



## Multiplication and Division

In Unit 7, children will focus on learning the multiplication and division facts. Many of the same strategies that were used in previous grades for addition and subtraction will also be used for multiplication and division.

Children will review multiplication by 0, by 1, and by 10; multiplication facts having square products, such as  $5 \times 5 = 25$  and  $2 \times 2 = 4$ ; and the turn-around rule, which shows that  $2 \times 5 = 10$  is the same as  $5 \times 2 = 10$ .

Children will also continue to work with fact families and Fact Triangles as they learn the multiplication and division facts.

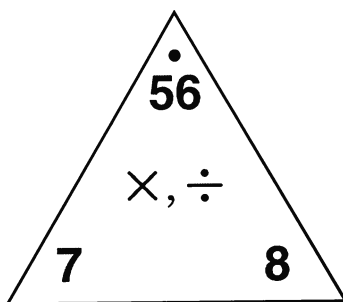
$$7 \times 8 = 56$$

$$8 \times 7 = 56$$

$$56 \div 7 = 8$$

$$56 \div 8 = 7$$

Fact family for the numbers 7, 8, and 56



Fact Triangle

The goal is for children to demonstrate automaticity with  $\times 0$ ,  $\times 1$ ,  $\times 2$ ,  $\times 5$ , and  $\times 10$  multiplication facts and to use strategies to compute remaining facts up to  $10 \times 10$  by the end of the year.

**Please keep this Family Letter for reference as your child works through Unit 7.**

## Vocabulary

Important terms in Unit 7:

**factor** Each of 2 or more numbers in a product. For example,  $4 \times 3 = 12$ ; so 12 is the product, and 4 and 3 are the factors.

$$\begin{array}{ccccccc} & & 4 & \times & 3 & = & 12 \\ & \uparrow & & & \uparrow & & \uparrow \\ \text{factors} & \text{---} & & & & & \text{---} & \text{product} \end{array}$$

**product** The result of multiplying 2 numbers, called factors. For example, in  $4 \times 3 = 12$ , the product is 12.

**square number** The product of a counting number and itself. For example, 25 is a square number, because  $5 \times 5 = 25$ .

**estimate** (1) An answer close to, or approximating, an exact answer. (2) To make an estimate.

**parentheses** ( ) Grouping symbols used to indicate which parts of an expression should be done first.

**extended multiplication fact** A multiplication fact involving multiples of 10, 100, and so on. In an extended multiplication fact, each factor has only one digit that is not 0. For example,  $60 \times 7$ ,  $70 \times 6$ , and  $60 \times 70$  are extended facts.

## Building Skills through Games

In Unit 7, your child will practice multiplication and division skills by playing the following games. For detailed instructions, see the *Student Reference Book*.

### Baseball Multiplication

Players use multiplication facts to score runs. Team members take turns pitching by rolling two dice to get two factors. Then players on the batting team take turns multiplying the two factors and saying the product.

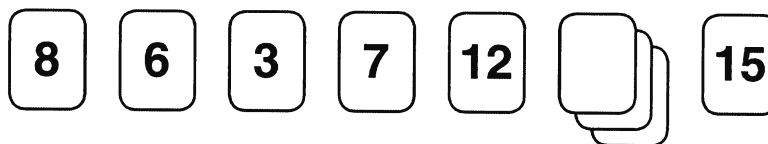


### Multiplication Bingo

Players take turns calling out the product of two numbers. If that number appears on their *Multiplication Bingo* cards, they put a penny on that number. The first player to get 4 pennies in a row, column, or diagonal calls out "Bingo!" and wins the game.

### Name That Number

Players turn over a card to find a number they must rename using any combination of five faceup cards. They may add, subtract, multiply, or divide the numbers on 2 or more of the 5 cards that are number-side up.



