

NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Home Connection 1 ★ Worksheet

## Math Interviews

Select a parent or other adult and ask them the following questions. Record their answers below.

Name of the person interviewed \_\_\_\_\_

**1** What is mathematics?

**2** How do you use mathematics at home or at work?

**3** What are your best mathematical abilities?

**4** What are your strongest memories about learning math in school?



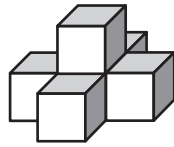
# Home Connection 2 ★ Worksheet

## More about Today's Cube Sequence

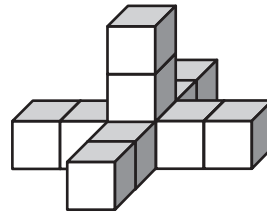
**1** Here are the first 3 arrangements in the cube sequence we discussed in class. Explain what the pattern is to an adult at home and have the adult initial the sheet to show he or she understands.



Arrangement 1



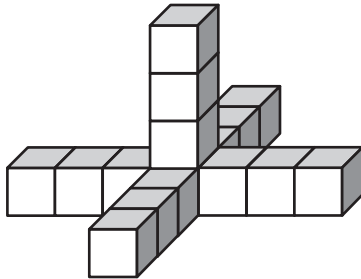
Arrangement 2



Arrangement 3

\_\_\_\_\_  
Initials

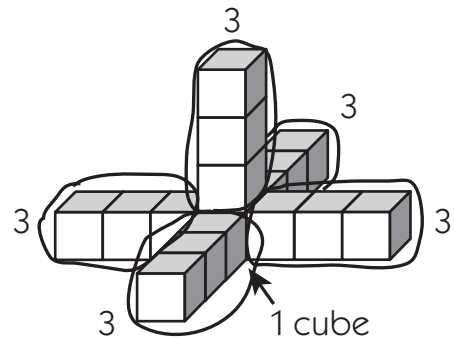
**2a** Here is the fourth arrangement in the sequence. How many cubes are in this arrangement?



Arrangement 4

**b** Shanda says you don't have to count the cubes one by one to find out how many are in the 4th arrangement. She says there is 1 cube in the middle and then 5 arms of 3 cubes each.

Write an equation to show how Shanda figured out the number of cubes in the 4th arrangement.

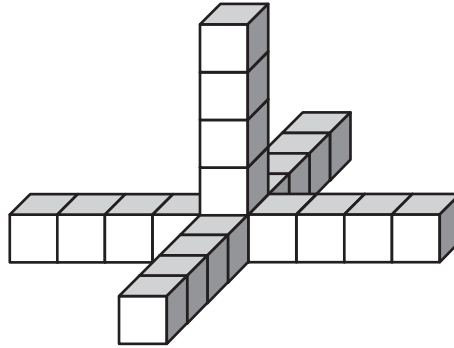


Arrangement 4

(Continued on back.)

## Home Connection 2 Worksheet (cont.)

**3** How many cubes are in the 5th arrangement? Use Shanda's method or come up with one of your own to figure it out without counting one by one. Label the picture of arrangement 5 and write an equation to show your thinking.



Arrangement 5

**4** How many cubes would it take to build the 23rd arrangement in this sequence? Show your thinking using numbers, words, and/or labeled sketches.



## CHALLENGE

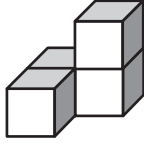
**5** A certain arrangement in this sequence takes 631 cubes to build. Which arrangement is it? Show your thinking using numbers, words, and/or labeled sketches.

