Unit 4: Family Letter

Addition and Subtraction

In Unit 4, children will use addition and subtraction stories to develop mental-arithmetic skills. Mental arithmetic is computation done in one's head or by drawing pictures, making tallies, or using manipulatives (counters, money, number lines, and number grids—no calculators, though). Children can also use their own solution strategies.
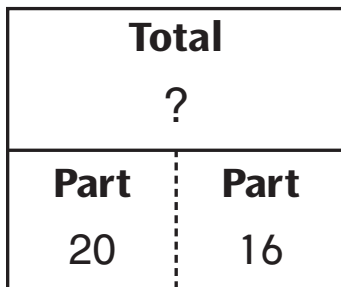
A second grader uses a number grid to solve $5 + 9$.

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

Addition has two basic meanings: *putting together* and *changing to more.* In this unit, children will use **parts-and-total diagrams** and **change diagrams** to help them organize information in addition stories that either "put together" or "change to more." See the vocabulary section on page 87 to learn more about these diagrams.

> I started at 5 and jumped ahead 10 to 15. But the problem said to add only 9, so I moved back 1 to 14.

Parts-and-Total Diagram

Total
?

Part	Part
20	16

Change Diagram

Change

Start		End
20	+6	?

Children will also develop estimation skills by solving problems that involve purchases. For example, your child will estimate whether $5.00 is enough to buy a pen that costs $1.69, a notebook that costs $2.25, and a ruler that costs 89¢.

In the last part of this unit, children will learn paper-and-pencil strategies for addition and will continue to gain hands-on experience with thermometers, money, tape measures, and rulers. Home Links 4-8 and 4-9, which you will receive later, will give you more information on the paper-and-pencil strategies that your child will be learning.

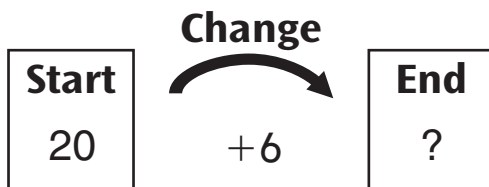**Please keep this Family Letter for reference as your child works through Unit 4.**

Vocabulary

Important terms in Unit 4:

change-to-more number story A number story having a starting quantity that is increased so the ending quantity is more than the starting quantity.

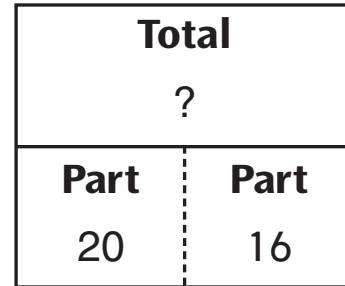For example: *Nick has 20 comic books. He buys 6 more. How many comic books does Nick have now?*

change diagram A device used to organize information in a change-to-more or change-to-less number story. The change diagram below organizes the information in Nick's comic book story above.

Change

Start		End
20	+6	?

mental arithmetic Computation done totally or partially in one's head, using a variety of strategies.

parts-and-total number story A number story in which two or more quantities (parts) are combined to form a total quantity. For example: *Carl baked 20 cookies. Sam baked 16 cookies. How many cookies did Carl and Sam bake in all?*

parts-and-total diagram A diagram used to organize information in a parts-and-total number story. The parts-and-total diagram below organizes the information in Carl's cookie story.

Total	
?	
Part	**Part**
20	16

estimate (1) An answer close to, or approximating, an exact answer. (2) To make an estimate.
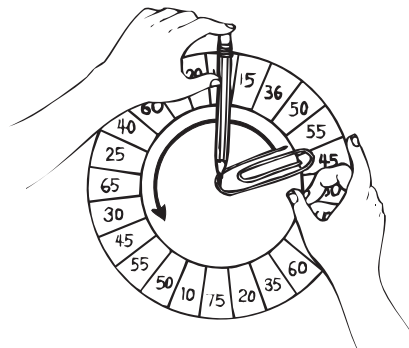
algorithm A step-by-step set of instructions for doing something—for example, for solving addition or subtraction problems.

Building Skills through Games

In Unit 4, your child will practice addition and subtraction skills by playing the following games:

Addition Spin

A "Spinner" and a "Checker" take turns adding two numbers and checking the sum. After five turns, each player uses a calculator to find the sum of his or her scores. The player with the higher total wins.