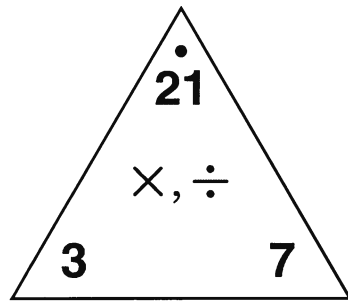
The number 15 can be renamed using 3 cards as  $3 \times 7 = 21$

$$21 - 6 = 15$$

## Do-Anytime Activities

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

1. Practice multiplication facts by playing games and by working with Fact Triangles.



Fact Triangle

$$3 \times 7 = 21$$

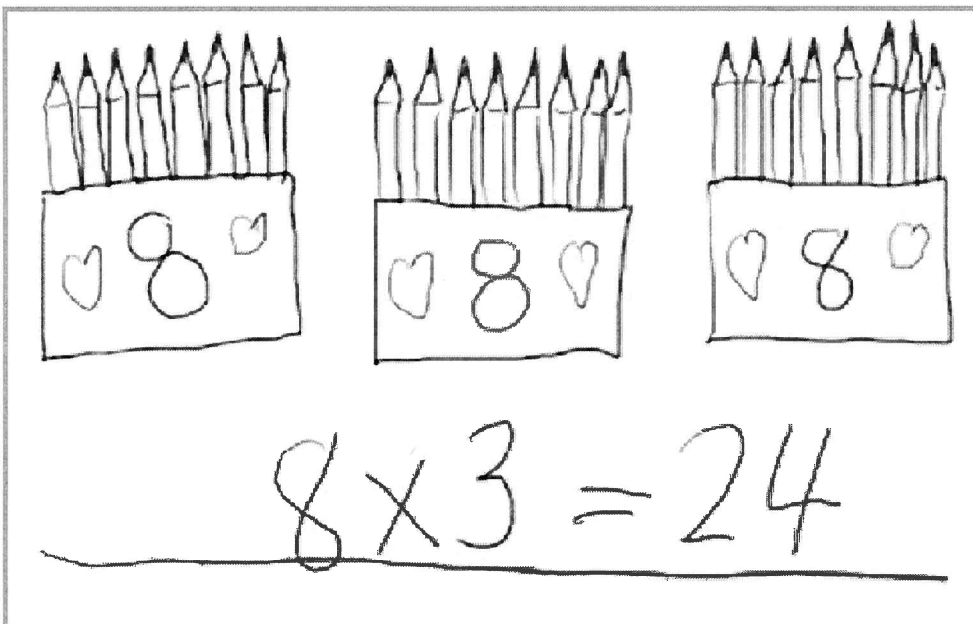
$$7 \times 3 = 21$$

$$21 \div 7 = 3$$

$$21 \div 3 = 7$$

Fact families for the numbers 3, 7, and 21

2. Ask your child to count by certain intervals.  
*For example: Start at zero and count by 6s.*
3. Provide your child with problems with missing factors for multiplication practice.  
*For example: 6 times what number equals 18?*
4. Ask your child to estimate costs at the store.  
*For example: One loaf of bread costs \$1.49. Two loaves are about \$3.00.*
5. Ask questions that involve equal sharing.  
*For example: Eight children share 64 paperback books. How many books does each child get?*
6. Ask questions that involve equal groups.  
*For example: Pencils are packaged in boxes of 8. There are 3 boxes. How many pencils are there in all?*



Child's drawing of equal groups

# 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 7•2

1.

Factor	Factor	Product
3	5	15
7	2	14
4	10	40
8	8	64
4	8	32
864	1	864
10	10	100
0	999	0
1	48	48
243	0	0

5. 14,189

6. 3,166

## Home Link 7•4

- 1a.  $(17 - 10) + 3 = 10$     1b.  $17 - (10 + 3) = 4$   
 2a.  $(26 - 7) \times 2 = 38$     2b.  $26 - (7 \times 2) = 12$   
 3a.  $(24 - 17) - 6 = 1$     3b.  $24 - (17 - 6) = 13$   
 4a.  $3 \times (6 + 13) = 57$     4b.  $(3 \times 6) + 13 = 31$   
 7. The parentheses are placed incorrectly.  
 The number model should be  $(8 \times 4) + 4 = 36$ .

