

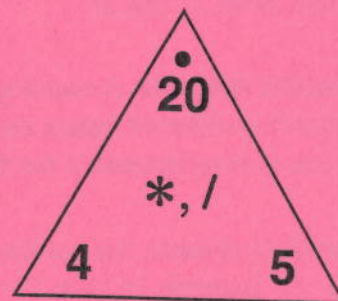
**STUDY LINK**  
**2•10**

## Unit 3: Family Letter



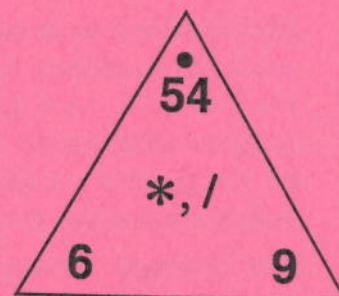
### Multiplication and Division; Number Sentences and Algebra

In the coming weeks, the class will work to maintain automaticity with basic multiplication facts. Your child will use Multiplication/Division Fact Triangles to review the relationship between multiplication and division. (For example,  $4 \times 5 = 20$ , so  $20 \div 5 = 4$  and  $20 \div 4 = 5$ .) Students will play several math games in class. Ask your child to teach you one of the games described in the *Student Reference Book*, and play a few rounds together.



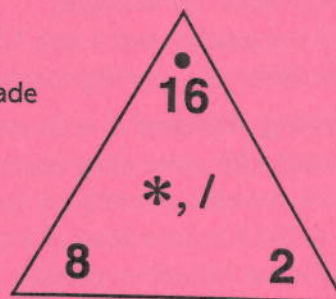
The class will also take two 50-facts tests for multiplication. These tests will be used to determine if any students need further review of the multiplication facts. At this point students should have mastered the basic facts. If your child needs additional support, you can use the Multiplication/Division Fact Triangles to review and monitor your child's progress.

In this unit, alternative symbols for multiplication and division are introduced. An asterisk (\*) may be substituted for the traditional  $\times$  symbol, as in  $4 * 5 = 20$ . A slash (/) may be used in place of the traditional  $\div$  symbol, as in  $20 / 4 = 5$ .



In Unit 3, the class will continue the World Tour, a yearlong project in which the students travel to a number of different countries. Their first flight will take them to Cairo, Egypt. These travels serve as background for many interesting activities in which students look up numerical information, analyze this information, and solve problems.

Finally, the class will have its first formal introduction to solving equations in algebra. (Informal activities with missing numbers in number stories have been built into the program since first grade.) Formal introduction to algebra in fourth grade may surprise you, because algebra is usually regarded as a high school subject. However, an early start in algebra is integral to the *Everyday Mathematics* philosophy.



**Please keep this Family Letter for reference as your child works through Unit 3.**



## Vocabulary

Important terms in Unit 3:

**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.

**dividend** In division, the number that is being divided. For example, in  $35 \div 5 = 7$ , the dividend is 35.

**divisor** In division, the number that divides another number. For example, in  $35 \div 5 = 7$ , the divisor is 5.

**Fact family** A set of related arithmetic facts linking two inverse operations. For example,  $4 + 8 = 12$ ,  $8 + 4 = 12$ ,  $12 - 4 = 8$ , and  $12 - 8 = 4$  is an addition/subtraction fact family, and  $4 \times 8 = 32$ ,  $8 \times 4 = 32$ ,  $32/4 = 8$ , and  $32/8 = 4$  is a multiplication/division fact family.

**Fact Triangle** A triangular flash card labeled with the numbers of a *fact family* that students can use to practice addition/subtraction or multiplication/division facts.

**factor** One of two or more numbers that are multiplied to give a *product*. For example,  $4 \times 1.5 = 6$ ; so 6 is the *product*, and 4 and 1.5 are the *factors*. See also *factor of a counting number n*.

**factor of a counting number  $n$**  A counting number whose *product* with some other counting number equals  $n$ . For example, 2 and 3 are *factors* of 6 because  $2 \times 3 = 6$ . But 4 is not a *factor* of 6 because  $4 \times 1.5 = 6$  and 1.5 is not a counting number.

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

**number sentence** Two numbers or expressions separated by a relation symbol ( $=$ ,  $>$ ,  $<$ ,  $\geq$ ,  $\leq$ , or  $\neq$ ). Most number sentences also contain at least one operation symbol ( $+$ ,  $-$ ,  $\times$ ,  $*$ ,  $\cdot$ ,  $\div$ ,  $/$ ). Number sentences may also have grouping symbols, such as parentheses.

**open sentence** A *number sentence* in which one or more *variables* hold the places of missing numbers. For example,  $5 + x = 13$  is an open sentence.

**percent (%)** Per hundred, or out of a hundred. For example, "48% of the students in the school are boys" means that, on average, 48 out of every 100 students in the school are boys;  $48\% = \frac{48}{100} = 0.48$

**prime number** A counting number that has exactly two different *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  $4 \times 3 = 12$ , the product is 12.

**quotient** The result of dividing one number by another number. For example, in  $35 \div 5 = 7$ , the quotient is 7.

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

**variable** A letter or other symbol that represents a number. A variable can represent one specific number. For example, in the *number sentence*  $5 + n = 9$ , only  $n$  makes the sentence true. A variable may also stand for many different numbers. For example,  $x + 2 < 10$  is true if  $x$  is any number less than 8. And in the equation  $a + 3 = 3 + a$ ,  $a$  stands for all numbers.