Name That Number

Each player turns over a card to find a number that must be renamed using any combination of five faceup cards.
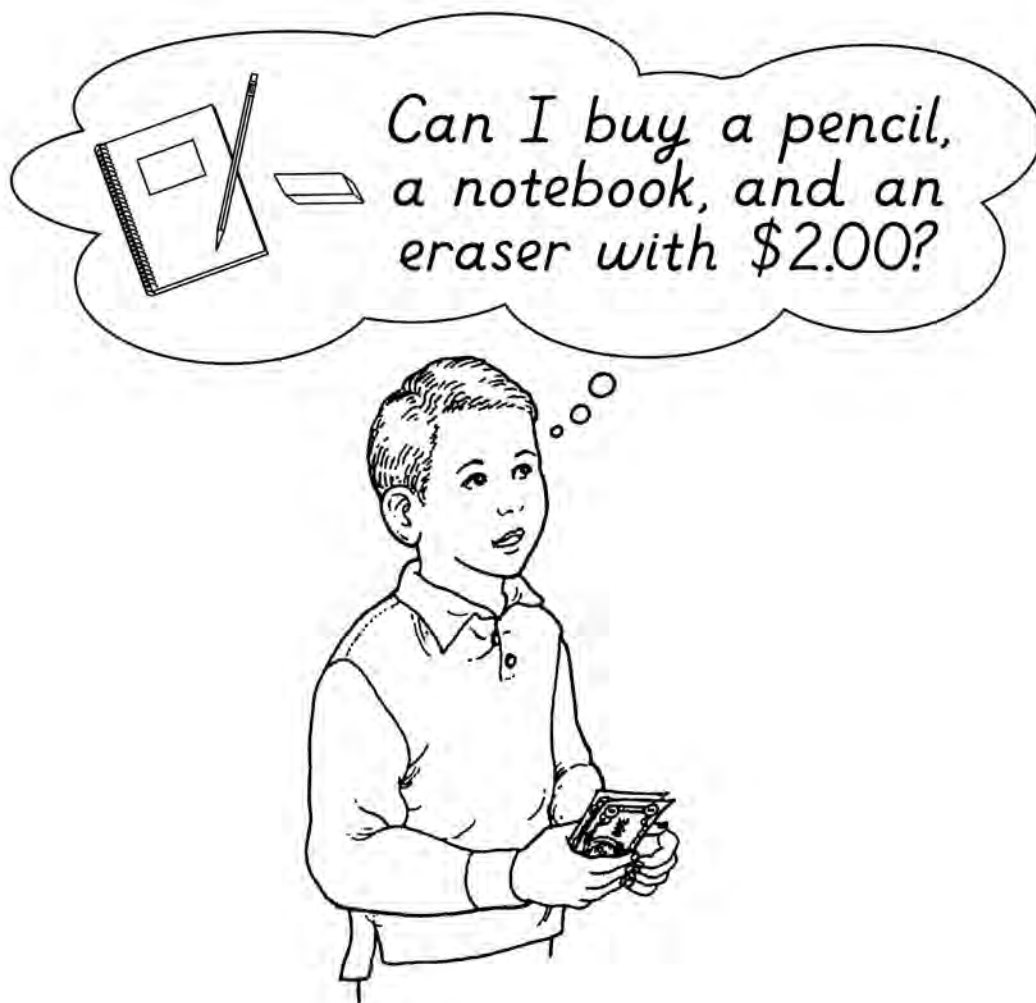
Fact Extension Game

Players find sums of 2-digit numbers and multiples of ten.

Do-Anytime Activities

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

1. Encourage your child to show you addition and subtraction strategies as these concepts are developed during the unit.

2. Make up number stories involving estimation. For example, pretend that your child has $2.00 and that he or she wants to buy a pencil marked 64¢, a tablet marked 98¢, and an eraser marked 29¢. Help your child estimate the total cost of the three items (without tax) and determine whether there is enough money to buy them. If appropriate, you can also ask your child to estimate the amount of change due.

3. Look at weather reports in the newspaper and on television and discuss differences between high and low temperatures. Also note the differences between the Fahrenheit and Celsius scales.

