

Survive Math Five

Multiplication and Division



Part 1

Multiplication

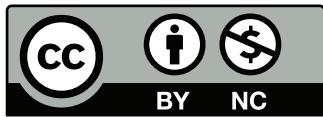
Survive Math 5

Part 1

Multiplication



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Survive Math 5

Part 1

Multiplication

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Survive Math Five

The intent of this program is to assist you, the parent, in working with your child to develop a strong mathematical base of knowledge and to develop mathematic literacy.

Many children arrive in Grade Five lacking, or are weak in basic mathematic concepts and operations. Children need the freedom to explore and to develop reasoning andmathematic skills, and to be able to show and explain these skills to others. Also, children should understand that mathematics is not just simple rules; it should make sense, be logical, and enjoyable.

To be successful in mathematics children must understand the “how” and “why” of each operation. A child’s ability to reason is as valuable as her or his ability to find the correct answers.

It is important for children to use “manipulatives” (concrete objects) to explore, develop, and apply mathematical concepts. Before children are allowed to use a calculator as a tool they should learn and understand the basic facts.

The activities in this program are designed to engage your child’s interest, develop a number sense, and learn the basic operations and concepts for:

- addition and subtraction
- multiplication and division
- common and decimal fractions
- problem solving

At the completion of this program your child should be able to use the number operations appropriately and effectively.

In each package you will find:

- Learning outcomes for the topics covered
- Twenty-minute lessons and ideas for review
- Pre-Tests
- Mastery Test
- Practice Sheets
- Games
- Answer Key
- Glossary

In each package there is also a selection of **Teaching Aids** that are to be used with selected lessons.

Practice Sheets

Each practice sheet contains the following sections:

- Warm-Up
- It's Your Turn
- Challenge Yourself

All of the activities in each section are short and, we hope, enjoyable.

Before your child begins either the Multiplication or Division parts of this package, you will administer a Pre-Test that will determine the lesson where you will begin working with your child. All Mathematics computation should be completed in pencil.

It is important that your child understands the concept or skill covered in each lesson before you move to the next one. If your child has difficulty with any concept or skill, you will need to give her or him additional concrete “hands-on” experiences and practice. Use the information in the package as a guide if you need to develop further practice materials.

When your child has a good understanding of the concept or skill taught in any given lesson, proceed to the next lesson. There is little value in asking your child to do additional work on something she or he already knows.

Additional materials needed for many lessons:

- Ruler to use as a number line
- Blank paper or chalkboard
- Playing cards
- Calculator
- Access to a computer

Mathematics concepts are easier to understand if your child progresses from the **concrete**, to the **pictorial**, to **numerals**.

It is important to provide your child with a selection of concrete materials.

For example, you could use buttons, straws, pasta pieces.

There is an old Chinese proverb that says: *I hear and I forget*

*I see and I remember
I do and I understand*

Math Web Sites

Multiplication Aids

<http://www.happychild.org.uk/wks/math/key1/multiply/index.htm>

<http://www.multiplication.com/worksheets.htm>

<http://www.teachingtables.co.uk/>

Games

http://www.aaaknow.com/g4_39cx2.htm#section2

http://www.aaaknow.com/g4_310x1.htm

http://www.aaaknow.com/g4_310x5.htm

<http://www.aplusmath.com/games/matho/MultMatho.html>

<http://www.aplusmath.com/cgi-bin/games/matho>

<http://www.aplusmath.com/cgi-bin/games/picture>

<http://www.aplusmath.com/cgi-bin/games/concentration>

<http://www.funbrain.com/cgi-bin/>

<http://www.funbrain.com/cgi-bin/mb.cgi?A1=start3&A2=1&ALG=Yes&INSTRUCTS=1>

<http://www.funbrain.com/cgi-bin/ttt.cgi?A1=s&A2=7&A3=0&INSTRUCTS=1>

<http://www.multiplication.com/interactive/quickflash/flash/index.html>

<http://www.bbc.co.uk/education/megamaths/picknumber/index.html>

<http://www.oswego.org/ocsd-web/games/Mathmagician/mathsmulti.html>

<http://www.funbrain.com/cgi-bin/osa.cgi?A1=s&A2=2>

<http://www.funbrain.com/cgi-bin/ttt.cgi?A1=s&A2=7&A3=0>

<http://www.gamequarium.com/multiplication.html>

<http://www.interactivestuff.org/sums4fun/tabletimes.html>

<http://quizhub.com/quiz/f-multiplication.cfm>

<http://www.programmingart.com/free/games/multiply/>

<http://www.bbc.co.uk/skillswise/numbers/wholenumbers/multiplication/written/game.shtml>

Rule of 9

<http://www.curiousmath.com/modules.php?op=modload&name=News&file=article&sid=33&mode=thread&order=0&thold=0>

Word Search

<http://www.surfnetkids.com/games/multiplication-ws.htm>

Division Aids

<http://www.funbrain.com/>

<http://www.aaamath.com/div.html>

<http://www.aplusmath.com/Games/index.html>

<http://www.oswego.org/testprep/topic.cfm?TopicID=38>

http://mathforum.org/library/drmath/sets/select/dm_long_division.html

<http://ariel.ucs.unimelb.edu.au/~gilbert/online/calca3.htm#Division>

Division Tricks

<http://www.curiousmath.com/modules.php?op=modload&name=News&file=article&sid=9&mode=thread&order=0&thold=0>

Phone number trick

<http://www.curiousmath.com/modules.php?op=modload&name=News&file=article&sid=31&mode=thread&order=0&thold=0>

Games

<http://www.oswego.org/testprep/math4/k/divisionp.cfm>

Matching and Concentration

<http://www.quia.com/jg/5524.html>

Math Baseball, Math Car Racing, Number Cracker

http://www.funbrain.com/teachers/subj_math.html

http://www.funbrain.com/cgi-bin/getskill_s.cgi?A1=selects&A2=math&A4=0&A7=0

<http://www.eduplace.com/math/brain/>

<http://math.rice.edu/~lanius/Lessons/>

<http://www.figurethis.org/>

<http://www.funbrain.com/numbers.html>

Welcome to Multiplication and Division



Multiplication Pre-Test

Before you begin this set of lessons in multiplication, give your child the Pre-Test. It has been developed to test your child's existing knowledge of multiplication skills and concepts, and to give you an indication of the lesson where you should begin to work with your child.

Pre-Test

Take out the Multiplication Pre-Test that follows. Make sure your child is equipped with a pencil, eraser, and a quiet place to work.

Explain to your child that he or she is to complete as many questions as possible but is to stop when the questions become too difficult for him or her to solve.

Don't help your child answer any of the questions. Your assistance will skew the test results, giving you an inaccurate picture of your child's skill level.

Place the test in front of your child. Make sure he or she understands the directions. Now work with your child on the sample questions at the top of the test.

Ask your child to begin the test and to complete as much of it as possible. There is no time limit.

Mark the Pre-Test. The Answer Key is in the back of this book. The results will tell you where to begin your next lesson.

If your child doesn't have automatic accurate recall of the basic multiplication facts, you may wish to move on to today's lesson. If not, spend some time reviewing the basic multiplication facts with your child. Use the flashcards. You can flash the cards for your child to call out the answer, or your child can flash the cards for him or herself, piling the facts or she knows face down in one pile and the facts he or she doesn't know in a second pile.

Pre-Test—Multiplication

Part A—Multiplication Number Facts to 90

These skills are covered in Lessons 1 through 7.

A. Answer the following questions as quickly as possible. This is not a timed test.

1. $2 \times 3 =$

2. $2 \times 7 =$

3. $3 \times 0 =$

4. $2 \times 6 =$

5. $6 \times 6 =$

6. $7 \times 7 =$

7. $9 \times 1 =$

8. $6 \times 3 =$

9. $5 \times 7 =$

10. $8 \times 8 =$

11. $0 \times 9 =$

12. $5 \times 4 =$

13. $6 \times 8 =$

14. $9 \times 2 =$

15. $3 \times 9 =$

16. $2 \times 8 =$

17. $7 \times 8 =$

18. $4 \times 9 =$

19. $1 \times 8 =$

20. $0 \times 8 =$

21. $5 \times 8 =$

22. $7 \times 5 =$

23. $3 \times 3 =$

24. $2 \times 6 =$

25. $9 \times 7 =$

26. $9 \times 6 =$

27. $4 \times 8 =$

28. $5 \times 1 =$

29. $7 \times 4 =$

30. $9 \times 9 =$

31. $8 \times 10 =$

32. $9 \times 8 =$

33. $6 \times 7 =$

34. $5 \times 9 =$

35. $3 \times 8 =$

36. $6 \times 5 =$

37. $6 \times 9 =$

38. $10 \times 5 =$

39. $5 \times 5 =$

40. $8 \times 4 =$

Repeated Addition

B. Write the multiplication fact for the following repeated-addition questions.

Example: $5 + 5 + 5 + 5 = 20$

$4 \times 5 = 20$

$7 + 7 + 7 + 7 + 7 = 35$

$5 \times 7 = 35$

1. $6 + 6 =$ _____

2. $7 + 7 + 7 + 7 =$ _____

3. $7 + 7 + 7 + 7 + 7 + 7 + 7 =$ _____

4. $6 + 6 + 6 + 6 + 6 + 6 + 6 =$ _____

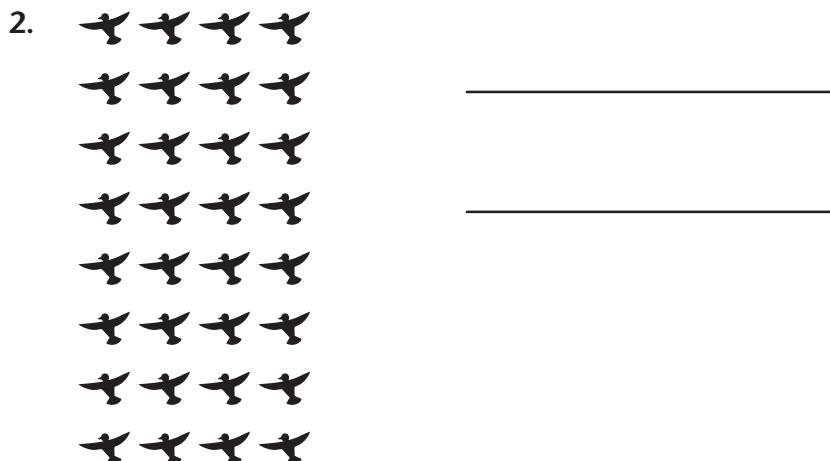
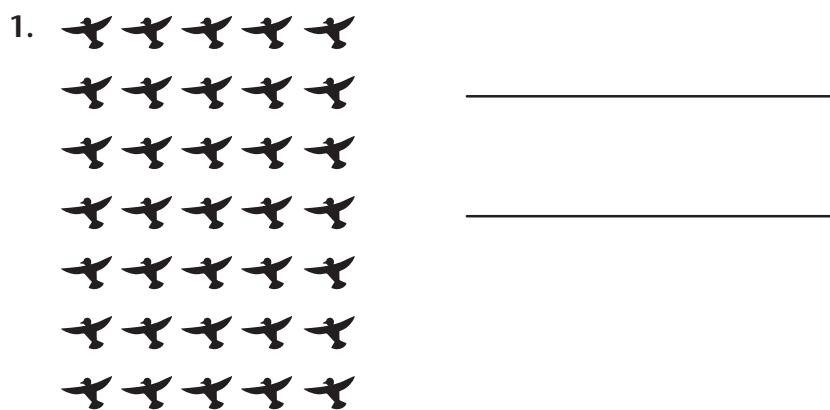
5. $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 =$ _____

6. $7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 =$ _____

Writing Multiplication Sentences

Example: $\text{xxxxx} \quad 5 \times 2 = 10$
 $\text{xxxxx} \quad 2 \times 5 = 10$

C. Write two multiplication sentences for each diagram.



Multiples

Example: $2 = 2, 4, 6, 8, 10, 12, 14, 16, 18, 20$

- D. List the first 10 multiples for each of the following numbers.

1. 3 _____
2. 6 _____
3. 8 _____
4. 9 _____

Related Sentences

Example: $32 \quad 4 \times 8 = 32 \quad 8 \times 4 = 32$

- E. Write the related multiplication sentences for each number.

1. 35 _____
2. 72 _____
3. 63 _____
4. 24 _____
5. 54 _____

Factors

Example: The factors of 20 are 5 and 4, 2 and 10

F. Write all of the factors for the following numbers.

1. 45 _____

2. 72 _____

3. 27 _____

4. 30 _____

5. 64 _____

Part B—Multiplying by 10's and 100's

These skills are covered in Lessons 8 through 15.

A. Multiply

1. $\begin{array}{r} 60 \\ \times 6 \\ \hline \end{array}$

2. $\begin{array}{r} 70 \\ \times 4 \\ \hline \end{array}$

3. $\begin{array}{r} 80 \\ \times 3 \\ \hline \end{array}$

4. $\begin{array}{r} 50 \\ \times 2 \\ \hline \end{array}$

5. $\begin{array}{r} 700 \\ \times 6 \\ \hline \end{array}$

6. $\begin{array}{r} 800 \\ \times 8 \\ \hline \end{array}$

7. $\begin{array}{r} 400 \\ \times 3 \\ \hline \end{array}$

8. $\begin{array}{r} 500 \\ \times 9 \\ \hline \end{array}$

Estimating Products

B. Estimate these products. Show your estimation and all your work.

$$\begin{array}{r} 1. \ 64 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \ 91 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \ 35 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \ 79 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \ 52 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \ 38 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \ 107 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \ 376 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \ 197 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \ 337 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \ 167 \\ \times 9 \\ \hline \end{array}$$

Multiplying a 2-Digit Number by a 1-Digit Number

Example:

Long Method

$$\begin{array}{r} 62 \\ \times 7 \\ \hline 14 \text{ partial product} \\ 420 \text{ partial product} \\ 434 \text{ final product} \end{array}$$

Short Method

$$\begin{array}{r} 1 \\ 62 \\ \times 7 \\ \hline 434 \end{array}$$

C. Print the missing numbers. Multiply using the long method.

Example:

$\begin{array}{r} 47 \\ \times 4 \\ \hline 160 \end{array}$	<i>or</i>	$\begin{array}{r} 62 \\ \times 6 \\ \hline 360 \end{array}$
$\leftarrow 40 \times 4 = 160$		$\leftarrow 6 \times 2 = 12$
180		372

1.
$$\begin{array}{r} 37 \\ \times 5 \\ \hline 150 \end{array}$$
 \leftarrow _____

2.
$$\begin{array}{r} 26 \\ \times 9 \\ \hline 54 \end{array}$$
 \leftarrow _____

3.
$$\begin{array}{r} 43 \\ \times 8 \\ \hline 24 \end{array}$$
 \leftarrow _____