NAME \_\_\_\_\_

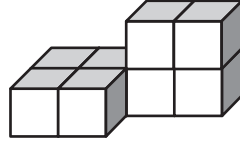
DATE \_\_\_\_\_

## Home Connection 3 ★ Worksheet

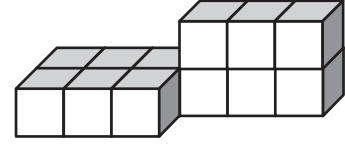
### Exploring a New Sequence



Arrangement 1



Arrangement 2



Arrangement 3

**1** What do you notice about the first three arrangements in the sequence above?

**2** Sketch the 4th and 5th arrangements in this sequence.

**3** How many cubes would it take to build the 149th arrangement? Explain your answer using words, numbers, and/or a labeled sketch.

**4** A certain arrangement takes 124 cubes to build. Which arrangement is it? Explain your answer using words, numbers, and/or a labeled sketch.

(Continued on back.)

## Home Connection 3 Worksheet (cont.)



## CHALLENGE

**5** There are 8 people on a committee. Each time they meet, they shake hands with each other so that each person shakes everyone else's hand once.

**a** Each time they meet, how many handshakes are there?

**b** Imagine that 3 committee members arrive late. The other 5 members have already shaken hands. How many handshakes will there be when the 3 late members arrive?




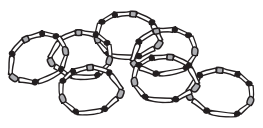
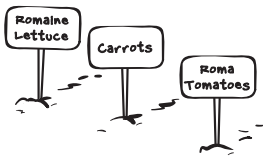
NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Home Connection 4 ★ Worksheet

## Story Problems

Solve the problems below and on the next page. Show your work using words, numbers, and/or labeled sketches. Be sure to write your answer in the space provided.

	<p><b>1</b> Over the summer, Kiyoshi's neighbor paid him \$7 each week to water the flowers in her front yard. By the end of the summer, Kiyoshi earned \$56. How many weeks did he water his neighbor's flowers?</p> <p>Kiyoshi watered the flowers for _____ weeks.</p>
	<p><b>2</b> Carlotta has 7 cousins. They are coming to her house for a party. She wants to get each cousin a bracelet that costs \$6. How much money will Carlota need to buy a bracelet for all of her cousins?</p> <p>Carlotta will need \$ _____ .</p>
	<p><b>3</b> Terrell is helping his dad plant a vegetable garden. He is planting seeds in rows. If Terrell plants 8 rows with 6 seeds in each row, how many seeds will he plant in all?</p> <p>Terrell will plant _____ seeds.</p>

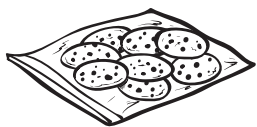
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## Home Connection 4 Worksheet (cont.)



**4** Thirty-eight fifth graders at Vernon Elementary are going on a field trip to the zoo. They are riding in vans that each hold 9 students. How many vans will they need for everyone to get to the zoo?

They will need \_\_\_\_\_ vans.

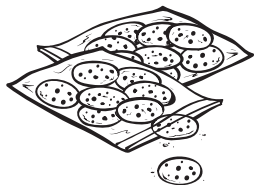


**5** Whitney and Troy baked 38 cookies for the bake sale. They put them in bags of 8 cookies each to sell at the bake sale. When they were done, they had some cookies left over. If they shared the leftover cookies equally, how many cookies did each person get?

Each person got \_\_\_\_\_ cookies.

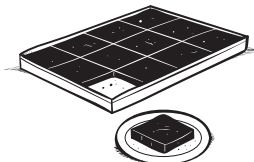
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## Home Connection 4 Worksheet (cont.)



**6** Brandon and Bethany baked 55 cookies for the bake sale. They put 8 cookies in each bag to sell. When they were done, they had some left over. If they shared the leftovers equally, how many cookies did each person get?

Each person got \_\_\_\_\_ cookies.



**7** Emma and Maggie made brownies for the bake sale. They made 52 altogether and put 4 in each bag. They charged \$0.75 per bag and sold 7 bags.

**a** How much money did they make?

**b** How many bags of cookies did they have left?

(Continued on back.)