## Home Link 7•5

### Scoring 15 Basketball Points

Number of 3-point baskets	Number of 2-point baskets	Number of 1-point baskets	Number models
5	0	0	$(5 \times 3) + (0 \times 2) + (0 \times 1) = 15$
0	5	5	$(0 \times 3) + (5 \times 2) + (5 \times 1) = 15$
3	3	0	$(3 \times 3) + (3 \times 2) + (0 \times 1) = 15$
4	0	3	$(4 \times 3) + (0 \times 2) + (3 \times 1) = 15$
2	3	3	$(2 \times 3) + (3 \times 2) + (3 \times 1) = 15$
1	6	0	$(1 \times 3) + (6 \times 2) + (0 \times 1) = 15$

1. 186    2. 509    3. 24

## Home Link 7•6

1.  $8 \times 200 = 1,600$                       2.  $9 \times 30 = 270$   
 $200 \times 8 = 1,600$                        $30 \times 9 = 270$   
 $1,600 \div 8 = 200$                        $270 \div 9 = 30$   
 $1,600 \div 200 = 8$                        $270 \div 30 = 9$   
 3.  $6 \times 40 = 240$   
 $40 \times 6 = 240$   
 $240 \div 6 = 40$   
 $240 \div 40 = 6$

## Home Link 7•7

2. b. 1,750    c. 1,251    f. 545    g. 614  
 i. 522

## Home Link 7•8

5. a. 1,200    b. 1,400    c. 400    d. 800  
 e. 2,000    f. 200    g. 2,000    h. 1,000  
 i. 0    Total = 9,000

Sample answers:

6. a.  $10 \times 10$     b.  $3 \times 50$      $\begin{array}{|c|c|} \hline \mathbf{a} & \mathbf{b} \\ \hline 100 & 150 \\ \hline \end{array} = 250$   
 c.  $30 \times 3$     d.  $40 \times 4$      $\begin{array}{|c|c|} \hline \mathbf{c} & \mathbf{d} \\ \hline 90 & 160 \\ \hline \end{array} = 250$

Total  
500

## Home Link 7•9

Mystery Numbers:

100; 199; 70; 44; 1,000; and 998

**HOME LINK**  
**7•2**

# Factors and Products


**Family Note**

Listen to your child explain what factors and products are before he or she writes the answers in the table. Then listen as your child tells you what he or she knows about multiplying by 1, multiplying by 0, and multiplying numbers that result in square products. Fact Triangles for the remaining multiplication/division facts are included with this Home Link.

*Please return this Home Link to school tomorrow.*

1. Explain to someone at home what factors and products are. Find the missing products and factors in the table.

2. Write what you know about the products when you multiply by 1.

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3. Write what you know about the products when you multiply by 0.

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4. Write what you know about facts with square products.

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Factor	Factor	Product
3	5	15
7		14
4	10	
8	8	
9		45
864	1	864
10		100
0	999	
	48	48
243		0

## Practice

Write these problems on the back of this page. Make a ballpark estimate for each. Solve. Show your work.

5. 
$$\begin{array}{r} 7,201 \\ +6,988 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 3,623 \\ - 457 \\ \hline \end{array}$$

<b>Unit</b>

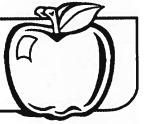
ballpark estimate

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ballpark estimate

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# ×, ÷ Fact Triangles 3



9  
36  
16  
45  
9  
×, ÷×, ÷

9  
2  
8  
5  
×, ÷×, ÷

3  
6  
4  
8  
×, ÷×, ÷

8  
24  
96  
32  
4  
×, ÷×, ÷

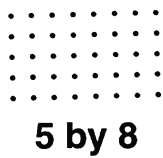
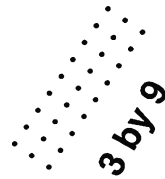
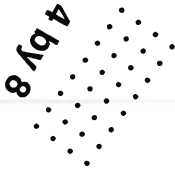
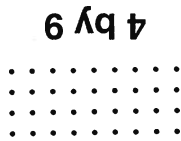
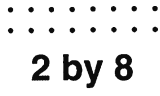
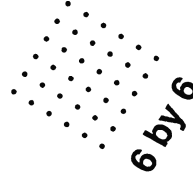
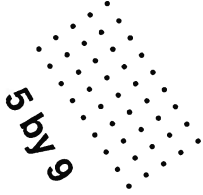
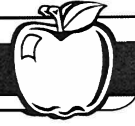
3  
27  
40  
18  
9  
×, ÷×, ÷

6  
5  
8  
2  
×, ÷×, ÷

Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_



# ×, ÷ Fact Triangles 4



Scissors icon at the top left corner of the first triangle.