4.
$$\begin{array}{r} 61 \\ \times 4 \\ \hline 4 \end{array}$$
 \leftarrow _____

D. Multiply using the short method.

Example:

$$\begin{array}{r} 1 \\ 16 \\ \times 9 \\ \hline 144 \end{array}$$

1.
$$\begin{array}{r} 22 \\ \times 7 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 49 \\ \times 3 \\ \hline \end{array}$$

$$3. \quad 57$$

$$\underline{\times 8}$$

$$4. \quad 64$$

$$\underline{\times 9}$$

E. Calculate the two partial products, and then add to find the final product.

Example:

$$\begin{array}{r} 74 \\ \times 6 \\ \hline 24 \end{array}$$

← partial product

$\begin{array}{r} 420 \\ \hline \end{array}$ ← partial product

$\begin{array}{r} 444 \\ \hline \end{array}$ ← Add partial products to find the final product.

$$1. \quad \begin{array}{r} 49 \\ \times 4 \\ \hline \end{array}$$

$$2. \quad \begin{array}{r} 57 \\ \times 8 \\ \hline \end{array}$$

$$3. \quad \begin{array}{r} 31 \\ \times 4 \\ \hline \end{array}$$

$$4. \quad \begin{array}{r} 93 \\ \times 5 \\ \hline \end{array}$$

$$5. \quad \begin{array}{r} 80 \\ \times 6 \\ \hline \end{array}$$

$$6. \quad \begin{array}{r} 92 \\ \times 3 \\ \hline \end{array}$$

$$7. \quad \begin{array}{r} 51 \\ \times 6 \\ \hline \end{array}$$

$$8. \quad \begin{array}{r} 40 \\ \times 9 \\ \hline \end{array}$$

Multiplying a 3-Digit Number by a 1-Digit Number

Example:

Long Method

$$\begin{array}{r} 247 \\ \times 6 \\ \hline 42 \text{ partial product} \\ 240 \text{ partial product} \\ \underline{1200} \text{ partial product} \\ 1482 \text{ final product} \end{array}$$

Short Method

$$\begin{array}{r} 24 \\ 247 \\ \times 7 \\ \hline 1482 \end{array}$$

F. Use the long method of multiplication to find the answers to these questions.

1. 205
 $\times 6$
 \hline

2. 458
 $\times 6$
 \hline

3. 942
 $\times 3$
 \hline

G. Multiply using the short method.

1. 706
 $\times 7$
 \hline

2. 524
 $\times 6$
 \hline

3. 353
 $\times 9$
 \hline

Product of Three Factors

Example:

$$\begin{array}{r} 9 \times 7 \times 7 = 63 \times 7 \\ \quad \quad \quad = 441 \\ & \begin{array}{r} 2 \\ 63 \\ \times 7 \\ \hline 441 \end{array} \end{array}$$

H. Multiply these 3 factors. Show all the steps.

1. $8 \times 4 \times 8 =$

2. $9 \times 3 \times 6 =$

3. $7 \times 5 \times 3 =$

Multiply With Money

- I. Estimate the products by rounding off to the nearest dollar, and then multiply.

Example: \$16.25 → \$16

$$\begin{array}{r} \times 6 \\ \hline \end{array}$$
$$\begin{array}{r} \times 6 \\ \hline \$96 \end{array}$$

1. \$10.75
x9

2. \$32.50
x4

3. \$74.95
x6

4. \$21.57
x5

- J. Multiply using the short method. Don't forget the decimal point.

1. \$7.95
x5

2. \$9.25
x6

3. \$20.16
x7

4. \$55.30
x8

Lesson 1

Basic Multiplication Facts



What You Need

- Teaching Aids
 - Multiplication flashcards
 - Bingo card
- Concrete objects: buttons, pennies, or macaroni pieces
- Blank paper or chalkboard
- A timer



Exploring the Topic

To ensure success in Mathematics, and before your child can multiply large numbers, it is important that she or he has automatic (instant) recall of the multiplication (times) tables. If your child has difficulty recalling these facts instantly, you will need to spend as much time as it takes to make sure these facts are in place.

Here are some suggestions to help your child master the multiplication (times) tables. It is important that the time your child spends learning these tables is short, varied, and interesting.

Three-minute Flashcard Drill

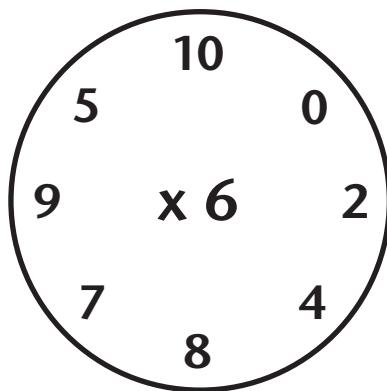
The purpose of this activity is to see how many facts your child can recall in three minutes.

You will need the multiplication flashcards to 90 and two containers. One container is to be labeled ***Practice***, the other container labeled ***I Know***. Set a timer for three minutes. Flash each card for three seconds. If your child answers correctly within the three seconds, place the flashcard in the ***I Know*** container. If your child is unable to answer correctly, say the answer, then turn the card over and ask her or him repeat the entire equation. You will find the flashcards in the **Teaching Aids** section.

Timed Tests

Your child can either say or write the answers to these timed tests.

1. Draw a clock face on a sheet of paper or on a chalkboard. Randomly scatter the numbers from 1 - 10 around the clock face. In the center of the clock write a number, such as, $\times 6$. Explain to your child that she or he has three minutes (or less) to multiply this number to each of the numbers around the clock.



2. Write ten to twenty multiplication equations on a sheet of paper or on the chalkboard. Give your child two or three minutes to write the answers. You can shorten the length of time as your child masters the times tables.
3. Ask your child to write the numbers one through twelve on a sheet of paper or on the chalkboard. Ask her or him to write the answers to the multiplication equations as you say each one.

Missing Numbers

On a sheet of paper or on a chalkboard write examples of multiplication equations with one number missing. Ask your child to complete each equation by filling in the missing number.

For example: $2 \times \underline{\quad} = 8$, $\underline{\quad} \times 4 = 20$



Activity Sheets

There are a variety of Internet sites that allow you to print activity or worksheets sheets. These activity sheets can be used for review or for timed tests. Go to this Web site:
<http://www.multiplication.com/index.htm>. Click on *Worksheets*. You will find other activity or worksheet sites in the **Web sites** section at the beginning of this book.

Games

There are many games your child can play to assist her or him to learn the times tables, for example: Bingo

What You Need

- Bingo Card
- pennies or another type of marker
- multiplication flashcards

What To Do

1. Give your child the Bingo card you will find in the **Teaching Aids** section.
2. Explain to your child that as you say a multiplication equation she or he will put one of the markers on the square with the correct answer. Tell your child that she or he may be able to cover more than one square.
3. Randomly choose a multiplication fact from the set of multiplication flashcards.
4. Say the equation aloud.
For example, nine times three
5. Tell your child when she or he has one line covered vertically, horizontally or from corner to corner, to call out "Bingo."

Multiplication Concentration

You can make a concentration game by printing multiplication equations on one set of flashcards and the answers on another set of flashcards. Just make sure there are not two equations with the same answer.

Mix the cards and lay them face down. Take turns trying to match equations with their answers, by turning over 2 cards at a time.



Online Computer Games

You will find a variety of multiplication games at this Web site.
<http://www.gamequarium.com/multiplication.html>

You will also find multiplication games in the **Web sites** section. If any of the Web sites in this section are not available, type *Multiplication Games* into your search engine.



It's Your Turn

Before your child completes any of the activities on the following pages, make sure that she or he understands the meaning of the following terms:

- array
- equal groups
- factor
- multiplication
- multiple
- product

You will find the definitions for these terms in the **Glossary** at the back of this package. It is really important that your child has a clear understanding of the terms **multiplication, factors, and product**.

To make sure your child understands the concept of multiplication ask her or him to use concrete objects to make the following sets.

Parent Script:

Show me how you would make **3 groups of 6**.

Your child may make 3 groups of 6 like this.

XXX XXX XXX
XXX XXX XXX

Now show me how you can make 3 groups of 6 another way.

X X X
X X X
X X X
X X X
X X X
X X X

If your child does not make the 3 groups of 6 this way, show her or him how to do it. Explain to your child when groups of objects are arranged in rows and columns, the arrangement is called an **array**.

Ask your child to make the following arrays using these groups.

Make sure your child makes the arrays exactly as asked.

If necessary, remind her or him that the first number tells how many groups, the second number tells how many in each group.

For example, $2 \text{ groups of } 9 = 18$ means there are 2 groups with 9 objects in each group

$9 \text{ groups of } 2 = 18$ means 9 groups with 2 objects in each group

- 4 groups of 5
- 7 groups of 2
- 1 group of 8
- 8 groups of 6

Check your child's work. If your child has difficulty making these arrays exactly, give her or him as much practice as she or he needs.



To finish the lesson, go to this Web site, to play *Multiplication Baseball*.

<http://www.funbrain.com/cgi-bin/mb.cgi?A1=start3&A2=0&ALG>No&Submit=Play+Ball>



Note: There is no Lesson 1 Practice Sheet.

Lesson 2

Multiply Groups of 0, 1, 2, 3, 4, and 5



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
 - Multiplication Table
- Concrete objects: buttons, pennies, or macaroni pieces
- Blank paper or chalkboard



Warm-Up

If necessary, before your child completes the Warm-Up activity, give her or him some time to practice the times tables. Use one of the ideas outlined in Lesson 1.

Parent Script:

Do you remember that in the last lesson we found out what an array is?

Can you tell me what it is? (*An array is an arrangement that shows objects in rows and columns.*)

Great! Today you are going to make some arrays and then write the total number of each array.

Ask your child to take out the Lesson 2 Practice Sheet and complete the Warm-Up activity. Make sure your child is using the concrete objects (pennies or macaroni pieces) to make each array. When she or he is finished, mark the work with your child. The Answer Key is at the back of this book.



Exploring the Topic

Parent Script:

Multiplication is a quick way of writing and answering repeated addition.

Repeated addition looks like this.

$$3 + 3 + 3 + 3 + 3 + 3 = 18$$

How many groups of 3 are there? (6)

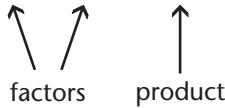
6 groups of 3 equal 18 or 3 times 6 equal 18.

Instead of writing times, we use this symbol \times for the word times. So the equation will look like this.

$$3 \times 6 = 18$$

In a multiplication equation, the numbers that are being multiplied are called **factors**. In the example above, 3 and 6 are the factors. The answer to a multiplication equation is called the **product**. The product of this equation is 18. You can write a multiplication equation horizontally or vertically.

$$4 \times 5 = 20$$



$$\begin{array}{r} 4 \\ \times 5 \\ \hline 20 \end{array}$$

factors product

On a sheet of paper or on a chalkboard write the following repeated addition sentences.

$$5 + 5 + 5 + 5 + 5 =$$

$$2 + 2 + 2 + 2 + 2 + 2 =$$

$$4 + 4 + 4 + 4 + 4 =$$

Ask your child the following question about each sentence.

How many groups are there?

How many in each group?

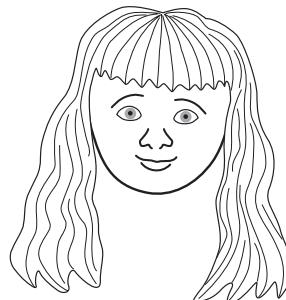
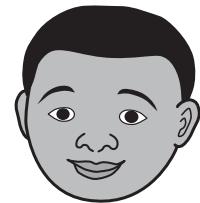
What is the product?

What are the factors?

Now direct your child's attention to the following illustrations. Discuss them with her or him.



How many eyes?



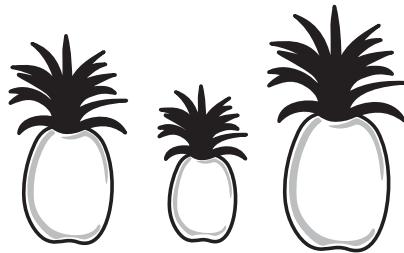
Christopher thinks
 $2 + 2 + 2 + 2 = 8$

Robin thinks
 $4 \times 2 = 8$
(4 groups \times 2 eyes)

Robin could also
write 2×4 or
another way $\rightarrow \frac{4}{\underline{\times 2}} \underline{8}$

Christopher uses addition facts
to solve the problem.

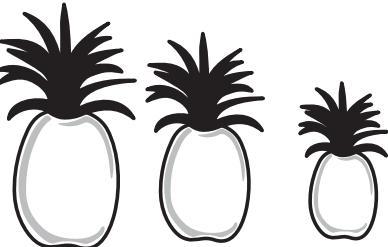
Robin uses multiplication facts
to solve the question more quickly.



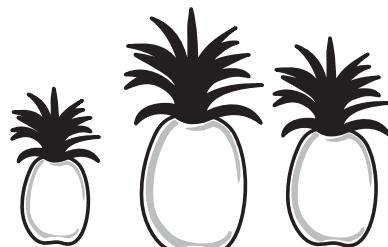
How many pineapples?

$$\text{Addition: } 3 + 3 + 3 = 9$$

$$\text{Multiplication: } 3 \times 3 = 9 \text{ or } \begin{array}{r} 3 \\ \times 3 \\ \hline 9 \end{array}$$

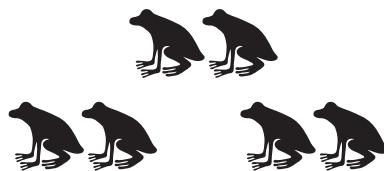


$3 \times 3 = 9$
3 groups of 3
in each group



How many frogs?

$$\text{Addition: } 2 + 2 + 2 + 2 + 2 = 10$$

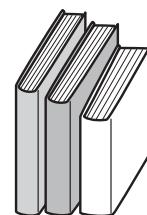
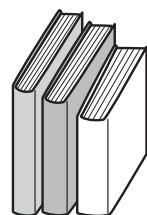
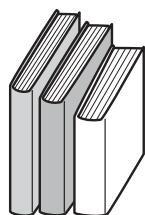
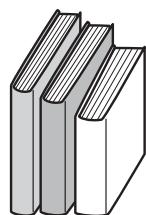


$$\text{Multiplication: } 5 \times 2 = 10 \text{ or } \begin{array}{r} 5 \\ \times 2 \\ \hline 10 \end{array}$$

How would you write 4 groups of 3 books?