## Home Connection 4 Worksheet (cont.)



**8** When Alex and Marcus went to the store with their mom, she said they could split the change evenly. The total cost of their groceries was \$57.32. She gave the cashier three \$20 bills.

**a** How much money did Alex and Marcus get each?

**b** What coins would they have needed to get in order to split the money evenly?



**9** On Friday afternoon, Keira realizes she has put off her reading for too long and that she needs to finish her book by Monday. The book is 265 pages long. She is on page 27. How many will she need to read each night to finish the book before school on Monday morning?

NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Home Connection 5 ★ Worksheet

## Primes & Composites

Words in *italics* are defined at the top of the next page.

**1** Make a quick sketch of all the rectangles that can be formed with tile for the numbers 23, 32, 35, and 37.

<b>a</b> 23	<b>b</b> 32
<b>c</b> 35	<b>d</b> 37

**2** List all the *factors* for 23, 32, 35, and 37.

<b>a</b> 23	<b>b</b> 32
<b>c</b> 35	<b>d</b> 37

**3a** Which of the numbers 23, 32, 35, and 37 are *prime*? Which are *composite*?

\_\_\_\_\_ are prime

\_\_\_\_\_ are composite

**b** Explain how you made your choices.

(Continued on back.)

## Home Connection 5 Worksheet (cont.)

When you multiply two whole numbers to get another number, the two numbers you multiplied are **factors** of the other number. Example: 3 and 5 are *factors* of 15 because  $3 \times 5 = 15$ .

A **prime** number only has two factors: 1 and itself. Example:  $17 = 1 \times 17$

A **composite** number has more than two factors. Example:  $6 = 1 \times 6$  and  $6 = 2 \times 3$ .

*Note* The number 1 is neither prime nor composite because it has just one factor: itself.



## CHALLENGE

**4** On the grid to the right, follow the directions to color in all the composite numbers.

**a** Color in all the even numbers except 2 itself.

**b** Color in all the numbers that *end* in 5 except 5 itself.

**c** Color in any numbers you get when you count by 3 except 3 itself. If you land on a number that is already colored, you don't have to color it in twice.

**d** Color in any numbers you get when you count by 7 except 7 itself. If you land on a number that is already colored, you don't have to color it in twice.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

**e** List at least three mathematical observations about the numbers that never got colored in.

NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Home Connection 6 ★ Worksheet

## Using Arithmetic Properties

**1** Do not use a calculator for these two problems. Multiply the numbers from left to right.

<b>a</b> $3 \times 5 \times 7 \times 2 =$	<b>b</b> $5 \times 2 \times 3 \times 7 =$
---	---

**2** In which order was the multiplication above easier? Why?

**3a** Here are three different ways to add the numbers 97, 48, 3, and 2. Circle the way that seems easiest and explain why it seems easiest to you.

$97 + 48 + 3 + 2$

$48 + 3 + 97 + 2$

$97 + 3 + 48 + 2$

**b** Now add the four numbers and record the answer.

(Continued on back.)

## Home Connection 6 Worksheet (cont.)

**4** Alonya had 48 stamps in her stamp collection. Then she got 12 more stamps. Which of the following shows a way to find how many stamps Alonya has now?

- Divide 48 by 12.
- Subtract 12 from 48.
- Multiply 48 by 12.
- Add 12 to 48.

**5** Corrina was planting seeds to grow green beans. She had 36 seeds altogether. She planted 12 on Saturday and decided to plant the rest on Sunday. Which expression could you use to find out how many seeds she had left to plant on Sunday?

- $36 \div 12$
- $36 - 12$
- $36 + 12$
- $36 \times 12$

**6** Domingo baked 60 cookies for the bake sale. He ate 2 cookies and gave his sister 2 cookies. Then he put the cookies in bags of 7 to sell at the bake sale. Which expression below would you use to find out how many bags of cookies Domingo filled?