**Triangle 1 (Top Left):** Vertices: 6, 6, 6. Center: ×, ÷.

**Triangle 2 (Top Middle):** Vertices: 8, 42, 72. Center: ×, ÷.

**Triangle 3 (Top Right):** Vertices: 8, 7, 9. Center: ×, ÷.

**Triangle 4 (Middle Left):** Vertices: 6, 8, 9. Center: ÷, ×.

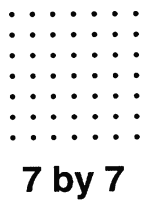
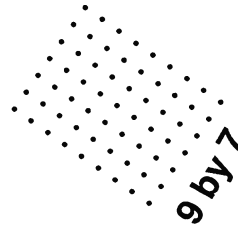
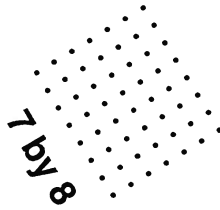
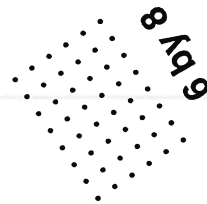
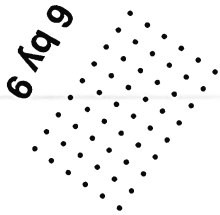
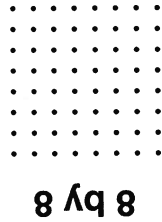
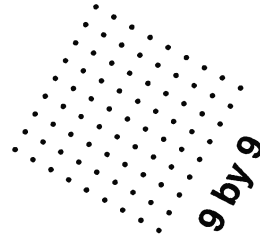
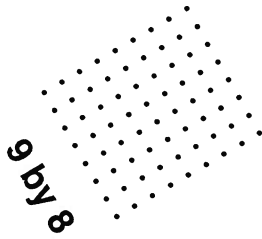
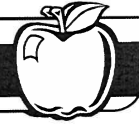
**Triangle 5 (Middle Right):** Vertices: 8, 6, 9. Center: ÷, ×.

**Triangle 6 (Bottom Left):** Vertices: 8, 6, 9. Center: ×, ÷.

**Triangle 7 (Bottom Middle):** Vertices: 48, 49, 56. Center: ×, ÷.

**Triangle 8 (Bottom Right):** Vertices: 9, 8, 7. Center: ×, ÷.





**HOME LINK**  
**7•3**

## ***Multiplication Bingo (Easy Facts)***



**Family Note** Today the class learned to play *Multiplication Bingo*. This game is a good way to practice the multiplication facts. Ask your child to show you how to play the game; then play a couple of games. When your child is ready to practice harder facts, use the cards and list of numbers on the next page. Encourage your child to keep a record of the facts he or she misses.

*Keep this Home Link at home.*

- Materials**
- number cards 1–6 and 10 (4 of each)
  - 8 pennies or other counters for each player
  - game mat for each player

**Players** 2 or 3

### **Directions**

1. Write each of the following numbers in any order in one of the squares on a game mat: 1, 4, 6, 8, 9, 12, 15, 16, 18, 20, 24, 25, 30, 36, 50, 100.
2. Shuffle the number cards. Place the cards facedown on the table.
3. Take turns. When it is your turn, take the top 2 cards and call out the product of the 2 numbers. If the other players do not agree with your answer, check it using a calculator.
4. If your answer is correct and the product is a number on your grid, place a penny or a counter on that number.
5. If your answer is incorrect, you lose your turn.
6. The first player to get 4 counters in a row, column, or diagonal or 8 counters on the game mat calls out *Bingo!* and wins the game.


If all the cards are used before someone wins, shuffle the cards again and keep playing.

**HOME LINK**  
**7•3**

# Multiplication Bingo (All Facts)



Follow the same rules as for *Multiplication Bingo*, with the following exceptions:

- ◆ Use a deck of number cards with 4 cards each for the numbers 2 through 9.
- ◆ Write each of the numbers in the list in one of the squares on the grid. Don't write the numbers in order.

### List of numbers

24	35	48	63
27	36	49	64
28	42	54	72
32	45	56	81



Record the facts you miss. Be sure to practice them.


**HOME LINK**  
**7•4**

## Parentheses Puzzles



**Family Note**

Observe as your child adds parentheses and explains what to do first in the number sentence puzzles in Problems 1 through 4. If needed, assist your child in writing a correct number model for the Try This problem. You might ask how many gifts Dalia would need to fill 8 bags and how many she would need to also take care of Denise.