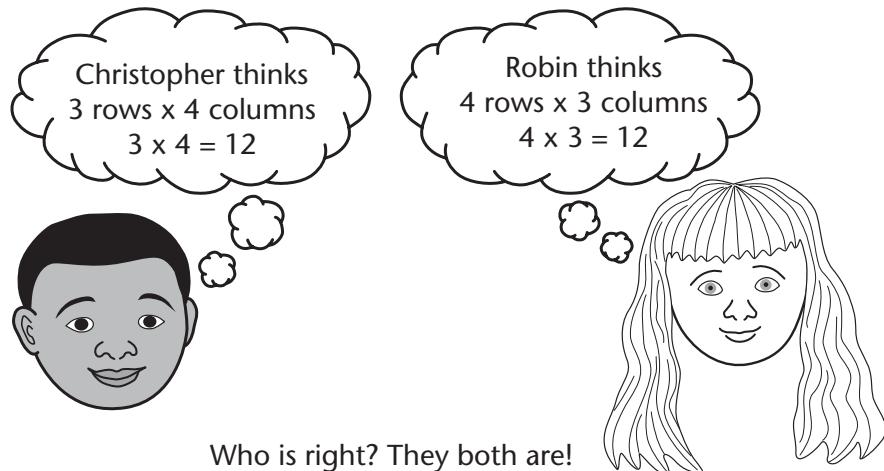
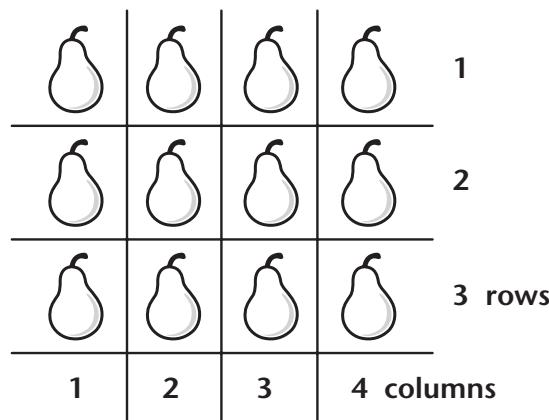
$$4 \times 3 = 12 \text{ or } \begin{array}{r} 4 \\ \times 3 \\ \hline 12 \end{array}$$

In this lesson you will be asked to show 4×3 .

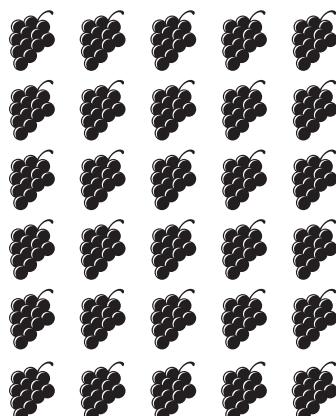


4 groups of 3 or 4×3

Sometimes things are shown in rows and columns instead of in groups.



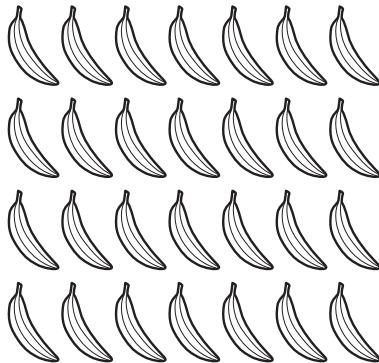
For



$$6 \text{ rows} \times 5 \text{ columns} = 30$$

$$5 \text{ columns} \times 6 \text{ rows} = 30$$

For



$$4 \text{ rows} \times 7 \text{ columns} = 28$$

$$7 \text{ columns} \times 4 \text{ rows} = 28$$

Multiplying By 0

Make sure that your child understands the concept of zero (0) in multiplication. If your child does not understand this concept, explain to her or him that when you multiply zero (0) by any number you still have zero.

For example, $10 \times 0 = 0$, $0 \times 5 = 0$, $3 \times 0 = 0$

Zero (0) times anything always has a product (answer) of 0.

Think about what you are multiplying – several groups of nothing equals nothing. [end italics]

Note: Take out the Multiplication Table from the Teaching Aids section. Ask your child to fill in the Table as she or he learns or reviews the basic multiplication facts to 90.



It's Your Turn

Have your child look at this section on the Lesson 2 Practice Sheet. To make sure your child understands the activity directions help him or her to complete the first question in each section. Now ask your child to complete the rest of the section independently.

When your child has completed this section, mark his or her work. The Answer Key is at the back of the Parent Guide. Help your child to complete any needed corrections.



Challenge Yourself

Have your child to complete this section on the Lesson Practice sheet. When your child has completed this section, mark her or his work. The Answer Key is at the back of the Parent Guide. Help your child to complete any corrections.

Lesson 3

Finding Multiples



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
 - Hundreds chart
- Blank paper or chalkboard
- Coloured pencil



Warm-Up

If necessary, before your child completes the Warm-Up activity, give her or him some time to practice the times tables. Play one of the games from Lesson 1 or one from the Games section.

Take out the Lesson 3 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child. The Answer Key is at the back of this book.



Exploring the Topic

In this lesson your child will use a hundreds chart to find multiplication patterns or multiples of a number. You will find the Hundreds chart in the **Teaching Aids** section.

Take out the hundreds chart and place it on the table in front of your child.

Ask your child to colour in the appropriate squares in the first two rows of the chart as she or he skip counts by 3s.

When your child has completed the two rows:

Parent Script:

Count by 3s for me. (3, 6, 9, 12, 15, 18)

The numbers that you have coloured in are called **multiples**. These numbers are the multiples of 3. When you multiply any number by three the answer will always be a multiple of 3.

For example, the answers to 2×3 , 3×3 , and 4×3 are all multiples of 3.

Direct your child's attention back to the hundreds chart.

Ask your child to skip count by 5s, and colour in the appropriate squares in the first three rows. To save confusion, give your child a different coloured pencil.

Parent Script:

What would the numbers you coloured be the multiples of? (5)

If you counted by 5s four times what would it be the same as? (4×5 or you could count 5, 10, 15, 20.)

These would all be multiples of 5.

**It's Your Turn**

Have your child look at this section on the Lesson 3 Practice Sheet. When your child has completed this section, mark her or his work. Help your child to complete any needed corrections.

**Challenge Yourself**

Have your child complete this section on the Lesson 3 Practice Sheet. When your child has completed this section, mark her or his work. Help your child to complete any corrections.

Lesson 4

Multiplication: Groups of 6 and 7



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Blank paper or chalkboard



Warm-Up

If necessary, before your child completes the Warm-Up activity, take some time for the three-minute flashcard drill.

Take out the Lesson 4 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child. The Answer Key is at the back of this book.



Exploring the Topic

Parent Script:

In the last lesson you multiplied and found the multiples of the groups 1, 2, 3, 4, and 5. Today we will look at some more advanced groups.

You know some of the facts for 6 and 7 already.

For example: 6×4 , 7×2 , 7×3 , and 6×5

Can you think of any other facts you know about 6 and 7?

As you tell me I will write down the ones you know.

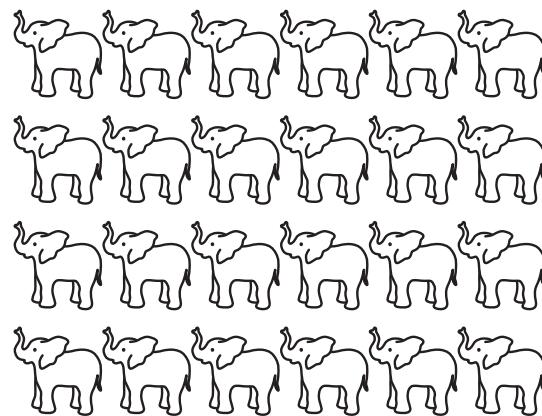
(7×5 , 6×3 , etc.)

Good job! You know more facts than you thought.

Direct your child's attention to the following illustrations. Discuss each one with your child.

How many elephants?

$$4 \times 6$$



$$6 \times 4$$

Find the product.

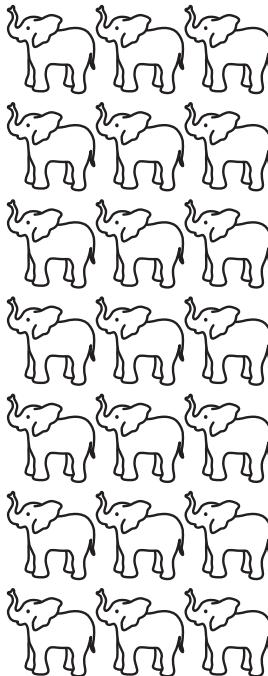
$$\begin{aligned} 4 \times 6 &= 24 \\ \text{or } 6 \times 4 &= 24 \\ &\text{24 elephants} \end{aligned}$$

Product is the answer in a multiplication question.

$$3 \times 7$$

Find the product.

$$\begin{aligned} 3 \times 7 &= 21 \\ \text{or } 7 \times 3 &= 21 \\ &\text{21 elephants} \end{aligned}$$



$$7 \times 3$$

You may have noticed that $7 \times 3 = 21$ is quicker to solve than $3 + 3 + 3 + 3 + 3 + 3 + 3 = 21$.

Now ask your child to look at the following table.

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60

Multiples of 6 up to 60

$$1 \times 6 = 6 \quad 6 \times 6 = 36$$

$$2 \times 6 = 12 \quad 7 \times 6 = 42$$

$$3 \times 6 = 18 \quad 8 \times 6 = 48$$

$$4 \times 6 = 24 \quad 9 \times 6 = 54$$

$$5 \times 6 = 30 \quad 10 \times 6 = 60$$

On the chalkboard or on a sheet of paper write the heading **Multiples of 6 to 60**.

Ask your child to use the chart to skip count by 6s.

Help your child counts write the multiplication facts to 60.

Now point to the chart below.

Multiples of 7 up to 70

$$1 \times 7 = 7 \quad 6 \times 7 = 42$$

$$2 \times 7 = 14 \quad 7 \times 7 = 49$$

$$3 \times 7 = 21 \quad 8 \times 7 = 56$$

$$4 \times 7 = 28 \quad 9 \times 7 = 63$$

$$5 \times 7 = 35 \quad 10 \times 7 = 70$$

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70

Write the heading **Multiples of 7 to 70** on the chalkboard or on the sheet of paper. Ask your child to skip count by 7s. As your child counts, write the multiplication facts to 70. Remind your child that the answers are all multiples of 7.

Ask your child to complete the tables below. She or he may refer to the charts you made earlier if she or he has a problem.

x	6
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

x	7
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

When your child has completed the charts, correct her or his work.

Parent Script:

Can you tell me the facts for 24? (4×6)

Can you say these facts another way? (6×4)

Good! 6×4 and 4×6 both equal 24. These are called **related facts**.

Ask your child to give you the related facts for these numbers.

12, 30, 28, 45, and 50

Give your child as much practice as she or he needs to master the concept of related facts.



It's Your Turn

Have your child look at this section on the Lesson 4 Practice Sheet. To make sure your child understands the activity directions help her or him complete the first question in each section. Now ask your child to complete the rest of the activity independently.

When your child has completed this section, mark her or his work. The Answer Key is at the back of this book. Help your child to complete any needed corrections.



Challenge Yourself

Have your child complete this section on the Lesson 4 Practice Sheet. When your child has completed this section, mark her or his work. Help your child to complete any corrections.

Lesson 5

Multiplying Groups of 7 and 8



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Blank paper or chalkboard



Warm-Up

Before you begin today's lesson give your child some practice using the multiplication clock. You will find the directions for this activity in Lesson 1. Your child should be working at memorizing those facts that cause her or him difficulty.

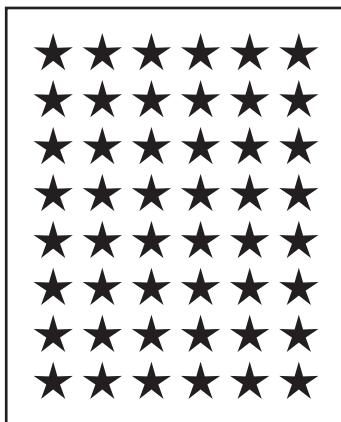
Take out the Lesson 5 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child. The Answer Key is at the back of this book.



Exploring the Topic

In this lesson your child will move on to the 8 times table and review some facts from the 7 times table.

To begin the lesson, ask your child to look at illustration below.



$$\begin{array}{l} 6 \times 8 \\ 8 \times 6 \end{array}$$

Parent Script:

How many stars are there in this box? (48)

How many groups are there in the box if you count across the columns in the box? (6)

How many stars are there in each group? (8)

How would you write this multiplication equation (*sentence*)?

(8×6)

What is the product (answer) of 8×6 ? (48)

Write the multiplication sentence for me ($8 \times 6 = 48$)

What are the factors of 48? (8 and 6 *You may need to remind your child what factors are.*)

Can you think of any other factors of 48? (6 x 8)

If you were to draw 6×8 , would your drawing look the same as the illustration? (*No, you would have 6 groups with 8 in each group.*)

What are the related facts of 48? (8×6 and 6×8)

Now ask your child to look at the illustration for 7 groups of 8 . Use the same questioning technique as you did on the previous page.



$$\begin{array}{l} 8 \times 7 \\ 7 \times 8 \end{array}$$

On the chalkboard or on a sheet of paper write the heading **Multiples of 8 to 80**.

Ask your child to use the chart below to skip count by 8s.

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80

Multiples of 8 up to 80

$$1 \times 8 = 8 \quad 6 \times 8 = 48$$

$$2 \times 8 = 16 \quad 7 \times 8 = 56$$

$$3 \times 8 = 24 \quad 8 \times 8 = 64$$

$$4 \times 8 = 32 \quad 9 \times 8 = 72$$

$$5 \times 8 = 40 \quad 10 \times 8 = 80$$

As your child counts, write the multiplication facts to 80 on the sheet of paper or on the chalkboard.

When you have written all the facts to 80, ask your child to underline all of the multiples of 8.

To complete the lesson, ask your child to give you the factors of the following numbers.

56, 64, 72, and 32



It's Your Turn

Have your child look at this section on the Lesson 5 Practice Sheet. To make sure your child understands the activity directions help her or him to complete the first question in each section. Now ask your child to complete the rest of the section independently.

When your child has completed this section, mark his or her work. The Answer Key is at the back of this book. Help your child to complete any needed corrections.



Challenge Yourself

Have your child complete this section on the Lesson 5 Practice Sheet. When your child has completed this section, mark her or his work. Help your child to complete any corrections.

Lesson 6

Multiplying Groups of 9



What You Need

- Practice sheets
- Teaching Aids
- Multiplication flashcards
- Blank paper or chalkboard



Warm-Up

Before introducing the lesson, ask your child to take out the Lesson 6 Practice Sheet and complete the Warm-Up activity. When your child has completed the activity, correct her or his work.



Exploring the Topic

Parent Script:

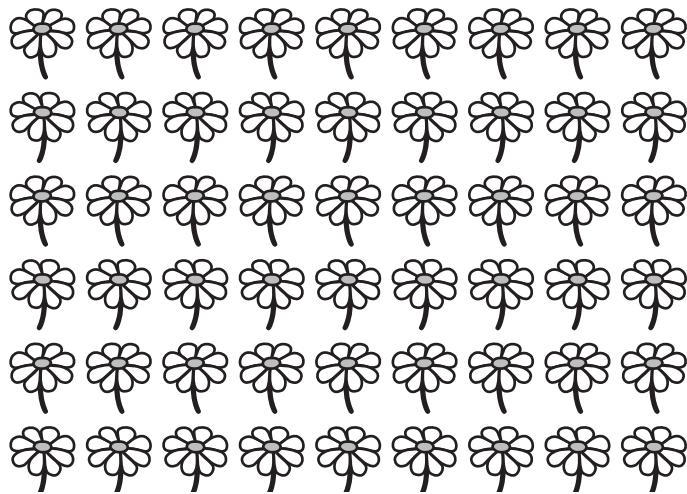
The facts of 9 are interesting because of the different number patterns. You will learn these facts and be pleased to know there are only two new facts to learn. They are 9×9 and 10×9 .