- $(60 - (2 + 2)) - 7$
- $(60 - (2 + 2)) \div 7$
- $(60 + 2 + 2) \div 7$
- $(60 \div 7) - (2 + 2)$



## CHALLENGE

**7** Ramona was having a birthday party. She got candy to put in her guests' party favor bags. She had 72 pieces of candy altogether. Before she could put the candy in the bags, each of her 3 brothers took 4 pieces. Then she divided what was left among the ten party favor bags. Write a single math expression to show how you could figure out how many pieces of candy went in each bag.

**8** Write a story problem to match the following expression.

$$(56 \div 7) + (42 \div 7)$$

NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Home Connection 7 ★ Worksheet



## NOTE TO FAMILIES

We have been working on order of operations in class. The order of operations is a set of rules telling us what to do first when a problem has more than one operation. (Addition, subtraction, multiplication, and division are all operations.) These are the rules:

- Do anything inside parentheses first.
- Then do the multiplication or division from left to right.
- Then do the addition or subtraction from left to right.

Here is how the order of operations works for this problem:  $(8 + 3) \times 3 - 1$

1. First add  $8 + 3$  inside the parentheses:  $(8 + 3) \times 3 - 1 = 11 \times 3 - 1$
2. Then multiply  $11 \times 3$  because multiplication goes before subtraction:  $11 \times 3 - 1 = 33 - 1$
3. Now subtract:  $33 - 1 = 32$

If you want to see why the order of operations is important, try doing the operations in another order. We need the order of operations so that we always arrive at the same answer.

## Taking Orders

**1** You can put parentheses in a problem to show what to do first. See how many different answers you can find for  $12 + 2 \times 4 - 1$  by putting the parentheses in different places. Each time, write  $12 + 2 \times 4 - 1$  with parentheses to show how you got the answer.

**example**  $(12 + 2) \times (4 - 1) = 42$

I found \_\_\_\_\_ different answers for  $12 + 2 \times 4 - 1$ .

(Continued on back.)

## Home Connection 7 Worksheet (cont.)

**2** Below are three different answers for  $8 + 3 \times 6 \div 2$ . Add parentheses to make each equation true.

**a**  $8 + 3 \times 6 \div 2 = 33$

**b**  $8 + 3 \times 6 \div 2 = 13$

**c**  $8 + 3 \times 6 \div 2 = 17$

**3a** Ask up to four family members or friends to find the answer to each of these problems:

$$12 + 2 \times 4 - 1$$

$$8 + 3 \times 6 \div 2$$

**b** Record their answers in the table below.

**c** Write the correct answers using the order of operations at the bottom of the table.


Name of Person	$12 + 2 \times 4 - 1$	$8 + 3 \times 6 \div 2$
Using Correct Order of Operations		

**4** Use what you know about the order of operations to evaluate (find the answers to) the expressions below.

**a**  $(7 \times 8 \div 2 + 2) \div (2 \times 5)$

**c**  $(32 + 48 \div 6 \times 2) \div 12 + 17$

**b**  $37 + 12 \div 4 - 15$

 **d**  $(25 + (5 + 49 \div (3 + 4)) - 5) \div 4$

(Continued on next page.)

Home Connection 7 Worksheet (cont.)



**CHALLENGE**

**5** Write your own expression. Use at least one set of parentheses to ensure an operation is done earlier than it would be otherwise. Also make sure that your answer turns out to be a whole number.

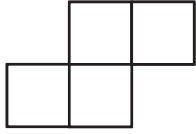


NAME \_\_\_\_\_

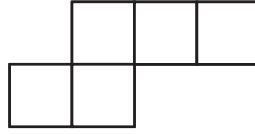
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# Home Connection 8 ★ Worksheet

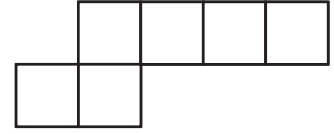
## Tile Sequences



Arrangement 1



Arrangement 2



Arrangement 3

**1** What do you notice about the first three arrangements in the tile sequence above?

**2** Sketch the 4th and 5th arrangements in this sequence.

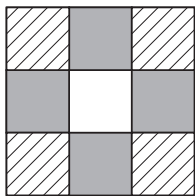
**3** How many tile would be in the 10th arrangement in this sequence? Use numbers, words, or labeled sketches to explain how you got your answer.