As You Help Your Child with Homework

As your child brings home assignments, you may want to go over the instructions together, clarifying them as necessary. The answers listed below will guide you through this unit's Home Links.
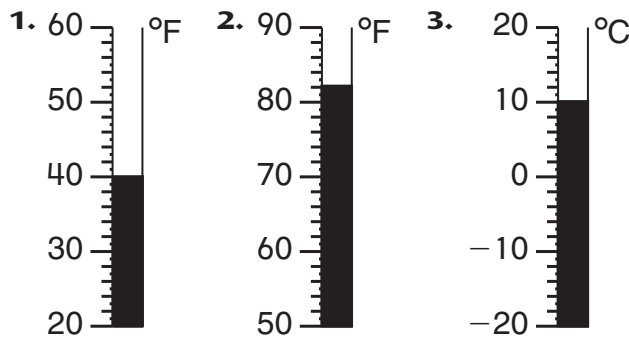
Home Link 4◆1

1. 18 grapes; 11 + 7 = 18

2. 38 cards; 30 + 8 = 38

3. 52 pounds; 42 + 10 = 52

4. 27   **5.** 80   **6.** 83

7. 10   **8.** 17   **9.** 70

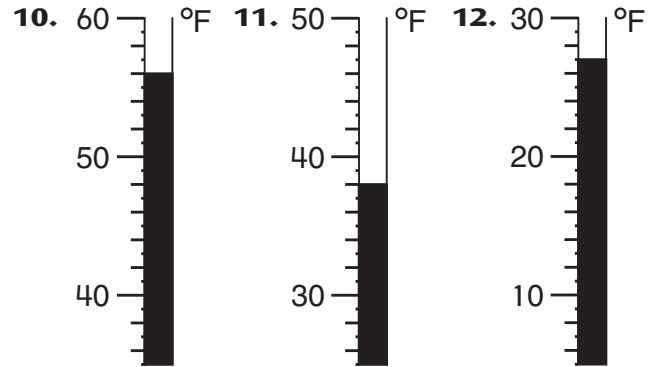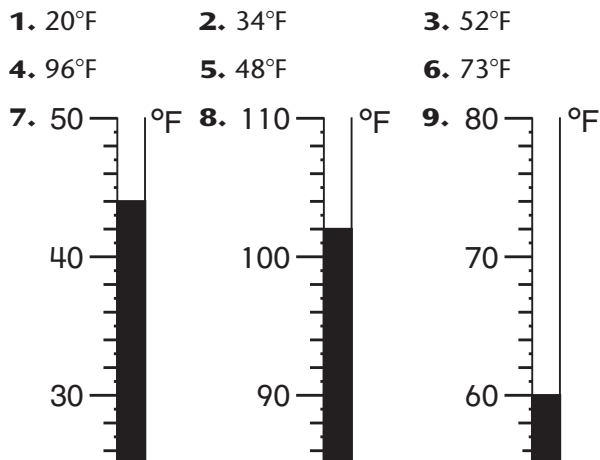**10.** 30   **11.** 66   **12.** 80

Home Link 4◆2

1. 47 pounds; 17 + 30 = 47

2. 75 pounds; 45 + 30 = 75

3. 60 pounds; 15 + 45 = 60

4. 92 pounds; 17 + 45 + 30 = 92

Home Link 4◆3

1. 60 °F   **2.** 90 °F   **3.** 20 °C

4. a. 14   **b.** 13   **c.** 6   **d.** 15

Home Link 4◆4

1. 20°F   **2.** 34°F   **3.** 52°F

4. 96°F   **5.** 48°F   **6.** 73°F

7. 50 °F   **8.** 110 °F   **9.** 80 °F

10. 60 °F   **11.** 50 °F   **12.** 30 °F

13. 70   **14.** 35   **15.** 97

16. 26   **17.** 50   **18.** 68

Home Link 4◆5

1. no   **2.** yes   **3.** no   **4.** yes

5. 100   **6.** 46   **7.** 47

Home Link 4◆6

1. 30 marbles; 20 + 10 = 30

2. 54 cookies; 30 + 24 = 54

3. 100   **4.** 140   **5.** 79   **6.** 83

7. 94   **8.** 77

Home Link 4◆7

2. About 20 inches

Home Link 4◆8

1. 76   **2.** 100   **3.** 83   **4.** 120

5. 98   **6.** 90   **7.** 93   **8.** 85

9. 71   **10.** 83   **11.** 169   **12.** 544

Home Link 4◆9

1. 89   **2.** 108   **3.** 83   **4.** 94

5. 185   **6.** 363