**STUDY LINK
1·9**

Unit 2: Family Letter

Using Numbers and Organizing Data

Your child is about to begin this year's work with numbers. The class will examine what numbers mean and how they are used in everyday life.

In today's world, numbers are all around us—in newspapers and magazines and on TV. We use them

◆ to count things *(How many people are in the room?)*

◆ to measure things *(How tall are you?)*

◆ to create codes *(What is your Social Security number?)*

◆ to locate things in reference frames *(What time is it?)*

◆ to express rates, scales, and percents *(How many miles per gallon does your car get? What percent voted for Jamie?)*

Sometimes students will need to interpret a collection of numbers. The class will learn to organize such collections of numbers in tables and graphs and to draw conclusions about them.

Computation is an important part of problem solving. Fortunately, we are no longer restricted to paper-and-pencil methods of computation. We can use calculators or computer programs to solve lengthy or complex problems. Your child will practice mental and paper-and-pencil methods of computation, use a calculator, and have opportunities to decide which is most appropriate for solving a particular problem.

Many of us were taught that there is just one way to do computations. For example, we may have learned to subtract by "borrowing." We may not have realized that there are other ways of subtracting numbers. While students will not be expected to learn more than one method, they will examine several different methods and realize that there are often several ways to arrive at the same result. They will have the option of using the methods with which they are comfortable or even inventing one of their own.

Mathematics games will be used throughout the school year to practice various arithmetic skills. Through games, practice becomes a thinking activity to be enjoyed. The games your child will play in this unit will provide practice with renaming numbers, with addition, and with subtraction. They require very little in the way of materials, so you may play them at home as well.

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

STUDY LINK 1·9 **Unit 2: Family Letter** *cont.*

Vocabulary

Important terms in Unit 2:

algorithm A set of step-by-step instructions for doing something, such as carrying out a computation or solving a problem.
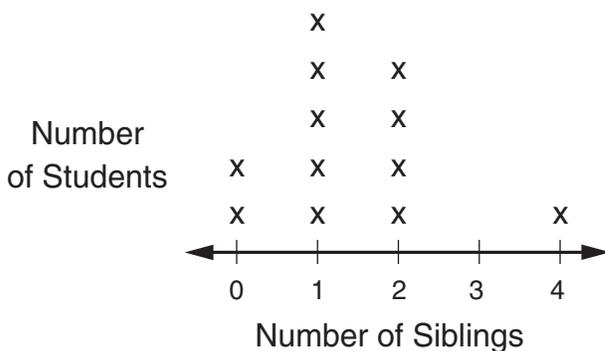
base 10 Our number system in which each place in a number has a value 10 times the place to its right and $\frac{1}{10}$ the place to its left.

column-addition A method for adding numbers in which the addends' digits are first added in each place-value column separately, and then 10-for-1 trades are made until each column has only one digit. Lines are drawn to separate the place-value columns.

	100s	10s	1s
	2	4	8
+	1	8	7
Add the columns:	3	12	15
Adjust the 1s and 10s:	3	13	5
Adjust the 10s and 100s:	4	3	5

equivalent names Different names for the same number. For example, $2 + 6$, $4 + 4$, $12 - 4$, $18 - 10$, $100 - 92$, $5 + 1 + 2$, eight, VIII, and ⊬⊬ /// are equivalent names for 8.

line plot A sketch of data in which check marks, Xs, or other marks above a labeled line show the frequency of each value.

```
                    X
                    X    X
                    X    X
Number         X    X    X
of Students    X    X    X         X
       ◄───┼────┼────┼────┼────┼───►
           0    1    2    3    4
              Number of Siblings
```

mean The sum of a set of numbers divided by the number of numbers in the set. The mean is often referred to simply as the "average."

median The middle value in a set of data when the data are listed in order from least to greatest. If there is an even number of data points, the median is the *mean* of the two middle values.

mode The value or values that occur most often in a set of data.

name-collection box A diagram that is used for writing *equivalent names* for a number. The box to the right shows names for 8.

8
2 + 6
4 + 4
VIII
eight

partial-differences subtraction A way to subtract in which differences are computed separately for each place (ones, tens, hundreds, and so on). The partial differences are then added to give the final answer.

		932
		− 356
Subtract the hundreds:	$900 - 300 \rightarrow$	600
Subtract the tens:	$30 - 50 \rightarrow$	− 20
Subtract the ones:	$2 - 6 \rightarrow$	− 4
Find the total:	$600 - 20 - 4 \rightarrow$	576

partial-sums addition A way to add in which sums are computed for each place (ones, tens, hundreds, and so on) separately. The partial sums are then added to give the final answer.