It would take \_\_\_\_\_ tile to build the 10th arrangement in the sequence.

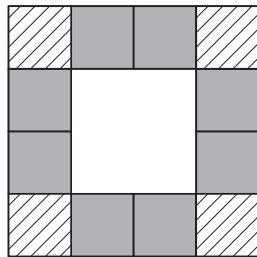
**4** What do you have to do to figure out how many tile are in *any* arrangement (or the  $n$ th arrangement) in this sequence? You can write an expression using  $n$  or explain your thinking in words. Draw a labeled sketch that shows how you arrived at your answer.

(Continued on back.)

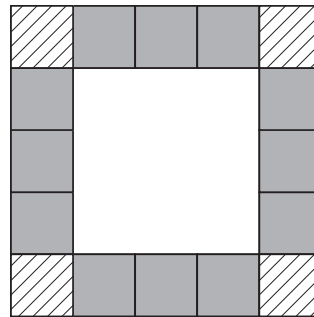
## Home Connection 8 Worksheet (cont.)



Arrangement 1



Arrangement 2



Arrangement 3

**Note** The white squares in the middle of each arrangement do not count as tile.

**5** What do you notice about the first three arrangements in the tile sequence above?

**6** How many tile would be in the 10th arrangement in this sequence? Use numbers, words, or labeled sketches to explain how you got your answer.

It would take \_\_\_\_\_ tile to build the 10th arrangement in the sequence.

**7** A certain arrangement in this pattern has 52 tile. Which arrangement is it? Use numbers, words, or labeled sketches to explain how you got your answer.

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**Home Connection 8** Worksheet (cont.)

**8** What do you have to do to figure out how many tile are in *any* arrangement (or the *n*th arrangement) in the sequence on the previous page? You can write an expression using *n* or explain your thinking in words. Draw a labeled sketch that shows how you arrived at your answer.

**9** Evaluate the following expressions using what you know about order of operations. Do the operations in this order:

- Do anything inside parentheses first, using the order shown below.
- Then do multiplication or division from left to right.
- Then do addition or subtraction from left to right

**a**  $(4 + 56 \div 8 \times 3) \div 5$

**b**  $(11 + 72 \div (2 \times 6) - 8) \div (32 \div 16 + 1)$

**c**  $(125 \div (45 \div 9) \times 4 \times 6) - 33$

(Continued on back.)

## Home Connection 8 Worksheet (cont.)



## CHALLENGE

**10a** Use each of these numbers exactly one time to write an expression equal to 9. You may go through many steps to arrive at a solution, but use what you know about order of operations to write your answer as a single expression.

60      9      3      27      2

**b** Find at least one more way to do it with the same numbers. Again, write your answer as just a single expression.

NAME \_\_\_\_\_

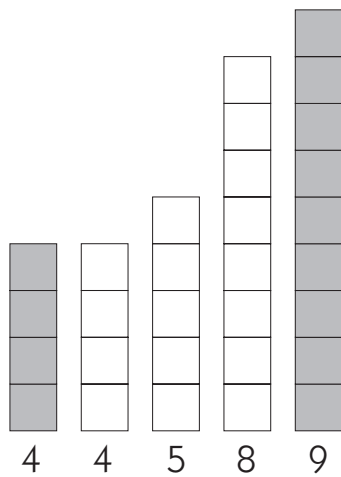
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# Home Connection 9 ★ Worksheet

## Range, Mode, Median & Mean (Average)

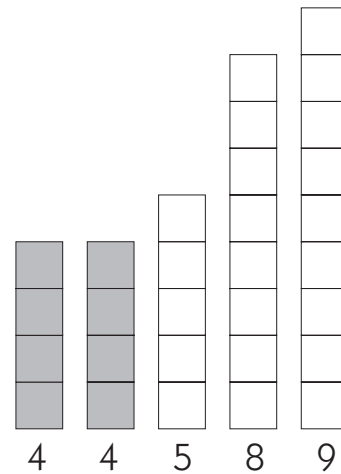
**1** Use the information below to help find the range, mode, median, and mean of the numbers 4, 4, 5, 8, and 9.