Why do you think there are only two to learn? You have already learned or you should have the rest of, these facts in all of the other tables.

For example: 9×1 , 9×2 , 9×3 , 9×4 , 9×5 , 9×6 , 9×7 , and 9×8 .

So relax, and enjoy this Lesson!

Direct your child's attention to the following illustration.



To find the product:

$$6 \times 9 = 54$$

or $9 \times 6 = 54$

54 flowers

Parent Script:

How many flowers are there altogether? (54)

How many groups are there in the box if you count across the columns in the box? (6)

How many flowers in each group? (9)

How would you write this multiplication equation (sentence)? (6×9)

What is the product (answer) of 6×9 ? (54)

Write the multiplication sentence for me. ($6 \times 9 = 54$)

What are the factors of 54? (6 and 9)

Can you think of any other factors of 54? (9×6)

If you were to draw 9×7 , would your drawing look the same as the illustration? (No, as you would have 9 groups with 7 in each group.)

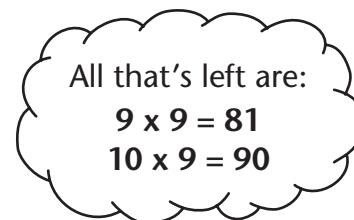
What are the related facts of 54? (9×6 and 6×9)

On the chalkboard or on a sheet of paper write the heading **Multiples of 9 to 90.**

Ask your child to give you all of the multiples of nine. Give her or him any necessary help to complete the chart.

When the chart is completed, it should look like the chart below.

9×1	$1 \times 9 = 9$
9×2	$2 \times 9 = 18$
9×3	$3 \times 9 = 27$
9×4	$4 \times 9 = 36$
9×5	$5 \times 9 = 45$
9×6	$6 \times 9 = 54$
9×7	$7 \times 9 = 63$
9×8	$8 \times 9 = 72$



Now ask your child to make 9 groups of 9. She or he can use concrete objects or draw the groups on the chalkboard or on a sheet of paper.

Parent Script:

How many objects do you have altogether? (81)

Write the multiplication sentence for me. ($9 \times 9 = 81$)

What is the product of 9×9 ? (81)

What are the factors of 81? (9 and 9)

Now make 10 groups of 9. (Give your child enough time to make these groups)

How many objects do you have now? (90)

Write the multiplication sentence for me. ($10 \times 9 = 90$)

What is the product of 10×9 ? (90)

What are the factors of 90? (9 and 10, 10 and 9)

What would the related facts be? (9×10 , 10×9)

Ask your child to add these facts to the Multiples of 9 to 90 chart.



It's Your Turn

Have your child look at this section on the Lesson 6 Practice Sheet. To make sure your child understands the activity directions help her or him to complete the first question in each section. Now ask your child to complete the rest of the section independently.

When your child has completed this section, mark her or his work. Help your child to complete any needed corrections.



Challenge Yourself

Have your child complete this section on the Lesson 6 Practice Sheet. When your child has completed this section, mark her or his work. Help your child to complete any corrections.



Just for Fun

To find an easy way to multiply groups of 9, go to the Web site section and click on *Multiplying by 9*.

It is important that your child practice the times tables daily until she or he has instant recall of the facts to 90.

Lesson 7 Review



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Blank paper or chalkboard

There will not be any **Warm-Up** or **Challenge Yourself** activities in this lesson.

Today your child will complete a review of the concepts and skills covered so far.

Before your child begins this lesson's review, ask her or him to play the *Ladder Game*. You will find the instructions for this game in the Games Section.

Before your child attempts to complete the activities, review any concepts or skills she or he still has difficulty understanding. Do not give your child this review paper unless you are confident she or he can complete it successfully.



It's Your Turn

This review may take more than one lesson period.

Make sure your child has a pencil, an eraser, and a quiet place to work. Take out the Lesson 7 Practice Sheet and place it in front of your child. Explain to her or him that this review is to be completed independently. Encourage your child to take a few moments to look over the questions. Ask your child if she or he understands what is expected. Give your child as much time as she or he needs to complete the review.

If you see your child having difficulty answering a question, tell her or him to leave that question and move on to the next one. When your child has completed all of the questions, encourage

her or him to look over the work to look for any errors that may have been made. Correct the review paper with your child.

As you correct your child's work, you will see which concepts or skills she or he has difficulty mastering and that need more practice. Make sure your child reviews these skills or concepts before beginning the next series of multiplication lessons.

Lesson 8

Multiplying by Groups of 10 and 100



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Blank paper or chalkboard



Warm-Up

If necessary, before your child completes the Warm-Up activity, give her or him some time to practice the times tables. As a change of pace, ask your child to go to the following Web sites and play multiplication games:

<http://www.oswego.org/ocsd-web/games/Mathmagician/mathsmulti.html> or

<http://www.hbschool.com/activity/mult/mult.html>

Take out the Lesson 8 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child.



Exploring the Topic

Parent Script:

Multiplying by 10 and 100 can be done mentally (in your head) in order to save you time. You will see how easy this is to do. It is always valuable, however, to know *why* something works this way. Understanding all the simple procedures in mathematics will help you when you are introduced to more complex ones.

Tell me the answers to these questions as quickly as you can.

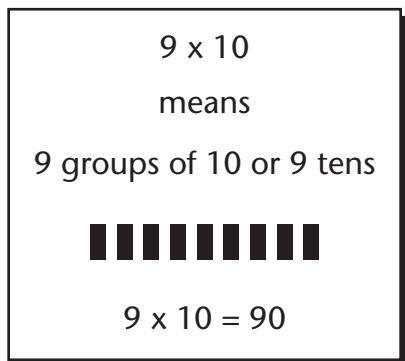
$$10 + 10 + 10 + 10 =$$

$$10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 =$$

Great how did you get your answers?

Did you add the answers in your head or did you look to see how many groups of 10 and then multiply 10 by that number in your head?

Direct your child's attention to the following diagram.



Discuss the diagram with your child.

On a sheet of paper or on the chalkboard, write the following equations

1. 7×10 2. 5×10

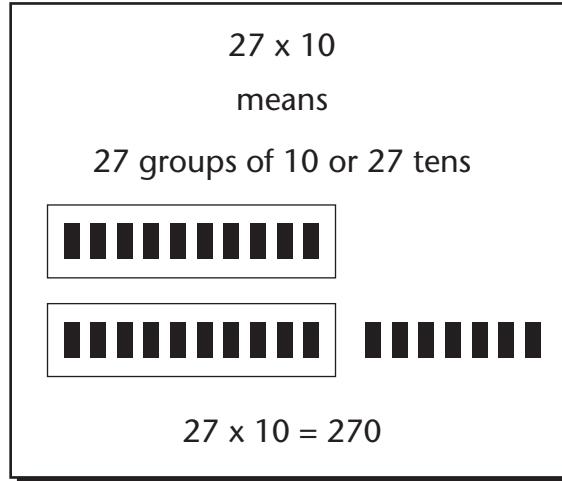
Ask your child to look at the first equation and tell you what it means. As your child tells you, write the answers on the chalkboard or on the sheet of paper. (*7 groups with 10 in each group or 7 tens*)

So, $7 \times 10 = 70$

Now ask your child to look at the second equation. This time ask her or him to write the appropriate steps to solve the equation and the answer on the chalkboard or on a sheet of paper.

Your child should write: 5 groups with 10 in each group or 5 tens— $5 \times 10 = 50$

Point to the following chart.



Discuss the chart with your child

Write the following equations on the chalkboard or on a sheet of paper.

$$9 \times 10 = 90$$

$$27 \times 10 = 270$$

$$16 \times 10 = 160$$

Parent Script:

Do you see a pattern in these equations?

Do you think there is a rule? (*Add 1 zero to the number to be multiplied.*)

The Rule

When you multiply any number by 10, place a zero in the ones' place.

For example: $14 \times 10 = 140$

Parent Script:

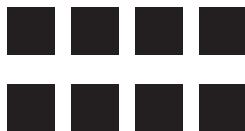
Let's look at these charts.

$$8 \times 100$$

means

8 groups of 100 or

8 hundreds



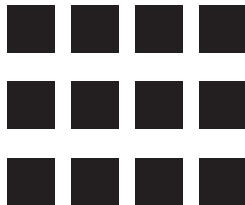
$$8 \times 100 = 800$$

$$12 \times 100$$

means

12 groups of 100 or

12 hundreds



$$12 \times 100 = 1200$$

Discuss the charts with your child. Ask your child what 8×100 means and what 8×100 equals.

Write the following equations on the chalkboard or on a sheet of paper.

$$9 \times 100 =$$

$$12 \times 100 = 1200$$

$$28 \times 100 = 2800$$

Parent Script:

Do you see a pattern in these equations?

Do you think there is a rule? (*Add 2 zeros to the number to be multiplied.*)

The Rule

When you multiply any number by 100, place the zeros in the tens' place and the ones' place.

For example: $12 \times 100 = 1200$

Multiplying by 10 and 100 can always be done in your head.

Give your child as many examples of these rules as she or he needs.

**It's Your Turn**

When you think your child is ready to proceed, ask her or him to look at this section on the Lesson 8 Practice Sheet. To make sure your child understands the activity directions help her or him to complete the first question in each section. Now ask your child to complete the rest of the section independently.

When your child has completed this section, mark her or his work. Help your child to complete any needed corrections.

**Challenge Yourself**

Have your child to complete this section on the Lesson 8 Practice Sheet. When your child has completed this section, mark her or his work. Help your child to complete any corrections.

Lesson 9

Multiplying by Multiples of 10 and 100



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Blank paper or chalkboard



Warm-Up

Before your child completes the Warm-Up activity give her or him some time to play *Multiplication Concentration*. You will find the directions for the game in the Games section.

Take out the Lesson 9 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child.



Exploring the Topic

Before you begin this lesson, review the rules for multiplying by 10 and 100s. Check with your child to see if she or he remembers what factors are.

Parent Script:

Today you are going to combine two math skills:

- basic facts
- multiplying by 10 and 100

You will find this work easier to do if you know your times tables.

Read the following problem with your child.

There are 40 weeks in the school year. The average school week is 5 days. How many school days are there in a school year?

Parent Script:

How would you find out the answer to this problem?

Would you be multiplying by 10s or by 100s?

Right! You would be multiplying by 10s. You would multiply the 40 weeks by 5 days per week.

On the chalkboard or on a sheet of paper, show me how you would write it. (*Your child's work should look like this example.*)

40 weeks

×5 days per week

If you were to use the rules for multiplying by ten, what would you write?

4 tens

×5

20

How many zeros do you add when you are multiplying by 10? (1)

You would have 20 tens + 0 ones =

What would the answer be?

40

×5

200

You can solve many multiplication questions in your head when one of the factors is a multiple of 10

For example: 10, 20, 30, 40, 50, or 60

Direct your child's attention to the following information.

$$\begin{array}{rcl} 40 & \times & 8 = 4 \text{ tens} \times 8 = 32 \text{ tens} + 0 \text{ ones} \\ \nearrow \text{factor} & \nearrow \text{factor} & \\ & & = 320 \\ & & \downarrow \text{product} \end{array}$$

$$\begin{array}{r} 60 \\ \times 6 \\ \hline \end{array} \rightarrow 6 \text{ tens} \times 6 = 36 \text{ tens} + 0 \text{ ones} \\ = 360$$

$$\begin{array}{r}
 30 \\
 \times 8 \\
 \hline
 = 3 \text{ tens} \times 8 \\
 = 240
 \end{array}$$

$$\begin{array}{r}
 50 \\
 \times 7 \\
 \hline
 = 5 \text{ tens} \times 7 \\
 = 350
 \end{array}$$

$$\begin{array}{r}
 70 \\
 \times 2 \\
 \hline
 = 7 \text{ tens} \times 2 \\
 = 140
 \end{array}$$

You can check your mental arithmetic by paper.

Also you might think:

$$70 \times 6 = (7 \times 6) \times 10 = 420$$

Think
 $70 = 7 \times 10$

Discuss the information with your child. If your child needs more practice in multiplying by multiples of 10, give her or him these problems to solve.

1. Mary bought 20 chickens each month for 6 months. How many chickens did Mary have at the end of 6 months?
 2. George collected 40 stamps for 7 months. How many stamps did he have in his collection at the end of 7 months?

Parent Script:

Read this problem with me.

The local gas station sells about 700 litres of gas every hour. How many litres are sold in one day if the gas station is open for 8 hours?

How would you find out the answer to this problem?

Would you be multiplying by 10s or by 100s?

Right! You would be multiplying by 100s. You would multiply the 700 litres by 8 hours.

On the chalkboard or on a sheet of paper, show me how you would write it. (*Your child's work should look like this example.*)

700 litres

× 5 hours

If you were to use the rules for multiplying by 100, what would you write?

7 hundreds

× 8

56

How many zeros do you add when you are multiplying by 100? (2)

You would have 56 hundreds = 0 tens + 0 ones =

What would the answer be?

700

× 8

5600

You can solve many multiplications question in your head when one of the factors is a multiple of 100.

For example: 100, 200, 300, 400, 500, 600, 700, 800, or 900

If you know your times table, you could solve it even more quickly by thinking $7 \times 8 = 56$ and then adding two 0s.

Direct your child's attention to the following information.

$$\begin{array}{r} 300 \times 5 = \\ \swarrow \quad \nwarrow \\ \text{factor} \quad \text{factor} \\ 3 \text{ hundreds} \times 5 = 15 \text{ hundreds} \\ = 1500 \end{array}$$

Study these to help you see the pattern.

$$\begin{array}{r} 500 \\ \times 2 \\ \hline = 5 \text{ hundreds} \times 2 \\ = 1000 \end{array}$$

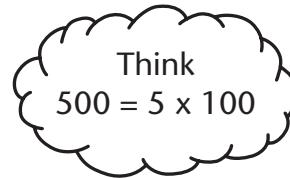
$$\begin{array}{r} 400 \\ \times 7 \\ \hline = 4 \text{ hundreds} \times 7 \\ = 2800 \end{array}$$

$$\begin{array}{r} 600 \\ \times 4 \\ \hline = 6 \text{ hundreds} \times 4 \\ = 2400 \end{array}$$

Knowing the basic multiplication facts for 5×2 , 4×7 , and 6×4 really helps!

Also you might think:

$$\begin{aligned} 7 \times 500 &= (7 \times 5) \times 100 = 3500 \\ \text{or } 6 \times 400 &= (6 \times 4) \times 100 = 2400 \end{aligned}$$



Discuss the information with your child. If your child has difficulty multiplying by multiples of 100, ask her or him to solve these problems.

1. The Swifts are repaying a bank loan that requires monthly payments of \$200 a month for 6 months. What is the total amount they will pay back to the bank?