		496
		229
		+ 347
Add the hundreds:	$400 + 200 + 300 \rightarrow$	900
Add the tens:	$90 + 20 + 40 \rightarrow$	150
Add the ones:	$6 + 9 + 7 \rightarrow$	+ 22
Find the total:	$900 + 150 + 22 \rightarrow$	1,072

range The difference between the maximum and the minimum in a set of data.

trade-first subtraction A subtraction method in which all trades are done before any subtractions are carried out.

whole numbers The numbers 0, 1, 2, 3, 4, and so on.

35

Do-Anytime Activities

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

1. Have your child see how many numbers he or she can identify in newspapers, magazines, advertisements, or news broadcasts.

2. Have your child collect and compare the measurements (height and weight) or accomplishments of favorite professional athletes.

3. Look up the different time zones of the United States and the world, quizzing your child on what time it would be at that moment at a particular location.

4. Have your child look for different representations of the same number. For example, he or she may see the same money amounts expressed in different ways, such as 50¢, $0.50, or 50 cents.

Building Skills through Games

In Unit 2, your child will play the following games. For detailed instructions, see the *Student Reference Book.*

Addition Top-It See *Student Reference Book,* page 263. This game provides practice with addition facts.

Fishing for Digits See *Student Reference Book*, page 242. This game provides practice identifying digits and the values of the digits, and adding and subtracting.

High-Number Toss See *Student Reference Book*, page 252. This game provides practice reading, writing, and comparing numbers.

Name That Number See *Student Reference Book,* page 254. This game reinforces skills in using all four operations.

Polygon Pair-Up See *Student Reference Book*, page 258. This game provides practice identifying properties of polygons.

Subtraction Target Practice See *Student Reference Book*, page 262. This game provides practice with subtraction and estimation.

Subtraction Top-It See *Student Reference Book,* pages 263 and 264. This is a variation of *Addition Top-It* and provides practice with subtraction facts.

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 this unit's Study Links.

Study Link 2·2

1. Sample answers: 8 × 8; 32 × 2; 10 + 54

2. Sample answers: 2 × 66; 11 × 12; 66 + 66;
   30 + 30 + 30 + 30 + 12;
   (50 × 2) + 32

3. Sample answers: 20 + 20; 80 ÷ 2; $\frac{1}{2}$ × 80

4. Sample answers: 9 × 4; 72 ÷ 2; (12 × 4) − 12

Study Link 2·3

1. 876,504,000   2. 23,170,080

3. 876,504,000

4. **a.** thousand; 400,000

   b. million; 80,000,000

   c. million; 500,000,000

   d. thousand; 30,000

5. **b.** 596,708   **d.** 1,045,620

6. **b.** 13,877,000   **d.** 150,691,688

Study Link 2·4

2. 581,970,000   3. 97,654,320

5. **a.** 487,000,063   **b.** 15,000,297

6. 97,308,080

Study Link 2·5

2. 27   3. 8   4. 2   5. 6   6. 5

Study Link 2·6

1.

Student Data on Television Time

Number of Students (vertical axis)

16 17 18 19 20 21 22 23
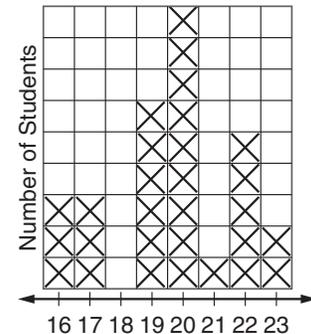
Number of Hours Spent
Watching Television Each Week

2. **a.** 23   **b.** 16   **c.** 7   **d.** 20   **e.** 20

4. 19.7

Study Link 2·7

1. 152   2. 510   3. 613

4. 1,432   5. 2,520   6. 5,747

11. 136   12. 720   13. 225

14. 720   15. 1,573   16. 2,356

Study Link 2·8

1. **a.** 645   **b.** 19   **c.** 626   **d.** 151

2. Giraffe, Asian elephant, and rhinoceros

3. 90   4. dog   5. mouse

Study Link 2·9

1. 68   11. 29

2. 382   12. 57

3. 367   13. 406

4. 3,746   14. 224

5. 2,889   15. 4,479

6. 2,322   16. 2,538