**a** The *range* is the difference between the highest and lowest values in a set of numbers.



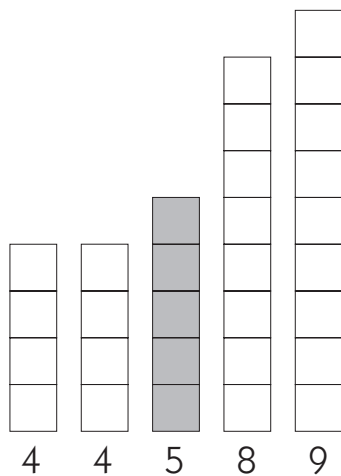
range:  $9 - 4 =$  \_\_\_\_\_

**b** The *mode* is the value that shows up the most in a set of numbers.



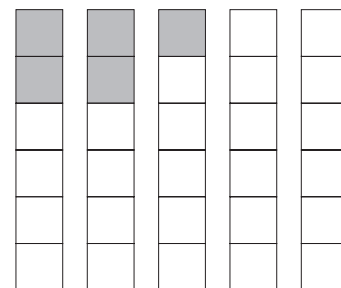
mode: \_\_\_\_\_

**c** The *median* is the middle value in a set of numbers.



median: \_\_\_\_\_

**d** The *mean* or the average is the value you get when you level off all the numbers in a set.

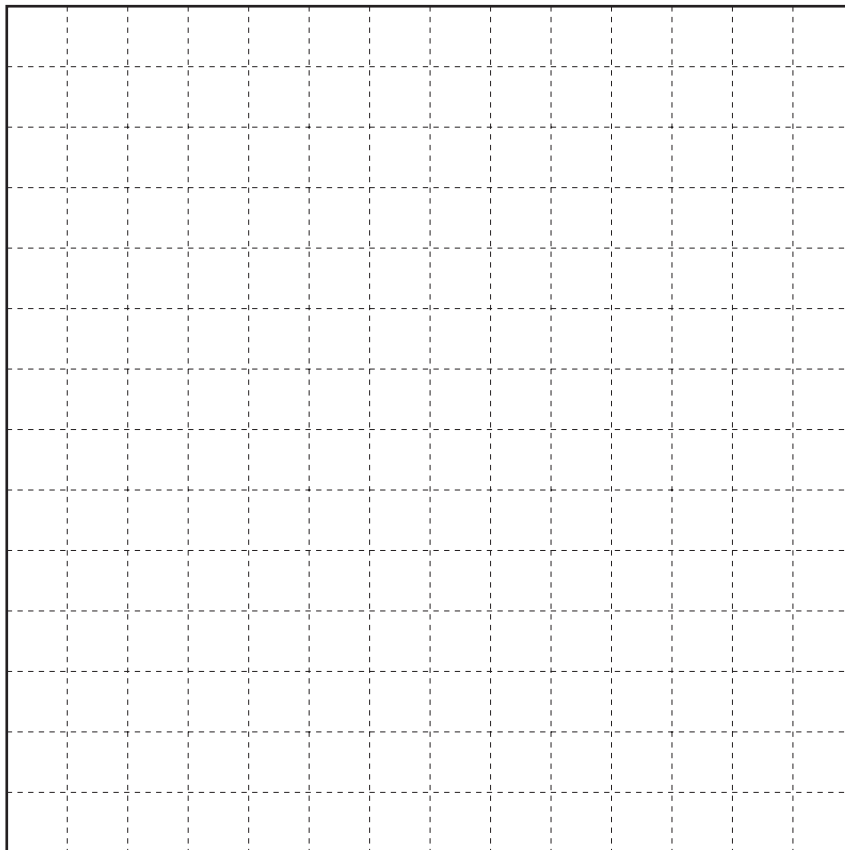


mean (average): \_\_\_\_\_

(Continued on back.)

