to develop understanding of factors and multiples.

Buzz* and *Bizz-Buzz See *Student Reference Book,* page xxx. *Buzz* provides practice finding multiples of whole numbers. *Bizz-Buzz* provides practice finding common multiples of two whole numbers.

As You Help Your Child with Homework

As your child brings assignments home, you may want to go over the instructions together, clarifying them as necessary. The answers listed below will guide you through the Home Links for this unit.

Home Link 2-1

1. 2 * 2; 16; 5 * 5; 6 * 6

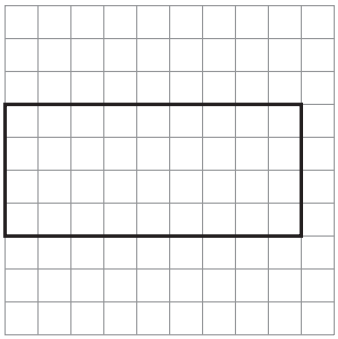
3. Sample answers: The product of two even factors is even; the product of two odd factors is odd.

5 **a.** 5 * 5 = 25 **b.** 5 * 5 = 25 shows the same number of rows and columns.

7. 11; 37; 63; + 26

Home Link 2-2

1.



9 * 4 = 36; 36

3. 8 * 6 = 48; 48 **5.** 9 * 6 = 54; 54

7. 47

Home Link 2-3

1. **9:** 1 * 9 = 9, 9 * 1 = 9, 3 * 3 = 9; 1 and 9, 3 and 3; **10:** 1 * 10 = 10, 10 * 1 = 10, 2 * 5 = 10, 5 * 2 = 10; 1 and 10, 2 and 5; **17:** 1 * 17 = 17, 17 * 1 = 17; 1 and 17; **40:** 1 * 40 = 40, 2 * 20 = 40, 4 * 10 = 40, 5 * 8 = 40, 8 * 5 = 40, 10 * 4 = 40, 20 * 2 = 40, 40 * 1 = 40; 1 and 40, 2 and 20, 4 and 10, 5 and 8

3. 2,863 **5.** 2,182

Home Link 2-4

1. 4, 8, 12, 16, 20

3. **a.** 3, 6, 9, 12, 15, 18, 21, 24, 27, 30

b. 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

c. 15 and 30

5. No. 35 cannot be divided evenly by 6.

7. 36; 60; 84; + 12 **9.** 69; 35; 1; − 17

Home Link 2-5

1. 1, (11,) prime

3. 1, (2,) (3,) 4, 6, 8, 12, 24; composite

5. 1, (2,) (3,) 4, 6, 9, 12, 18, 36; composite

7. 1, (2,) (5,) 10, 25, 50; composite

Home Link 2-6

1. 9 grapefruits

3. Answers vary.

5. thirty thousand, forty-one

7. nine million, ninety thousand, five hundred six

Home Link 2-7

1. 240, 480, 660

3. 1,020

4. 47

5. 14,220

7. 7,424

9. 7,298

Home Link 2-8

1. $n = 7 * 9$; 63

3. $32 = 4 * x$; 8

5. 399

7. 2,149

Home Link 2-9

1. Answers vary; Sample answer: $6 * 9 = m$; 54

5. 50,000 + 6,000 + 30 + 7

7. 700,000 + 10,000 + 6,000 + 300 + 5

Home Link 2-10

1. C, D

3. C, D

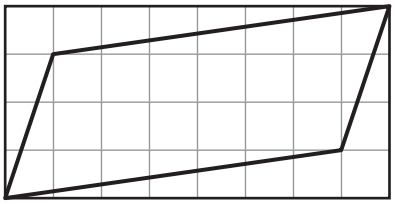
5. C, D, E, F

7. A, B, E, F

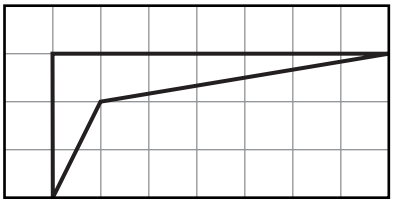
9. 1, 2, 3, 4, 6, 12

Home Link 2-11

1. Sample answer:



3. Sample answer:

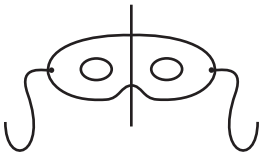


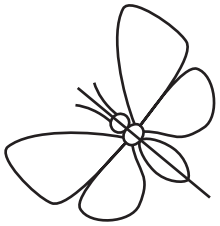
5. 150

7. 480

Home Link 2-12

1.





3. Answers vary.

5. 7,171

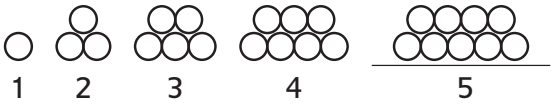
7. 2,595

Home Link 2-13

1. 3; 5; 36; 54

Sample answer: If you add the digits of each of the multiples of 9, the sum is 9.

3. a.



Sample answer: The number of circles is odd and increases by 2 every time.

b. 11; 19

c. Sample answer: Since each step is the next odd number, I skip counted from 1 by 2 until I got to the 10th step.

5. 250,004