2. Jean is saving for a trip. She saves \$400 a month for 8 months. How much will she have to spend on her trip?

**It's Your Turn**

Ask your child look at this section on the Lesson 9 Practice Sheet. If your child still has difficulty multiplying by multiples of 10 and 100, give your child as many examples as she or he needs before completing the Practice activities. When you are satisfied your child can multiply multiples of 10 and 100, have her or him complete this section independently.

When your child has completed this section, mark her or his work. Help your child to complete any needed corrections.

**Challenge Yourself**

Have your child complete this section on the Lesson 9 Practice Sheet. When your child has completed this section, mark her or his work. Help your child to complete any corrections.

Lesson 10

Estimating Products

Please note: It may take more than one session to complete Lessons 10 through 15.



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Calculator
- Blank paper or chalkboard



Warm-Up

If necessary, before your child completes the Warm-Up activity, give her or him some time to practice the times tables. Give your child a 3-minute drill or a timed test. Your child should be working on memorizing those facts that still cause her or him difficulty.

Take out the Lesson 10 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child.



Exploring the Topic

Parent Script:

In the Warm-Up activity today, you rounded numbers to 10 and to 100. Today you will use this skill to estimate a product. Do you remember what a product is? (*The answer to a multiplication question.*)

You will also use your knowledge of the basic multiplication facts and mental computation skills (thinking with your head). You must always complete the estimation activities honestly. If you wonder how well you are doing, you can check your answers with a calculator. Always use your head—it is much faster than a calculator and it keeps your brain healthy.

Ask your child to read the following problem with you.

There are 52 weeks in a year.

*Jackie likes to practice playing
the violin 7 days a week.*

*About how many days a year
does Jackie practice the violin?*



Parent Script:

How quickly do you think you can find a fairly close answer to this question?

What would you do?

Good! You would round off to the nearest multiple of 10 and then sight multiply the rounded numbers.

The first thing you will do is estimate 52 to the nearest 10.

Do you remember the estimating rules?

Let's look at them to refresh your memory.

The Rules

Look to the digit to the right of the place to which the number is to be rounded

If the number is greater than 5 round up the next higher number.

If the number is 5 (exactly half way) round up to the next higher number.

If the number is less than 5 round down to the lower number.

This rule applies to all multiples of 10. (10s 100s, 1000s)

For example:

If a number is 50 or greater round up to the next 10.

If a number is 500 or greater round up to the next 100.

If a number is 5000 or greater round up to the next 1000

Parent Script:

Now let's get back to solving the problem.

So 50 estimated to the nearest 10 is 50.

What do you do if you are multiplying by 10? (*add a zero to the ones' place*)

50

×7 days per week

350

What will your estimation will be? (*350 days*)

When you round off numbers and sight multiply it makes you look like a math magician doesn't it?

Ask your child to round off and estimate the answers to these questions.

50

×6

59

×7

36

×4

Give your child as much help as she or he needs to round off the 10s and estimate the answers.

Read the following problem to your child.



John joined a band and he hoped to save enough money to buy his own drum. He earned \$ 394 each month for the first 6 months. About how much money did he earn in the 6 months?

Ask your child to explain how she or he would estimate how much John earned.

If your child has difficulty estimating, ask her or him the following questions.

- What is the first thing you must do? (*Round off \$394 to the nearest 100.*)
- What estimation rule will you use? (*Round up to the nearest 100.*)
- Now what will you do? (*Sight multiply \$400 x 6.*)
- How many zeros will you add? (*Add a zero to the tens' place and a zero to the ones' place.*)
- What is your answer? (*\$2400*)

To make sure your child has this concept in place, reinforce the rules.

Step 1: Round off the numbers to the nearest 10 or 100.

Step 2: Multiply the number and add the appropriate number of zeros.

Step 3. Find out the exact answer and compare your estimation.

Ask your child to round off and estimate the answers to these questions.

654

$\times \underline{6}$

359

$\times \underline{7}$

836

$\times \underline{4}$

Give your child as much help as she or he needs to round off the 100s and estimate the answers. Encourage your child to use a calculator to check estimations.



It's Your Turn

Ask your child look at this section on the Lesson 10 Practice Sheet. If your child still has difficulty estimating products, give her or him as many examples as she or he needs before completing the Practice activities. When you are satisfied your child can estimate products, have her or him complete this section independently.

When your child has completed this section, mark her or his work. Help your child complete any needed corrections.



Challenge Yourself

There is not an assigned Challenge activity in this lesson. Use the time for your child to practice her or his basic facts. Your child could either play a game from the Games section or choose a game from one of the Web sites.

Lesson 11

Multiplying a 2-Digit Number by a 1-Digit Number



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
 - Place Value mat
 - Base 10 blocks
- Blank paper or chalkboard



Warm-Up

Before your child completes the Warm-Up activity, review estimating sums by multiples of ten and one hundred.

Take out the Practice sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child.



Exploring the Topic

Parent Script:

Today you will get down to some paper and pencil work. The questions you will answer cannot be done in your head. But, you will learn a quick way to multiply numbers such as 12×7 .

You will learn how to multiply a 2-digit number when the ones' digit is not a zero.

Look at this question $33 \times 8 = ?$

There are three steps you need to do to find the answer.

Step 1: Multiply the ones $\times 8$

$$3 \times 8 = 24 \text{ ones}$$

Step 2: Now multiply the tens by 8.

$$30 \times 8 = 240 \text{ tens}$$

Step 3: Add the tens and ones together.

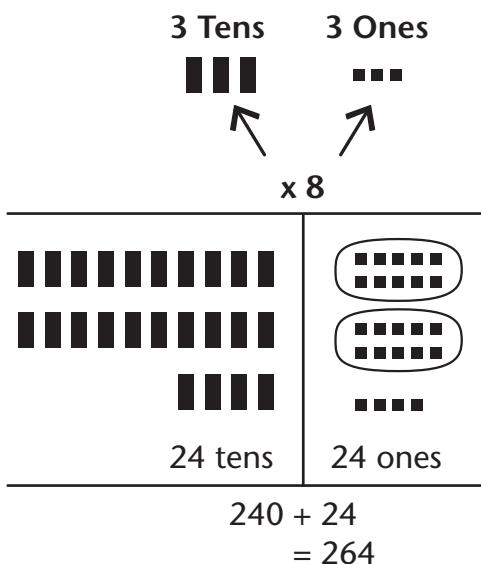
$$\begin{array}{r} 24 \\ +240 \\ \hline 264 \end{array}$$

Step 4: Combine the multiplication question with your answer from **Step 3**. (*That is, you will write the question the long way so you can see the partial answers and the final answer.*)

$$\begin{array}{r} 33 \\ \times 8 \\ \hline 24 \rightarrow \text{This is the partial product (ones)} \\ 240 \rightarrow \text{This is the partial product (tens)} \\ 264 \rightarrow \text{This is the final product (add both partial products together)} \end{array}$$

If your child has difficulty following this method, take out the place value mat and the base 10 blocks and ask her or him to use the mat and the blocks or an abacus to find the answers.

For example:



Ask your child to solve the following questions using the long method. Remind your child that when she or he multiplies the tens' column to remember the rule for multiplying by ten and put a zero in the ones' column. If necessary, have your child use the place value mat and the base ten blocks to find the answers to these questions.

Example:

$$\begin{array}{r}
 36 \\
 \times 4 \\
 \hline
 24 \\
 120 \\
 \hline
 144
 \end{array}$$

$$27 \times 6 =$$

$$49 \times 5 =$$

$$52 \times 9 =$$

Correct your child's work when she or he has completed these examples.

Parent Script:

Now I will show you a shorter way to find the answer to 33×8 .

If necessary, have your child use the place value mat and the base 10 blocks or an abacus so she or he can see the operations in a concrete form.

Multiply 33×8

Step 1: Multiply the ones first.

$ \begin{array}{r} 2 \\ 33 \\ \times 8 \\ \hline 4 \end{array} $	Think: $8 \times 3 = 24$ Write down the 4 ones and carry the 2 tens and trade it over to the 3 tens' place.
--	---

Step 2: Multiply the tens

$$\begin{array}{r}
 2 \\
 33 \\
 \times 8 \\
 \hline
 264
 \end{array}
 \quad \text{Think: } 8 \times 3 = 24$$

Add the 2 tens you traded to the 3 tens

$$8 \times 3 + 2 = 26$$

The answer is 264.

Here is a sheet of paper for you to try this one.

Multiply 53×6

What is the first step? (*Multiply $3 \times 6 = 18$*)

Now what will you do? (*Keep the 8 and carry over the 1 ten above the 5 tens.*)

What is the next step? (*Multiply 5×6 and add the tens, $5 \times 6 + 1 = 31$*)

So your answer will be 318.

Your work should look like this example:

$$\begin{array}{r}
 1 \\
 53 \\
 \times 6 \\
 \hline
 318
 \end{array}$$

Sometimes you do not need to trade.

Show your child this example and work through the steps with her him.

$$\begin{array}{r}
 52 \\
 \times 4 \\
 \hline
 208
 \end{array}$$

1. Multiply ones. $2 \times 4 = 8$ (no trades)
2. Multiply tens. $5 \times 4 = 20$ (no addition)



It's Your Turn

Ask your child to look at this section on the Lesson 11 Practice Sheet. If your child has difficulty multiplying 2-digit numbers, give her or him as many examples as she or he needs before completing the Practice activities. When you are satisfied your child feels confident multiplying these numbers have her or him complete this section independently.

When your child has completed this section, mark her or his work. Help your child complete any needed corrections.



Challenge Yourself

Have your child complete this section on the Lesson 11 Practice Sheet. When your child has completed this section, mark her or his work. Help your child to complete any corrections.

Note: Before you teach a new lesson to your child, review any concept and/or skill she or he does not have the confidence to complete independently.

Lesson 12

Multiplying a 3-Digit Number by a 1-Digit Number



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Blank paper or chalkboard



Warm-Up

To begin today's lesson, take out the Lesson 12 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark and correct the work with your child.



Exploring the Topic

Today you will learn two ways to solve a multiplication question.

You will learn the terms **partial product** and **final product**.

Method 1: Multiplying Using the Long Method

Write the following on a sheet of paper or on the chalkboard.

$$331 \times 7$$

Parent Script:

Did you know that it is as easy to multiply 331×7 , as it is to multiply 33×7 ?

Before you multiply using the short method, let's look at how you would do it the long way and find partial products, then add the partial products together to get your final answer.

What will you do first?

Multiply 33×7

Write that on the sheet of paper and then complete the calculations.

When your child has completed the calculations her or his work should look like the example below.

33

×7

21 → This is the partial product (3×7)

210 → This is the partial product (30×7)

231 → Add the two partial products together
and this is your final answer.

Make sure your child understands what a partial product is.

If your child finds this difficult, she or he can use concrete objects (*the place value mat and the base 10 blocks or an abacus*) to help or him find the answer.

Read the following problem to your child.

There are 5 airplanes taking students to England. There are 463 students on each airplane. How many students are travelling to England?

Ask your child to solve the problem using partial products. Give your child as much assistance she or he needs to solve the problem. You may have to review the “Steps” that were introduced in Lesson Eleven. Make sure that your child shows all her or his work. Your child’s work should be the same as the example below.

Multiply **463 × 5**

Step 1: Multiply the ones.

$$\begin{array}{r} 463 \\ \times 5 \\ \hline 15 \end{array}$$

Step 2: Multiply the tens.

$$\begin{array}{r} 463 \\ \times 5 \\ \hline 15 \\ 300 \end{array}$$

Step 3: Multiply the hundreds.

$$\begin{array}{r}
 463 \\
 \times 5 \\
 \hline
 15 \\
 300 \\
 2000 \\
 \hline
 2315
 \end{array}
 \quad 400 \times 5 = 2000$$

Step 4: Add the partial products.

Ask your child to find the answers to these questions. Remind your child to trade the ones for tens and the tens for hundreds.

$$\begin{array}{r}
 246 \\
 \times 5 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 469 \\
 \times 6 \\
 \hline
 \end{array}$$

Mark and correct your child's completed work.

Give your child as much practice using the long method of multiplication as she or he needs.

Method 2: Multiplying Using the Short Method

Ask your child to multiply $463 \times 5 = \underline{\hspace{2cm}}$

Before your child begins make sure she or he knows the necessary steps to take. If not, remind her or him of them.

For example:

Step 1: Multiply the ones and trade any tens—carry the extra tens to the tens' column.

Step 2: Multiply and add any tens then trade the tens for hundreds.

Step 3: Multiply and add the hundreds.

Your child's work should be the same as the example below.

$$\begin{array}{r}
 31 \\
 463 \\
 \times 5 \\
 \hline
 2315
 \end{array}$$

Ask your child to complete these examples using the short method.

123

$\times \underline{2}$

407

$\times \underline{8}$

457

$\times \underline{8}$



It's Your Turn

Ask your child look at this section on the Lesson 12 Practice Sheet. If your child has difficulty multiplying 3-digit numbers, give her or him as many examples as she or needs. When you are satisfied your child feels confident multiplying these numbers have her or him complete this section independently.

When your child has completed this section, mark her or his work. Help your child complete any needed corrections.



Challenge Yourself

Have your child complete this section on the Lesson 12 Practice Sheet. When your child has completed this section, mark her or his work. Help your child to complete any corrections.

Lesson 13

Some Multiplication Rules



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Blank paper or chalkboard



Warm-Up

Take out the Lesson 13 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child.



Exploring the Topic

Today your child will review some multiplication rules that have been taught. Help your child to read the information. Ask your child to complete all of the activities as independently as she or he can. Give help where needed. If your child has difficulty answering any questions, review the concept or skill with her or him.



It's Your Turn

Ask your child to read the following information. When she or he has read the information, ask her or him take out the Lesson 13 Practice Sheet and to complete all the exercises. Remind your child if she or he does not understand a question to ask you for help.

Do you recognize these multiplication rules?

Property of 0

When a factor is 0, the product is 0.

$$\begin{array}{ll} 0 \times 7 = 0 & 77 \times 0 = 0 \\ 8 \times 0 = 0 & 0 \times 125 = 0 \end{array}$$

Property of 1

When one of the two factors is 1, the product always equals the other factor.

$$\begin{array}{ll} 6 \times 1 = 6 & 18 \times 1 = 18 \\ 1 \times 9 = 9 & 1 \times 150 = 150 \end{array}$$

Order Property

You can multiply two factors in either order.

$$\begin{array}{ll} 7 \times 5 = 35 & 6 \times 40 = 240 \\ 5 \times 7 = 35 & 40 \times 6 = 240 \end{array}$$

**Challenge Yourself**

There is not any **Challenge Yourself** activity in this lesson.

Lesson 14

Product of Three Factors



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Blank paper or chalkboard



Warm-Up

Take out the Lesson 14 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child.