*Please return this Home Link to school tomorrow.*



Show someone at home how to add parentheses to complete the number sentences below. Remember that the parentheses are used to show what you do first.

**1 a.**  $17 - 10 + 3 = 10$

**1 b.**  $17 - 10 + 3 = 4$

**2 a.**  $26 - 7 \times 2 = 38$

**2 b.**  $26 - 7 \times 2 = 12$

**3 a.**  $24 - 17 - 6 = 1$

**3 b.**  $24 - 17 - 6 = 13$

**4 a.**  $3 \times 6 + 13 = 57$

**4 b.**  $3 \times 6 + 13 = 31$

Make up other parentheses puzzles below.

**5 a.** \_\_\_\_\_

**5 b.** \_\_\_\_\_

**6 a.** \_\_\_\_\_

**6 b.** \_\_\_\_\_

**Try This**

- 7.** Dalia made 8 party bags for her birthday party. Each bag contained 4 small gifts for her friends. When Denise said that she could come, Dalia had to make one more bag with 4 gifts. How many small gifts did Dalia need to fill her bags?

Walter wrote this number model:  $8 \times (4 + 4) = 64$

Explain Walter's mistake.

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**HOME LINK**  
**7•5****Basketball Math****Family Note**

We have been using points scored in basketball to illustrate the use of parentheses in number models. Work with your child to find various combinations of 3-point, 2-point, and 1-point baskets that add up to 15 points. Ask your child to explain what the parentheses in the number models tell you about how to find the answers.

*Please return this Home Link to school tomorrow.*



Tell someone at home how basketball players can shoot baskets worth 3 points, 2 points, and 1 point. Find different ways a player can score 15 points.

Scoring 15 Basketball Points			
3 points	2 points	1 point	Number Models
3	2	2	$(3 \times 3) + (2 \times 2) + (2 \times 1) = 15$

**Practice**

Solve. Show your work.

1. 
$$\begin{array}{r} 274 \\ - 88 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 576 \\ - 67 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 711 \\ - 687 \\ \hline \end{array}$$

**Unit**

## Extended Facts on Triangles

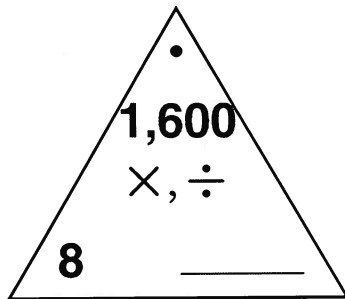
**Family Note**

Today the class learned that if you know a basic multiplication fact, such as  $4 \times 6 = 24$ , you can get the answer to an extended multiplication fact like  $40 \times 6$  or  $4 \times 600$ . The same approach works for extended division facts like  $120 \div 3$  or  $1,500 \div 5$ . The extended Fact Triangles on this page work the same way as the basic Fact Triangles.

*Please return this Home Link to school tomorrow.*

Fill in the extended Fact Triangles. Write the fact families.

1.



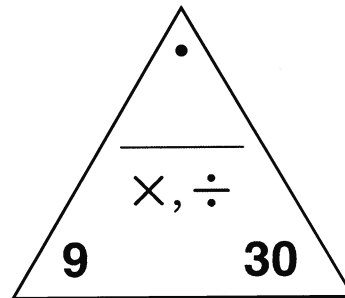
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$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

2.



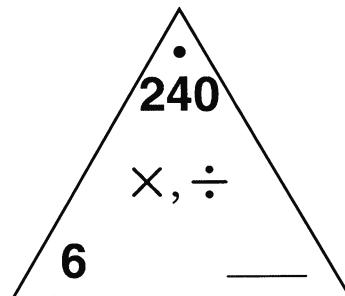
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3.



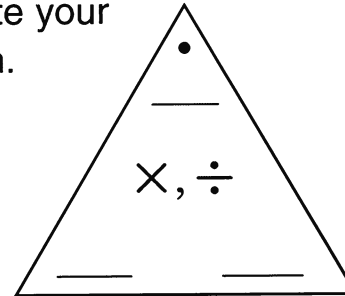
$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

4. Write your own.



$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

**Estimation****Family Note**

Today we solved problems by making estimates. We emphasized that it is not always necessary to find the exact answer to a problem. For example, when you go to the store, you can estimate whether you have enough money to pay for the items you want to purchase. In most cases, it is not necessary to find the exact cost until you pay for your items.