## Home Connection 9 Worksheet (cont.)

**2a** Display the following set of numbers on the grid: 2, 2, 3, 9, 14.



**b** What is the range of that set of numbers?

**e** What is the mean (average) of that set of numbers?

**c** What is the mode of that set of numbers?

**f** Explain how you figured out the mean (average) of those numbers.

**d** What is the median in that set of numbers?

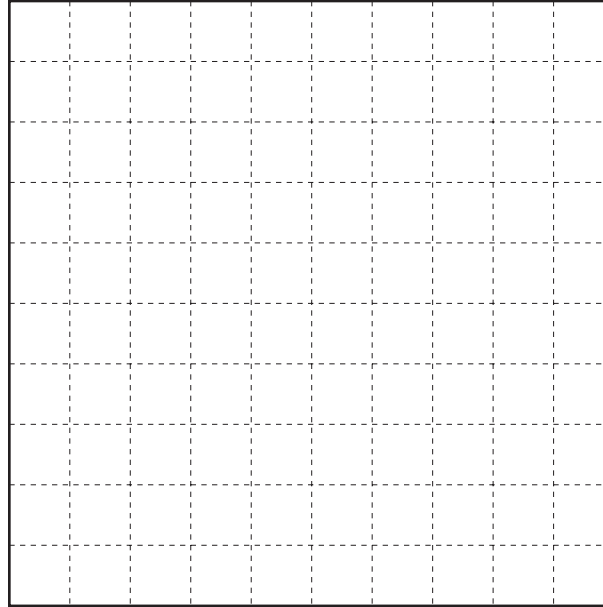
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NAME \_\_\_\_\_

DATE \_\_\_\_\_

**Home Connection 9** Worksheet (cont.)

**3a** Display the following set of numbers on the grid: 1, 2, 3, 5, 7, 7, 10.



**b** What is the range of that set of numbers?

**c** What is the mode of that set of numbers?

**d** What is the median in that set of numbers?

**e** What is the mean (average) of that set of numbers?

**f** Explain how you figured out the mean (average) of those numbers.

(Continued on back.)

## Home Connection 9 Worksheet (cont.)

**CHALLENGE**

**4** Wesley scored 14 points on his first math test. He wants to score enough points on his next math test to have an average of 21 points. How many points will he need to score on his next math test to have an average of 21 points? Use numbers, words, and/or a labeled sketch to show your work. Don't forget to include the answer!

**5a** Five numbers have an average of 11. Three of those numbers are 5, 6, and 9. What could the other two numbers be?

**b** If the range of the set of numbers is 13, what must the other two numbers be?

NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Home Connection 10 ★ Worksheet

## Home Averaging

**1** Collect at least 5 numbers from objects at home to create a data set. Here are some ideas: the heights of at least 5 different cans of food, the number of boxes of food on at least 5 different shelves, the number of pictures or posters in at least 5 different rooms, the number of chairs in at least 5 different rooms, the number of books on at least 5 different shelves, or the heights of at least 5 different tables. Make sure the numbers relate to each other in some way.