Exploring the Topic

Parent Script:

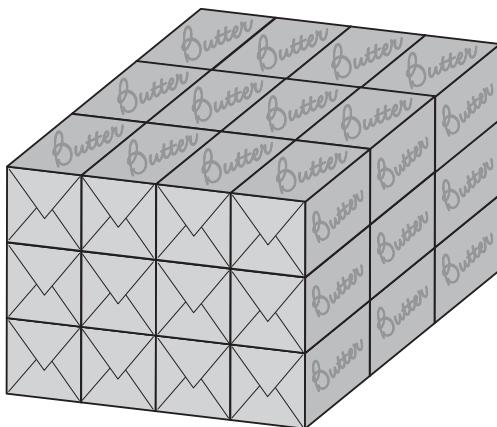
The multiplication activities you have done so far have always involved multiplying by two factors.

For example, 20×3 , 6×5

Today you are going to multiply three factors.

You will not have to do more than one separate pencil and paper operation. You will look for *friendly numbers*. Looking for friendly numbers and doing the work in your head saves time and keeps your brain in good working order.

Direct your child's attention to the following illustration.



Parent Script:

How many packages of butter do you see?

How many rows? (4)

How many in each row? (3)

How many layers? (3)

How would you write that? ($4 \times 3 \times 3$)

How would you find the answer?

Would it be easier to multiply 4×3 , then multiply that answer by 3, or multiply 3×3 and then multiply the answer by 4? (*It would be easier to multiply $3 \times 3 = 9$, then multiply $9 \times 4 = 36$.*)

Explain to your child that she or he doesn't have to multiply the numbers in the order in which they appear.

Write the following multiplication sentences on a sheet of paper or on the chalkboard and ask your child to solve them.

Before your child begins, remind her or him to look for the friendly factors and multiply them first.

$$4 \times 2 \times 5 =$$

$$5 \times 4 \times 5 =$$

Correct your child's work.

Parent Script:

Sometimes you will not be able to find the answer in your head when you multiply 3 factors.

Look at this multiplication sentence.

$$7 \times 6 \times 9 =$$

You would have to do this in two steps.

Step 1: $7 \times 6 = 42$

Step 2: Multiply 42 by 9.

$$\begin{array}{r} 1 \\ 42 \\ \times 9 \\ \hline 378 \end{array}$$

If your child needs more practice multiplying 3 factors, go to this Web site for more examples:

http://www.aaamath.com/B/g4_310x3.htm



It's Your Turn

Have your child look at the Lesson 14 Practice Sheet. To make sure your child understands the activity directions help her or him to complete the first question. Now ask your child to complete the rest of the section independently.

When your child has completed this section, mark her or his work. Help your child to complete any needed corrections.



Challenge Yourself

Have your child complete this section on the Lesson 14 Practice Sheet. When your child has completed this section, mark her or his work. Help your child to complete any corrections.

Lesson 15

Multiply With Money



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Blank paper or chalkboard
- Calculator



Warm-Up

Take out the Lesson 15 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child.



Exploring the Topic

You may need more than one session to complete all the activities in this lesson.

Parent Script:

In everyday life one of the tasks people use mathematics for involves money. Quite often people do not have to know the exact amount of money but can estimate about how much it will be.

For example, if you go to the store and you have \$20 to spend, you would have to round off or estimate the prices of the goods you wish to buy so you do not go over the \$20.

There are other times when you must know the exact amount of money you need.

Would you like to know the **estimate** or the **exact** amount for each of these situations? Listen while I read each question to you.

1. How much money to take to the grocery store?
exact or estimate
2. How much money you are owed for doing a job?
exact or estimate
3. How much money you need to save for spending money on a holiday?
exact or estimate
4. How much money you have in your bank account?
exact or estimate

Today you will make some estimates as well as learn to multiply to find the exact product.

Part A: Estimating Amounts

Read this problem with your child.

Chris delivers papers to 31 houses on his paper route. He earns \$1.95 profit for each customer per month. Estimate his total monthly profit.



Before you begin this exercise, remind your child of the rules for estimating.

Parent Script:

To help your child make the following estimations, say:

Round off the number of papers Chris delivers. What will the number be? (30)

Round off to the nearest dollar his monthly profit. What is the number? (\$2)

Now multiply 30×2 .

What is Chris' approximate monthly profit? (\$60)

Check your answer on your calculator.

Ask your child to read the following problem and then estimate the total amount. When your child has completed her or his work, have her or him use the calculator to find the actual answer.

Sheri delivers 67 papers each month. She makes the same profit as Chris does. How much profit does Sheri make?

When your child has solved the problem, check her or his work. The finished work should look like this example.

$$\begin{array}{rcl} 67 \text{ papers} & \rightarrow & 70 \\ \$1.95 & \rightarrow & \times 2 \\ & & \hline & & \$140 \end{array}$$

Sheri earns approximately \$140 a month.

Ask your child to check her or his answer with the calculator.

Remind your child that she or he must include the dollar sign (\$) in all mathematics work that involves money.



It's Your Turn

Have your child look at the Lesson 15 Practice Sheet, Part A. To make sure your child understands the activity directions help her or him to complete the first question. Now ask your child to complete the rest of the section independently.

When your child has completed the activity, correct her or his work. Then return to Lesson 15—Part B.

Part B: Calculating Exact Amounts

Read the following problem to your child.

Swim tickets cost \$1.35.

*How much will it cost
for 3 children to go
swimming?*



Parent Script:

To find the actual cost for the children to go swimming there are three steps you must do. (*As you explain the steps to your child, write out the steps of the problem on the chalkboard or on a sheet of paper.*)

Step 1: Multiply the pennies and then trade.

$$\begin{array}{rcl} \text{(Write)} & \$1.\underline{3}5 & 5\text{¢} \times 3 = 15\text{¢} \\ & \underline{\times 3} & \text{Write 5 pennies and trade the} \\ & 5 & \text{other 10 for 1 dime.} \end{array}$$

Step 2: Multiply the dimes and trade.

$$\begin{array}{r}
 \text{(Write)} \quad \$1\underset{1}{.}\underset{1}{3}5 \quad 3 \times 3 = 9 + 1 = 10 \\
 \times \underline{3} \quad \text{Write 0 and trade} \\
 .05 \quad \text{10 dimes for \$1.}
 \end{array}$$

Step 3: Multiply the dollars.

$$\begin{array}{r}
 \text{(Write)} \quad \$1\underset{1}{.}\underset{1}{3}5 \quad 3 \times 1 + 1 = 4 \\
 \times \underline{3} \\
 \$4.05
 \end{array}$$

It cost \$4. 05 for the 3 children to go swimming.

Give your child a sheet of paper. Ask her or him to follow the three steps to solve the questions below. Remind your child to separate the dollars and cents by placing a decimal point in the correct position.

$$\begin{array}{r}
 \$2.04 \\
 \times \underline{5}
 \end{array}$$

$$\begin{array}{r}
 \$3.70 \\
 \times \underline{8}
 \end{array}$$

$$\begin{array}{r}
 \$5.55 \\
 \times \underline{5}
 \end{array}$$

Give your child as much practice as she or he needs to multiply with money.

When your child has completed the questions and you have corrected them, ask her or him to turn to **Part B** on the Lesson 15 Practice Sheet and complete the exercises.



Challenge Yourself

There is not any **Challenge Yourself** activity in this lesson.

Lesson 16

Multiplying Numbers by Two Digits



What You Need

- Practice sheets
- Teaching Aids
 - Multiplication flashcards
- Blank paper or chalkboard
- Calculator



Warm-Up

Take out the Lesson 16 Practice Sheet and ask your child to complete the Warm-Up activity. When she or he is finished, mark the work with your child.



Exploring the Topic.

In this lesson your child will learn to multiply 2-and 3-digit numbers by 2 numbers.

Parent Script:

Multiplying larger numbers by 2-digit numbers follows the same pattern as multiplying larger numbers by 1-digit.

Read this problem with me.

1 square metre of carpet costs \$23. How much will it cost to cover a floor measuring 49 squares metres?

How do you think you would find the answer to this question?

Great! To find the answer you would multiply 23×49 .

Let's look at the **long form** first. The long form shows you what you are multiplying by writing out each place value being multiplied.

Follow this example to explain the steps in the long form method to your child. As you go through the example, make sure your child understands each step.

Long Form:**23****×49**

$$\begin{array}{r}
 27 \quad 9 \text{ ones} \times 3 \text{ ones} (9 \times 3) \\
 +180 \quad 9 \text{ ones} \times 2 \text{ tens} (9 \times 20) \\
 120 \quad 4 \text{ tens} \times 3 \text{ ones} (40 \times 3) \\
 +800 \quad 4 \text{ tens} \times 2 \text{ tens} (40 \times 20) \\
 \hline
 1127
 \end{array}$$

To make sure your child understands the process of multiplying by 2-digits, ask her or him to complete these examples.

45**×24****72****×31****56****×47**

Give your child as much assistance as she or he needs.

When your child has completed these examples and you have corrected her or his work:

Parent Script:

Now let's try the **short form** method.

23**×49**

This is an easier and faster way to complete 2-digit multiplication questions. There is one very important thing that you must remember. You must put a zero as a placeholder to show that you are multiplying by 40 and not 4.

Here are the steps you must follow in the short form method.

Step 1: Multiply 23 by 9.

Step 2: Put the 7 in the ones' place and carry the 2 tens over to the tens' place.

Step 3: Now you are going to multiply 23 by 40. Make sure you put a zero in the ones place to show that you are multiplying by 40 and not 4.

Step 4: Multiply 23 by 4. Put the 2 in the tens' place and carry the rest of the tens over.

Step 5: Add all the numbers to find the answer—make sure you have added in the numbers you carried over.

When you have completed all these steps, your work should resemble this example.

$$\begin{array}{r} 1 \\ 2 \\ 23 \end{array}$$

$$\times 49$$

207 Remember: put the zero as a place holder to show
+920 you're multiplying by 40 not 4.

$$\underline{1127}$$

To make sure your child understands the steps of the short form, review it using a 3-digit number instead of a 2-digit number.

$$\begin{array}{r} 22 \\ 11 \\ 565 \\ \times 43 \\ \hline 1695 \end{array} \quad \begin{array}{l} 3 \times 5 = 15 \text{ regroup the 1 ten} \\ 3 \times 60 = 180 \text{ plus the 1 is } 190, \text{ regroup the 1 hundred} \\ 3 \times 500 = 1500 \text{ plus the 1 is } 1600 \end{array}$$

$$\begin{array}{r} 40 \times 5 = 200 \text{ regroup the 2 hundred} \\ 40 \times 60 = 2400 \text{ plus 2 is } 2600, \text{ regroup the 2 thousand} \\ 40 \times 500 = 20000 \text{ plus 2 is } 22000 \\ \hline 22600 \\ 24295 \end{array}$$



It's Your Turn

Have your child look at the Lesson 16 Practice Sheet. To make sure your child understands the activity directions help her or him to complete the first question. Now ask your child to complete the rest of the section independently.

When your child has completed the activity, correct her or his work.



Challenge Yourself

There is not a **Challenge Yourself** activity in this lesson. Ask your child to use this time to review any concepts or skills she or he still finds difficult.

Lesson 17 Review



What You Need

- Practice sheets
- Blank paper
- Eraser

There aren't any **Warm-Up** or **Challenge Yourself** activities in this lesson.

If necessary, before your child completes the review activities, give her or him some time to practice the times tables.

Today your child will complete a review of all the concepts and skills covered in the Multiplication section. Before your child attempts to complete the activities, review any concepts or skills she or he still has difficulty understanding. Do not give your child this paper unless you are confident she or he can complete it successfully. If your child has an excellent understanding of the concepts taught, just ask her or him to complete some of the examples on the review paper.



It's Your Turn

This review may take more than one lesson period.

Make sure your child has a pencil, an eraser, and a quiet place to work. Take out the Lesson Practice 17 Sheet and place it in front of your child. Explain to her or him that this review is to be completed independently. Encourage your child to take a few moments to look over the questions. Ask your child if she or he understands what is expected. Give your child as much time as she or he needs to complete the review.

If you see your child having difficulty answering a question, tell her or him to leave that question and move on to the next one. When your child has completed all of the questions, encourage her or him to look over the work to look for any errors that have been made. Correct the paper with your child.

As you correct your child's work, you should see which concepts or skills she or he has difficulty mastering and needs more practice. Make sure your child reviews these skills and/or concepts before beginning the next series of lessons in the Division section.

Mastery Test

Today your child will complete a Mastery Test. The questions on this test will cover the skills and concepts that have been taught in this package. If you feel your child is not ready to take the test, make sure you review any skills or concepts your child may still have difficulty understanding before you administer it. Do not give your child this test unless you are confident he or she can complete it successfully.

Note: Your child will need more than one sitting to complete this test.

Take out the Mastery Test on the following pages and place it in front of your child. Explain to him or her that the test needs to be completed independently. Encourage your child to take a few moments to look over the questions. Ask your child if he or she understands what is expected. Give your child as much time as he or she needs to complete the test. If you see your child having any difficulty answering a question, tell him or her to leave that question and move on to the next one. When your child has completed all of the questions, encourage him or her to look over the work for any errors that may have been made. Mark the test with your child.

As you mark the test you will see the concepts or skills your child still has difficulty mastering and will need more practice. Make sure your child reviews these skills or concepts before moving on to the next Mathematics package.

Mastery Test—Multiplication

Part A

Complete these questions as quickly as you can.

1. $1 \times 6 =$ _____

16. $6 \times 6 =$ _____

2. $3 \times 6 =$ _____

17. $5 \times 6 =$ _____

3. $2 \times 7 =$ _____

18. $8 \times 5 =$ _____

4. $9 \times 3 =$ _____

19. $6 \times 7 =$ _____

5. $8 \times 6 =$ _____

20. $9 \times 5 =$ _____

6. $3 \times 7 =$ _____

21. $7 \times 7 =$ _____

7. $8 \times 4 =$ _____

22. $5 \times 5 =$ _____

8. $2 \times 2 =$ _____

23. $8 \times 7 =$ _____

9. $9 \times 6 =$ _____

24. $10 \times 3 =$ _____

10. $2 \times 6 =$ _____

25. $4 \times 6 =$ _____

11. $1 \times 7 =$ _____

26. $5 \times 7 =$ _____

12. $5 \times 5 =$ _____

27. $4 \times 5 =$ _____

13. $9 \times 4 =$ _____

28. $4 \times 4 =$ _____

14. $9 \times 7 =$ _____

29. $4 \times 7 =$ _____

15. $10 \times 2 =$ _____

30. $7 \times 6 =$ _____

Time: _____ seconds

Part B

Write a related multiplication sentence (equation) for each of the facts below.

a. 70 _____

b. 56 _____

c. 45 _____

d. 63 _____

Part C

Write the factors of the following numbers.

a. 81 _____

b. 35 _____

c. 72 _____

d. 48 _____

Part D.

Write the first 10 multiples of the following numbers.

a. 6 _____

b. 9 _____

c. 10 _____

d. 4 _____

Part E

Find the answers using **sight multiplication**.