*Please return this Home Link to school tomorrow.*



For each problem, first estimate whether the sum is greater than 500 or less than 500; then circle the correct comparison. Next give an exact result only to those problems with sums greater than 500.

<p><b>a.</b> <math>180 + 37</math></p> <p>&gt;500 &lt;500</p> <p style="text-align: center;"><b>Answer</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	<p><b>b.</b> <math>1,358 + 392</math></p> <p>&gt;500 &lt;500</p> <p style="text-align: center;"><b>Answer</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	<p><b>c.</b> <math>742 + 509</math></p> <p>&gt;500 &lt;500</p> <p style="text-align: center;"><b>Answer</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>
<p><b>d.</b> <math>118 + 292</math></p> <p>&gt;500 &lt;500</p> <p style="text-align: center;"><b>Answer</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	<p><b>e.</b> <math>226 + 248</math></p> <p>&gt;500 &lt;500</p> <p style="text-align: center;"><b>Answer</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	<p><b>f.</b> <math>377 + 168</math></p> <p>&gt;500 &lt;500</p> <p style="text-align: center;"><b>Answer</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>
<p><b>g.</b> <math>298 + 316</math></p> <p>&gt;500 &lt;500</p> <p style="text-align: center;"><b>Answer</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	<p><b>h.</b> <math>195 + 188</math></p> <p>&gt;500 &lt;500</p> <p style="text-align: center;"><b>Answer</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	<p><b>i.</b> <math>313 + 209</math></p> <p>&gt;500 &lt;500</p> <p style="text-align: center;"><b>Answer</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>

**HOME LINK**  
**7·8**

# A Multiplication Puzzle



**Family Note**

Practice finding products like  $4 \times 70$ ,  $900 \times 5$ , and  $30 \times 50$  with your child before he or she works the two puzzles.

*Please return this Home Link to school tomorrow.*

Work with someone at home.

- Find each product below (for Problems 5a through 5i).
- Record each product in the box labeled with the letter of the problem. For example, write the product for Problem **a** in Box **a**.
- Add the numbers in each row. Write the sum next to the row.
- Add these sums and write the answer in the Total box.
- The number in the Total box should equal  $3 \times 3,000$ .

- $30 \times 40$
- $20 \times 70$
- $20 \times 20$
- $10 \times 80$
- $40 \times 50$
- $20 \times 10$
- $4 \times 500$
- $10 \times 10 \times 10$
- $10,000 \times 0$

<b>a</b>	+	<b>b</b>	+	<b>c</b>	=	_____
<b>d</b>	+	<b>e</b>	+	<b>f</b>	=	_____
<b>g</b>	+	<b>h</b>	+	<b>i</b>	=	_____

Total

**Try This**

6. Make a puzzle so the number in the Total box is 500.

<b>a</b>	+	<b>b</b>	=	_____
<b>c</b>	+	<b>d</b>	=	_____

Total

- a.** \_\_\_\_\_ **b.** \_\_\_\_\_  
**c.** \_\_\_\_\_ **d.** \_\_\_\_\_



**HOME LINK**  
**7•9**

# Mystery Numbers



**Family Note** Help your child find each missing number by using all the clues. Then help your child create more clues for two other mystery numbers.

*Please return this Home Link to school tomorrow.*

Find each missing number. Here are your clues.




Greater Than	Less Than	More Clues	Mystery Number
20	101	a 3-digit number	
197	200	any odd number	
67	80	has a zero in the ones place	
40	50	has the same digit in the tens place and the ones place	
917	1,072	has the same digit in the ones, tens, and hundreds places; has 4 digits	
996	1,015	a 3-digit even number	

Make up mystery-number puzzles. Write some clues and ask someone to find the numbers.

Greater Than	Less Than	More Clues	Mystery Number

**LESSON**  
**7•10****Self Assessment**Progress  
Check 7

Check one box for each skill.

Skills			
	I can do this on my own and explain how to do it.	I can do this on my own.	I can do this if I get help or look at an example.
1. Use arrays to help find answers.			
2. Know multiplication facts.			
3. Share things equally.			
4. Draw parallel and intersecting lines.			
5. Solve 3-digit addition problems.			
6. Make estimates to check problems.			