



Unit 2: Using Numbers and Organizing Data

Your child is about to begin this year's work with numbers. Throughout the school year, the class will examine what numbers mean and how they are used in everyday life to convey information and solve problems.

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?*)

The class will experience many different situations in which numbers are used. Your child will collect examples of numbers throughout the year and record the most interesting ones in a journal.

While we often deal with numbers one at a time, there are times when we need to interpret a whole 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 to solve lengthy problems or computer programs to solve very complex ones. Your child will have many opportunities for practicing mental and paper-and-pencil methods of computation, for using a calculator, and for deciding 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 learning a method they find most 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.

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.

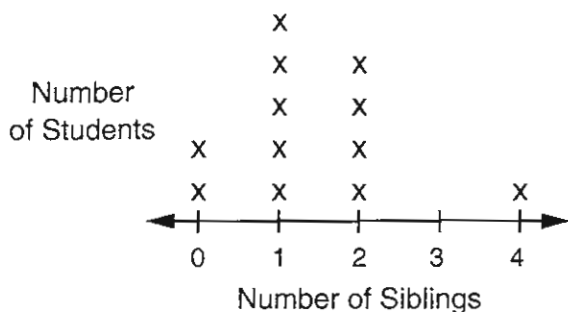
base ten The property of our number system that results in each place having a value of 10 times the place to its right.

column-addition method 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 ~~HT~~ III are equivalent names for 8.

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



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.

8
$2 + 6$
$4 + 4$
VIII
eight

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

Example: $496 + 229 + 347 = ?$

$$\begin{array}{r}
 496 \\
 229 \\
 + 347 \\
 \hline
 \text{Add the hundreds: } 400 + 200 + 300 \rightarrow 900 \\
 \text{Add the tens: } 90 + 20 + 40 \rightarrow 150 \\
 \text{Add the ones: } 6 + 9 + 7 \rightarrow \underline{22} \\
 \text{Find the total: } 900 + 150 + 22 \rightarrow 1,072
 \end{array}$$

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

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

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 practice addition and subtraction and renaming numbers by playing the following games. For detailed instructions, see the *Student Reference Book*.

Addition Top-It See *Student Reference Book*, page 207.

2 to 4 players use a deck of number cards that includes 4 each of the numbers 1 through 10. The game provides practice with addition facts.

Subtraction Top-It See *Student Reference Book*, page 207.

This is a variation of the above game and provides practice with subtraction facts.

Name That Number See *Student Reference Book*, page 203.

This is a game for 2 or 3 players and requires a complete deck of number cards and paper and pencil. The game reinforces skills in using all four operations.

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 some of the Study Links in this unit.

Study Link 2.2

4. Sample answers: $10 + 10 + 10 + 10$
 $100 - 60$
5. Sample answers: 18×2
 $40 - 4$

Study Link 2.3

1. 876,504,000
5. a. 4,499,702 c. 30,457,300
6. a. 496,708 c. 19,410,366

Study Link 2.4

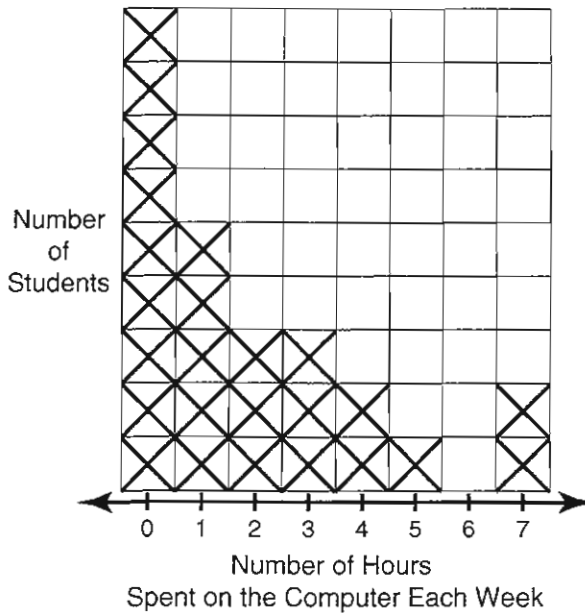
2. 581,970,000 3. 97,654,320
6. 97,308,080

Study Link 2.5

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

Study Link 2.6

1. **Class Data on Computer Time**



2. a. 7 b. 0 c. 7 d. 0 e. 1
3. Answers vary.

Study Link 2.7

Sample problem using the partial-sums method:

1. 152 2. 510
3. 613 4. 1,432

	4	9	3
+	9	3	9
1	3	0	0
	1	2	0
+		1	2
1	4	3	2

Sample problem using the column-addition method:

7. 136 8. 720
9. 225 10. 720

	8	9
+	4	7
	12	16
	13	6
1	3	6

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

Sample problem using the trade-first subtraction method:

1. 68 2. 382 3. 367

	8	16
	9	6
-	2	8
	6	8

Sample problem using the partial-differences subtraction method:

1. 29 2. 57 3. 406

	8	4
-	5	5
+	3	0
-		1
	2	9