1. $50 \times 60 =$ _____

2. $\$400 \times 3 =$ _____

3. $780 \times 10 =$ _____

4. $46 \times 1000 =$ _____

5. $30 \times 800 =$ _____

6. $20 \times 4000 =$ _____

$$7. \quad \$500$$
$$\times 10$$

$$8. \quad 679$$
$$\times 100$$

$$9. \quad 40$$
$$\times 80$$

$$10. \quad 400$$
$$\times 30$$

$$11. \quad 700$$
$$\times 500$$

$$12. \quad 1000$$
$$\times 569$$

Part F

Estimate these products. Show your estimation. (Hint: Round off first!)

$$1. \quad 63$$
$$\times 6$$

$$2. \quad 93$$
$$\times 8$$

$$3. \quad 438 \times 7 =$$

$$4. \quad 968 \times 9$$

$$5. \quad 546 \times 3 =$$

$$6. \quad 460 \times 89 =$$

$$7. \quad 43$$
$$\times 37$$

$$8. \quad 83$$
$$\times 69$$

$$9. \quad 44 \times 8 =$$

$$10. \quad 328$$
$$\times 28$$

$$11. \quad 769$$
$$\times 78$$

$$12. \quad 780$$
$$\times 95$$

Part G

Multiply to find the answers to these questions. Use the short form.

1.
$$\begin{array}{r} 76 \\ \times 5 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 148 \\ \times 7 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 623 \\ \times 6 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 79 \\ \times 8 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 565 \\ \times 3 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 244 \\ \times 4 \\ \hline \end{array}$$

Part H

Multiply to find the answers to these questions. Show all your work.

1.
$$\begin{array}{r} 76 \\ \times 80 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 92 \\ \times 60 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 524 \\ \times 30 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 869 \\ \times 70 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 527 \\ \times 90 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 600 \\ \times 76 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 630 \\ \times 45 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 907 \\ \times 62 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 309 \\ \times 79 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 608 \\ \times 40 \\ \hline \end{array}$$

Part I

Multiply the three factors. Remember to look for friendly numbers.

a. $3 \times 5 \times 6 =$ _____

b. $4 \times 5 \times 9 =$ _____

c. $6 \times 3 \times 10 =$ _____

d. $8 \times 9 \times 5 =$ _____

e. $8 \times 2 \times 10 =$ _____

Part J

Multiply to find the answer. Remember to put in the dollar sign and the decimal point.

1. $\begin{array}{r} \$18.99 \\ \times 6 \\ \hline \end{array}$

2. $\begin{array}{r} \$55.72 \\ \times 7 \\ \hline \end{array}$

3. $\begin{array}{r} \$99.09 \\ \times 4 \\ \hline \end{array}$

4. $\begin{array}{r} \$27.16 \\ \times 5 \\ \hline \end{array}$

5. $\begin{array}{r} \$135.88 \\ \times 5 \\ \hline \end{array}$

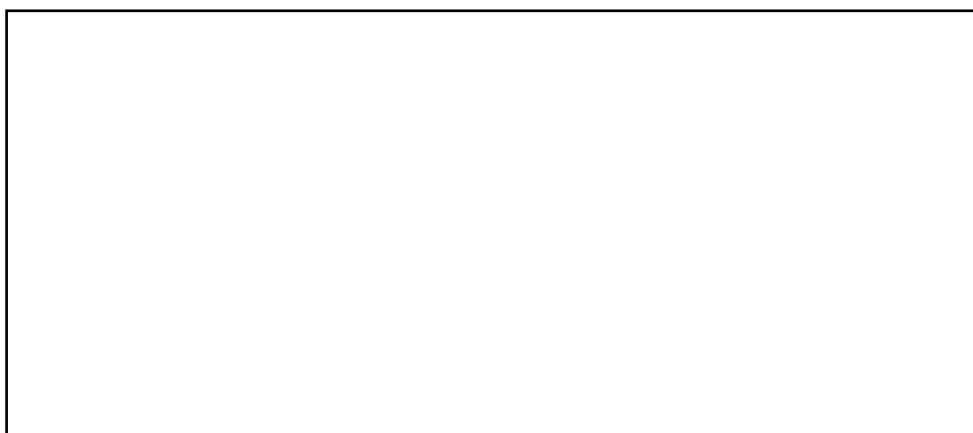
Part K

1. 27 tree planters planted 400 seedling trees each. How many trees were planted altogether? Show your work and write a statement answer.



Statement: _____

2. A company gave a Christmas gift of \$60 to each of its 700 employees. They gave an additional bonus to \$40 to 5 of the employees. How much money did the company pay out altogether? Show your work and write a statement answer.



Statement: _____

Survive Math 5

Part 1

Multiplication

Practice Sheets

Lesson 2

Multiply Groups of 0, 1, 2, 3, 4, and 5

Please note: There is no Lesson 1 Practice Sheet.



Warm-Up

1. Show 4 groups of 3 in an array.
 - a. How many rows of 3 did you make? _____ rows
 - b. If there are 4 groups of 3, how many do you have altogether? _____
2. Use your pennies or buttons to make the following arrays. Write the total number of each array.
 - a. 4 groups of 4 is _____
 - b. 3 groups of 6 is _____
 - c. 5 groups of 5 is _____
 - d. 2 groups of 7 is _____
 - e. 7 groups of 3 is _____
 - f. 2 groups of 9 is _____

**It's Your Turn**

- A. Write the multiplication equation for each addition equation.

Example: $3 + 3 = 6 \rightarrow 2 \times 3 = 6 \rightarrow \text{total number}$

↗
 2 groups ↗
 3 in each group

1. $2 + 2 + 2 = 6 \rightarrow$ _____

2. $1 + 1 + 1 + 1 = 4 \rightarrow$ _____

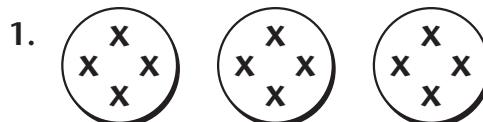
3. $5 + 5 = 10 \rightarrow$ _____

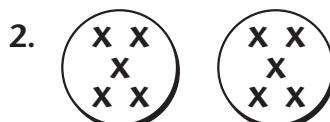
4. $3 + 3 + 3 = 9 \rightarrow$ _____

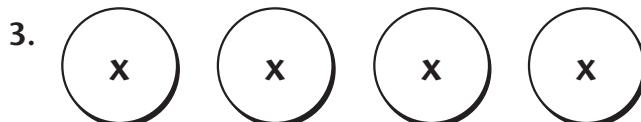
- B. Write a multiplication equation for each picture.

Example: 

↗
 3 groups ↗
 2 in each group

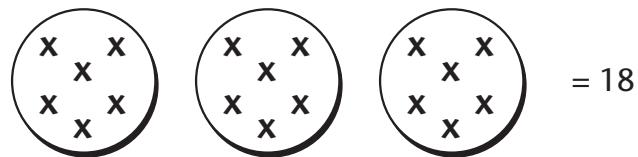






- C. Draw a picture for each multiplication equation and write the answer.

Example: $3 \times 6 =$ _____



1. $2 \times 4 =$ _____

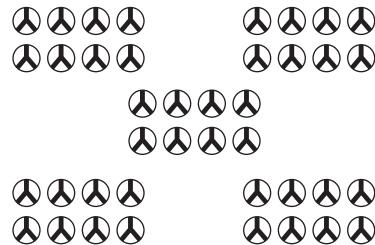
2. $2 \times 8 =$ _____

3. $5 \times 7 =$ _____

4. $2 \times 9 =$ _____

D. Write a multiplication and an addition equation for each picture.

Example:



Addition:
 $8 + 8 + 8 + 8 + 8 :$

Multiplication:
 $5 \times 8 = 40$

1. _____

2. _____

3. _____

**Challenge Yourself**

A. Solve the following equations as quickly and accurately as you can.

1. $3 \times 5 =$ _____ 2. $3 \times 3 =$ _____ 3. $3 \times 2 =$ _____

4. $5 \times 2 =$ _____ 5. $4 \times 5 =$ _____ 6. $5 \times 5 =$ _____

7. $8 \times 4 =$ _____ 8. $2 \times 2 =$ _____ 9. $6 \times 5 =$ _____

10. $\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$

11. $\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$

12. $\begin{array}{r} 7 \\ \times 1 \\ \hline \end{array}$

13. $\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$

14. $\begin{array}{r} 6 \\ \times 1 \\ \hline \end{array}$

15. $\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$

16. $\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$

17. $\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$

18. $\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$

19. $\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$

B. Complete the multiplication table. Some facts have been completed for you.

x	1	2	3	4	5
1					
2		4			
3					
4			12		
5					
6				24	
7					
8					40
9					
10					

Lesson 3

Finding Multiples



Warm-Up

You already know that multiplication is repeated addition. A number fact such as 5×4 really means 4 groups of 5.

Write the following multiplication facts as addition statements.

Example: $3 \times 4 = 4 + 4 + 4 = 12$

1. $3 \times 5 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2. $2 \times 8 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

3. $4 \times 6 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

4. $5 \times 4 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

5. $5 \times 1 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

6. $4 \times 0 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

7. $3 \times 7 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

8. $5 \times 5 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

**It's Your Turn**

1. Circle the multiples of 5.

20 21 22 23 24 25 26 27 28 29

30 31 32 33 34 35 36 37 38 39

40 41 42 43 44 45 46 47 48 49

2. Circle the multiples of 4.

16 17 18 19 20 21 22 23 24 25

26 27 28 29 30 31 32 33 34 35

36 37 38 39 40 41 42 43 44 45

3. Write all the multiples of 3 between the numbers 6 and 30.
-

4. Write the multiples of 2 between the numbers 50 and 70.
-

5. What are these numbers multiples of?

a. 27 30 33 36 39

b. 24 28 32 36 40

c. 70 75 80 85 90

**Challenge Yourself**

Write the factors for the following numbers

Example: 24 The factors are 4 and 6

18 The factors are 3 and 6, 2 and 9

1. 25 The factors are _____

2. 16 The factors are _____

3. 20 The factors are _____

4. 15 The factors are _____

5. 9 The factors are _____

6. 12 The factors are _____

7. 30 The factors are _____

8. 8 The factors are _____

Lesson 4

Multiplication: Groups of 6 and 7



Warm-Up

Answer the following question. Write down your time.

1. $6 \times 4 =$ _____

11. $7 \times 3 =$ _____

2. $4 \times 3 =$ _____

12. $3 \times 5 =$ _____

3. $9 \times 5 =$ _____

13. $8 \times 2 =$ _____

4. $7 \times 4 =$ _____

14. $6 \times 5 =$ _____

5. $5 \times 3 =$ _____

15. $8 \times 5 =$ _____

6. $4 \times 5 =$ _____

16. $3 \times 3 =$ _____

7. $8 \times 3 =$ _____

17. $9 \times 4 =$ _____

8. $6 \times 3 =$ _____

18. $3 \times 4 =$ _____

9. $5 \times 5 =$ _____

19. $9 \times 2 =$ _____

10. $8 \times 4 =$ _____

20. $7 \times 5 =$ _____

Time: _____ seconds

**It's Your Turn**

A. Find the answers to the following questions.

1. $6 \times 4 =$ _____ 2. $1 \times 7 =$ _____ 3. $5 \times 6 =$ _____

4. $5 \times 7 =$ _____ 5. $2 \times 7 =$ _____ 6. $6 \times 7 =$ _____

7. $6 \times 8 =$ _____ 8. $6 \times 6 =$ _____ 9. $7 \times 7 =$ _____

10.
$$\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 8 \\ \times 7 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 6 \\ \times 10 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$$

B. Complete the following problems. Read each question carefully. Show your work in the box, and write the statement answer for each question.

1. John's sticker book has room for 8 stickers on each page. He has filled the first 6 pages of the book. How many stickers are in John's book?

Statement: _____

2. The cross-country team practises 5 days a week. Each day the members run for 5 km. How far do they run in 5 days?



Statement: _____



Challenge Yourself

Place the correct number in each of the boxes.

$1. \quad 6 \times \boxed{} = 42$

$6. \quad \boxed{} \times 7 = 63$

$2. \quad \boxed{} \times 3 = 21$

$7. \quad 7 \times \boxed{} = 35$

$3. \quad 10 \times \boxed{} = 60$

$8. \quad 7 \times \boxed{} = 28$

$4. \quad 8 \times 7 = \boxed{}$

$9. \quad 4 \times 6 = \boxed{}$

$5. \quad \boxed{} \times 7 = 14$

$10. \quad \boxed{} \times 6 = 30$

Lesson 5

Groups of 7 and 8



Warm-Up

Answer the following questions as quickly as you can.

1. $1 \times 6 =$ _____

16. $6 \times 6 =$ _____

2. $3 \times 6 =$ _____

17. $5 \times 6 =$ _____

3. $2 \times 7 =$ _____

18. $8 \times 5 =$ _____

4. $9 \times 3 =$ _____

19. $6 \times 7 =$ _____

5. $8 \times 6 =$ _____

20. $9 \times 5 =$ _____

6. $3 \times 7 =$ _____

21. $7 \times 7 =$ _____

7. $8 \times 4 =$ _____

22. $5 \times 5 =$ _____

8. $2 \times 2 =$ _____

23. $8 \times 7 =$ _____

9. $9 \times 6 =$ _____

24. $10 \times 3 =$ _____

10. $2 \times 6 =$ _____

25. $4 \times 6 =$ _____

11. $1 \times 7 =$ _____

26. $5 \times 7 =$ _____

12. $5 \times 5 =$ _____

27. $4 \times 5 =$ _____

13. $9 \times 4 =$ _____

28. $4 \times 4 =$ _____

14. $9 \times 7 =$ _____

29. $4 \times 7 =$ _____

15. $10 \times 2 =$ _____

30. $7 \times 6 =$ _____

Time: _____ seconds

**It's Your Turn**

- A. Complete the table.

x	8
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

- B. Write the multiplication sentence for each of the following repeated-addition questions.