**"What's My Rule?" problem** A type of problem that asks for a rule for relating two sets of numbers. Also, a type of problem that asks for one of the sets of numbers, given a rule and the other set of numbers.

| Rule       | in | out |
|------------|----|-----|
| $\times 8$ | 6  | 48  |
|            | 10 | 80  |
|            | 3  |     |
|            |    | 56  |
|            |    | 64  |

## Do-Anytime Activities

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

1. Continue to work on multiplication and division facts by using Fact Triangles and fact families and by playing games described in the *Student Reference Book*.
2. As the class proceeds through the unit, give your child multidigit addition and subtraction problems related to the lessons covered, such as  $348 + 29$ ,  $427 + 234$ ,  $72 - 35$ , and  $815 - 377$ .
3. Help your child recognize and identify real-world examples of right angles, such as the corner of a book, and examples of parallel lines, such as railroad tracks.

## Building Skills through Games

In Unit 3, your child will play the following games.

**Baseball Multiplication** See *Student Reference Book*, pages 231 and 232.

Two players will need 4 regular dice, 4 pennies, and a calculator to play this game. Practicing the multiplication facts for 1–12 and strengthening mental arithmetic skills are the goals of *Baseball Multiplication*.

**Beat the Calculator** See *Student Reference Book*, page 233.

This game involves 3 players and requires a calculator and a deck of number cards, four each of the numbers 1 through 10. Playing *Beat the Calculator* helps your child review basic multiplication facts.

**Division Arrays** See *Student Reference Book*, page 240.

Materials for this game include number cards, 1 each of the numbers 6 through 18; a regular (6-sided) die; 18 counters; and paper and pencil. This game, involving 2 to 4 players, reinforces the idea of dividing objects into equal groups.

**Multiplication Top-It** See *Student Reference Book*, page 264.

The game can be played with 2 to 4 players and requires a deck of cards, four each of the numbers 1 through 10. This game helps your child review basic multiplication facts.

**Name That Number** See *Student Reference Book*, page 254.

Played with 2 or 3 players, this game requires a complete deck of number cards and paper and pencil. Your child tries to name a target number by adding, subtracting, multiplying, and dividing the numbers on as many of the cards as possible.

## 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 3•1

- 66, 67, 68, 69, 70
- 110, 80, 310, 240, 390
- 34, 675, 54; +46
- 9, 50, 420;  $\times 7$
- 2, 400, 2,000
- Answers vary.
- 115
- 612
- 1,440

### Study Link 3•2

- 1, 2, 3, 4, 6, 9, 12, 18, 36
- 1, 16; 2, 8; 4, 4
- 56
- Sample answer: 4, 8, 12, 16
- 388
- 765

### Study Link 3•3

- 24
- 54
- 28
- 16
- 45
- 18
- 40
- 25
- 48
- 9
- 64
- 6
- 1, 2, 3, 6, 9, 18
- 2, 3

### Study Link 3•4

- 6
- 8
- 6
- 21
- 20; 5
- 18; 6
- 49; 7
- 9; 2
- 7; 5
- 7; 4
- Sample answer: 10, 15, 20, 25

- 1, 2, 3, 4, 6, 8, 12, 24
- 4, 6, 8, 12, 24

### Study Link 3•5

- 5
- 7
- 72
- 10
- 32
- 1,646
- 5,033
- 289
- 1,288

### Study Link 3•6

- a. T
- about 128,921 miles;  
 $132,000 - 3,079 = 128,921$
- a. 4
- 1, 2, 3, 4, 6, 12
- Sample answers: 16, 24, 32, 40

### Study Link 3•7

|    | Cities                      | Measurement on Map (inches) | Real Distance (miles) |
|----|-----------------------------|-----------------------------|-----------------------|
| 1. | Cape Town and Durban        | 4                           | 800                   |
| 2. | Durban and Pretoria         | $1\frac{3}{4}$              | 350                   |
| 3. | Cape Town and Johannesburg  | 4                           | 800                   |
| 4. | Johannesburg and Queenstown | 2                           | 400                   |
| 5. | East London and Uptington   | $2\frac{1}{2}$              | 500                   |
| 6. | _____ and _____             | Answers vary.               |                       |

### Study Link 3•8

- $4,034; 1,545 + 2,489 = s$
- 473;  $700 - 227 = k$
- 534;  $1,552 - 1,018 = p$
- 1,430;  $624 + 470 + 336 = s$
- 3 or 9
- 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

### Study Link 3•9

- F
- F
- T
- T
- F
- T
- T
- ?
- b.  $7 * 8 = 56$
- 36, 60, 84; +12
- 54, 216, 324; +54

### Study Link 3•10

- 27
- 33
- 1
- 24
- 37
- 8
- $3 * (6 + 4) = 30$
- $15 = (20/4) + 10$
- $7 + (7 * 3) = 4 * 7$
- $9 * 6 = (20 + 7) * 2$
- $72 \div 9 = (2 * 3) + (18 \div 9)$
- $35 \div (42 \div 6) = (10 - 6) + 1$
- ?
- F
- T
- F
- T