**2** When you have collected the numbers for the data set, list them in order from smallest to greatest below.

**3** Explain how you collected your numbers. What are they about?

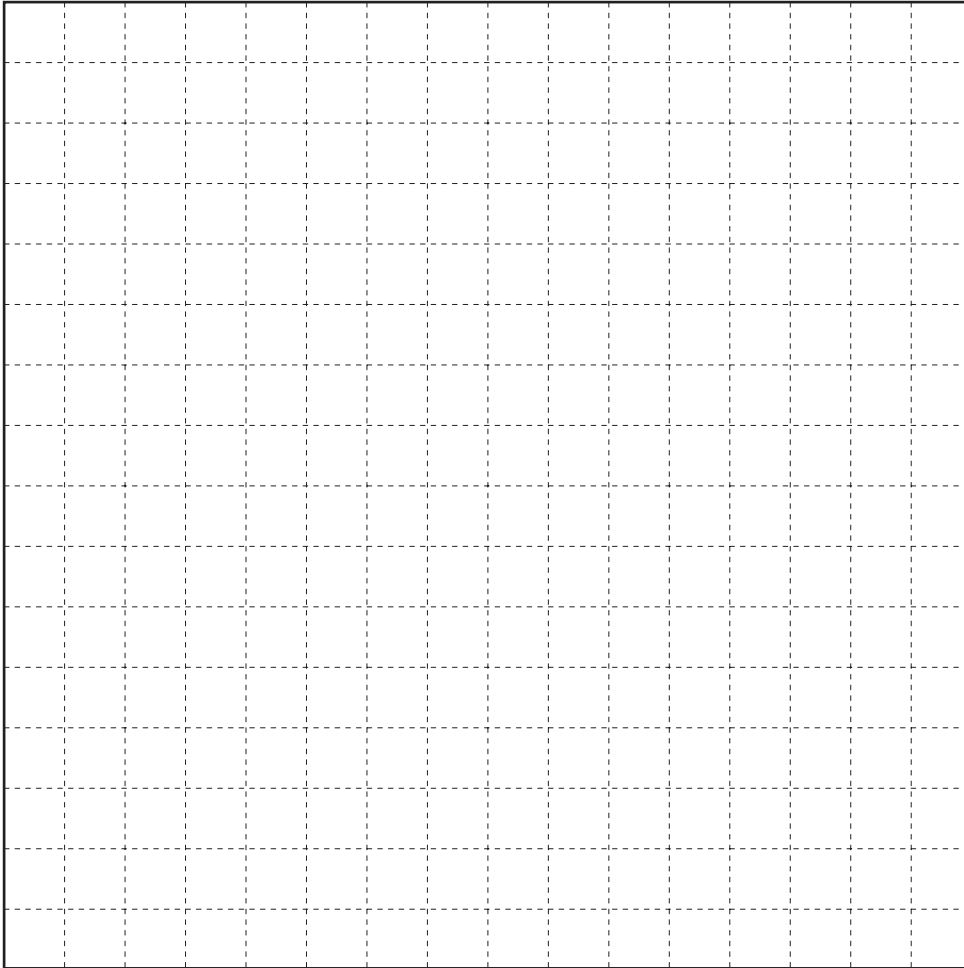
**4** Find the range, mode, median, and mean of the numbers you collected.

**a** range \_\_\_\_\_      **b** mode \_\_\_\_\_      **c** median \_\_\_\_\_      **d** mean \_\_\_\_\_

(Continued on back.)

## Home Connection 10 Worksheet (cont.)

**5** Now make a display of the numbers in your set. You can display them on the grid below or make your display on another sheet of paper and attach it to this assignment.



### Words to Remember

**Range:** the difference between the highest and lowest number in a data set

$$4 \quad 6 \quad 7 \quad 8 \quad 8 \quad 11 \quad 14$$

$$14 - 4 = 10$$

**Mode:** the number that appears most often in a set of numbers. In any data set, there may be one mode, more than one mode, or no mode.

$$4 \quad 6 \quad 7 \quad 8 \quad 11 \quad 11 \quad 13$$

**Median:** the middle number when the numbers in a data set are arranged from lowest to highest

$$4 \quad 6 \quad 7 \quad 8 \quad 8 \quad 11 \quad 13$$

**Mean:** the number you get when you level off or even out all the numbers in a data set. The mean is also called the average.