Example: $8 + 8 = \underline{\hspace{2cm}}$
 $2 \times 8 = 16$

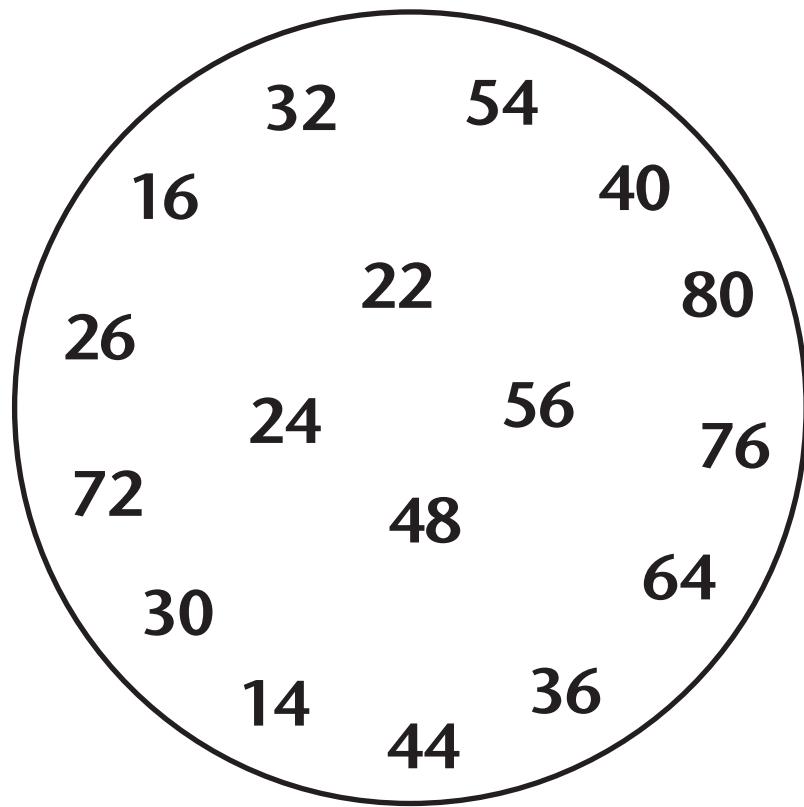
1. $8 + 8 + 8 + 8 + 8 = \underline{\hspace{2cm}}$

2. $8 + 8 + 8 = \underline{\hspace{2cm}}$

3. $8 + 8 + 8 + 8 + 8 + 8 + 8 = \underline{\hspace{2cm}}$

4. $8 + 8 + 8 + 8 + 8 + 8 = \underline{\hspace{2cm}}$

C. Circle all the multiples of 8 you can find.





Challenge Yourself

- A. List the following multiples for each question.

Example: List the multiples of 5 between 15 and 30.

Answer: 20 and 25

Were you thinking
of 15 and 30 as well?
They are not *between*!

1. List the multiples of 7 under 20.

2. List the multiples of 8 between 40 and 60.

3. List the multiples of 8 between 10 and 30.

4. List the multiples of 7 between 50 and 70.

- B. Circle any numbers that does not belong in the multiple sets below.

Example: 5, 10, 12, 15, 20, 25, 30, 33, 35, 40, 45, 50

Answer: 12 and 33 are not multiples of 5.

1. 6, 7, 14, 21, 28, 32, 35, 42, 49, 56, 60, 63, 70

2. 6, 12, 15, 18, 24, 30, 34, 36, 42, 48, 54, 60

3. 8, 16, 18, 24, 32, 37, 40, 48, 56, 64, 72, 78, 80

Lesson 6

Multiplying Groups of 9



Warm-Up

Complete the multiplication table.

x	1	2	3	4	5	6	7	8
1								
2								
3						18		
4								
5								
6								
7								
8								
9								
10								80

**It's Your Turn**

A. Find the answers to these multiplication questions.

$$\begin{array}{r} 1. \quad 6 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 0 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 9 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 8 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 9 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 3 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 0 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 1 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 5 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 10 \\ \times 9 \\ \hline \end{array}$$

$$11. 9 \times 6 = \underline{\hspace{2cm}} \quad 12. 5 \times 9 = \underline{\hspace{2cm}} \quad 13. 0 \times 9 = \underline{\hspace{2cm}}$$

$$14. 7 \times 9 = \underline{\hspace{2cm}} \quad 15. 9 \times 9 = \underline{\hspace{2cm}} \quad 16. 8 \times 9 = \underline{\hspace{2cm}}$$

$$17. 2 \times 9 = \underline{\hspace{2cm}} \quad 18. 9 \times 6 = \underline{\hspace{2cm}} \quad 19. 5 \times 0 = \underline{\hspace{2cm}}$$

$$20. 9 \times 8 = \underline{\hspace{2cm}}$$

B. Complete the table below.

x	9
1	9
2	
3	
4	
5	
6	
7	
8	
9	
10	90

1. What happens to the numbers in the ones' position as you go down the table?

2. What happens to the numbers in the tens' position as you go down the ladder?



Challenge Yourself

Complete the long speed drill. See how fast you can complete it. If you do not know the answers to any question, leave it and go to the next one. You should be able to complete it in three minutes or less.

1. $7 \times 6 =$ _____

21. $8 \times 7 =$ _____

2. $8 \times 5 =$ _____

22. $7 \times 3 =$ _____

3. $3 \times 8 =$ _____

23. $8 \times 6 =$ _____

4. $7 \times 5 =$ _____

24. $7 \times 7 =$ _____

5. $5 \times 6 =$ _____

25. $2 \times 6 =$ _____

6. $5 \times 8 =$ _____

26. $8 \times 8 =$ _____

7. $5 \times 5 =$ _____

27. $3 \times 7 =$ _____

8. $9 \times 6 =$ _____

28. $8 \times 2 =$ _____

9. $5 \times 7 =$ _____

29. $9 \times 7 =$ _____

10. $4 \times 2 =$ _____

30. $6 \times 3 =$ _____

11. $4 \times 8 =$ _____

31. $6 \times 7 =$ _____

12. $9 \times 5 =$ _____

32. $8 \times 3 =$ _____

13. $6 \times 8 =$ _____

33. $7 \times 8 =$ _____

14. $6 \times 6 =$ _____

34. $9 \times 3 =$ _____

15. $4 \times 7 =$ _____

35. $4 \times 6 =$ _____

16. $2 \times 8 =$ _____

36. $1 \times 8 =$ _____

17. $1 \times 6 =$ _____

37. $9 \times 2 =$ _____

18. $2 \times 7 =$ _____

38. $3 \times 6 =$ _____

19. $9 \times 8 =$ _____

39. $0 \times 6 =$ _____

20. $2 \times 1 =$ _____

40. $1 \times 7 =$ _____

**Number
Correct** _____

Time: _____ **seconds**

Lesson 7 Review

A. Complete the following questions.

1. What is an array?

2. What is the answer to a multiplication equation called?

3. What is a factor?

B. Complete these questions as quickly as possible.

$$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 8 \\ \times 10 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 2 \\ \times 1 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 7 \\ \times 8 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$$

22.
$$\begin{array}{r} 3 \\ \times 10 \\ \hline \end{array}$$

23.
$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

24.
$$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$$

25.
$$\begin{array}{r} 0 \\ \times 4 \\ \hline \end{array}$$

- C. List the *first ten* multiples of each number. Use commas to separate numbers in a series.

Example: List the first 10 multiples of 3.

$$(3, 6, 9, 12, 15, 18, 21, 24, 27, 30)$$

1. 4 _____
2. 6 _____
3. 7 _____
4. 8 _____
5. 9 _____

- D. Write related multiplication sentences for each of the facts below.

Example: $5 \times 8 = 40$ $\underline{8} \times \underline{5} = 40$

1. $6 \times 9 = \underline{54}$ _____
2. $3 \times 5 = \underline{15}$ _____
3. $8 \times 6 = \underline{48}$ _____
4. $10 \times 4 = \underline{40}$ _____
5. $9 \times 7 = \underline{63}$ _____
6. $2 \times 6 = \underline{12}$ _____
7. $6 \times 7 = \underline{42}$ _____
8. $10 \times 5 = \underline{50}$ _____
9. $4 \times 7 = \underline{28}$ _____
10. $0 \times 8 = \underline{0}$ _____

5. Write two multiplication sentences for each product show in the circles. Do *not use* 1 as a factor. Use only the multiplication facts from 1 – 10 in your answers.

Example:

16

or

50

$$8 \times 2 = 16$$

$$2 \times 8 = 16$$

$$5 \times 10 = 50$$

$$10 \times 5 = 50$$

1. (14)

2. (35)

3. (42)

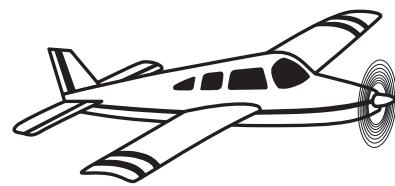
4. (72)

5. (56)

6. (70)

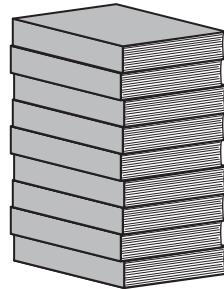
F. Solve each problem. Read it carefully. Show all your work in the box and write a statement answer on the lines.

- At the local airport, 8 planes depart each hour. How many planes will depart from noon to 8 o'clock in the evening?



Statement: _____

- There were 9 telephone books in each bundle. Mike delivered 7 bundles. How many telephone books did Mike deliver?



Statement: _____

Lesson 8

Multiplying by Groups of 10 and 100



Warm-Up

Skip counting means to count by a given number, that is, to repeatedly add on the same number. When you skip count you are actually saying the multiples of that given number.

- A. Skip count by the multiples of:

(2) 2 4 6 _____

(4) 4 8 12 _____

(6) 6 12 18 _____

- B. You know that **0 x any number is 0**, and that **1 x any number equals that number**.

Complete the following number facts that review these rules.

1. $5 \times 1 =$ _____ 2. $3 \times 0 =$ _____

3. $8 \times 1 =$ _____ 4. $0 \times 7 =$ _____

5. $1 \times 8 =$ _____ 6. $39 \times 0 =$ _____

7. $1 \times 45 =$ _____ 8. $98 \times 1 =$ _____

9. $0 \times 331 =$ _____ 10. $1 \times 789 =$ _____

11. $1342 \times 1 =$ _____ 12. $0 \times 3453 =$ _____

**It's Your Turn**

A. Write the multiplication fact using 10 for each group below.

1. 2. 

$$\underline{7 \times 10 = 70}$$

B. Write the multiplication fact using 100 for each group below.

1. 2. 

C. Find the answers to the following questions by multiplying in your head.

1.
$$\begin{array}{r} 8 \\ \times 10 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 18 \\ \times 10 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 38 \\ \times 10 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 57 \\ \times 10 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 16 \\ \times 10 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 8 \\ \times 10 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 68 \\ \times 10 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 112 \\ \times 10 \\ \hline \end{array}$$

9. $215 \times 10 =$ _____ 10. $1150 \times 10 =$ _____

11. $1455 \times 10 =$ _____ 12. $2624 \times 10 =$ _____

D. Find the answers to the following questions by multiplying in your head.

$$1. \begin{array}{r} 6 \\ \times 100 \\ \hline \end{array}$$

$$2. \begin{array}{r} 18 \\ \times 100 \\ \hline \end{array}$$

$$3. \begin{array}{r} 25 \\ \times 100 \\ \hline \end{array}$$

$$4. \begin{array}{r} 4 \\ \times 100 \\ \hline \end{array}$$

$$5. \begin{array}{r} 77 \\ \times 100 \\ \hline \end{array}$$

$$6. 5 \times 100 = \underline{\hspace{2cm}}$$

$$7. 18 \times 100 = \underline{\hspace{2cm}}$$

$$8. 145 \times 100 = \underline{\hspace{2cm}}$$

$$9. 262 \times 100 = \underline{\hspace{2cm}}$$

$$10. 775 \times 100 = \underline{\hspace{2cm}}$$

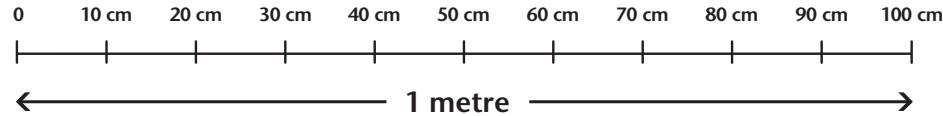


Challenge Yourself

A. What rule do you use when you multiply by 10?

B. What rule do you use when you multiply by 100?

C. There are 100 centimetres in each metre.



Example: $8 \text{ m} = 800 \text{ cm}$

How many centimetres are in the following?

1. $6 \text{ m} =$ _____ 5. $90 \text{ m} =$ _____

2. $14 \text{ m} =$ _____ 6. $100 \text{ m} =$ _____

3. $9 \text{ m} =$ _____ 7. $0.5 \text{ m} =$ _____

4. $27 \text{ m} =$ _____ 8. $6.5 \text{ m} =$ _____

Lesson 9

Multiplying by Multiples of 10 and 100



Warm-Up

Complete each set of questions as quickly as you can.

A. 1. $6 \times 10 =$ _____ 9. $65 \times 100 =$ _____

2. $8 \times 10 =$ _____ 10. $9 \times 100 =$ _____

3. $12 \times 10 =$ _____ 11. $60 \times 100 =$ _____

4. $50 \times 10 =$ _____ 12. $15 \times 100 =$ _____

5. $46 \times 10 =$ _____ 13. $31 \times 100 =$ _____

6. $35 \times 10 =$ _____ 14. $70 \times 100 =$ _____

7. $17 \times 10 =$ _____ 15. $88 \times 100 =$ _____

8. $11 \times 100 =$ _____

B. 1. $6 \times 6 =$ _____ 9. $7 \times 7 =$ _____

2. $4 \times 8 =$ _____ 10. $7 \times 2 =$ _____

3. $6 \times 7 =$ _____ 11. $8 \times 9 =$ _____

4. $3 \times 4 =$ _____ 12. $6 \times 5 =$ _____

5. $5 \times 10 =$ _____ 13. $9 \times 9 =$ _____

6. $8 \times 8 =$ _____ 14. $9 \times 4 =$ _____

7. $3 \times 9 =$ _____ 15. $5 \times 5 =$ _____

8. $7 \times 8 =$ _____

**It's Your Turn**

A. Complete each question.

Example:
$$\begin{array}{r} 9 \text{ tens} \\ \times 3 \\ \hline 27 \text{ tens} \end{array}$$

1.
$$\begin{array}{r} 8 \text{ tens} \\ \times 5 \\ \hline \text{_____ tens} \end{array}$$

2.
$$\begin{array}{r} 6 \text{ tens} \\ \times 4 \\ \hline \text{_____ tens} \end{array}$$

3.
$$\begin{array}{r} 5 \text{ tens} \\ \times 5 \\ \hline \text{_____ tens} \end{array}$$

B. Multiply to find the answers to the following questions.

Example:
$$\begin{array}{r} 90 \\ \times 3 \\ \hline 270 \text{ tens (27 tens!)} \end{array}$$

1.
$$\begin{array}{r} 80 \\ \times 5 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 60 \\ \times 4 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 50 \\ \times 5 \\ \hline \end{array}$$

C. Complete each question.

Example:
$$\begin{array}{r} 6 \text{ hundreds} \\ \times 2 \\ \hline 12 \text{ hundreds} \end{array}$$

1.
$$\begin{array}{r} 7 \text{ hundreds} \\ \times 9 \\ \hline \text{_____ hundreds} \end{array}$$

2.
$$\begin{array}{r} 4 \text{ hundreds} \\ \times 8 \\ \hline \text{_____ hundreds} \end{array}$$

3.
$$\begin{array}{r} 9 \text{ hundreds} \\ \times 6 \\ \hline \text{_____ hundreds} \end{array}$$

D. Multiply to find the answers to the following questions.

$$\begin{array}{r} 1. \quad 700 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 400 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 900 \\ \times 6 \\ \hline \end{array}$$



Challenge Yourself

Complete each question by filling in the missing numbers.

Example: $30 \times 5 = 3 \times 5 \times$ =

1. $6 \times 60 = 6 \times 6 \times$ =

2. $7 \times 80 = 7 \times$ $\times 10 =$

3. $30 \times 7 = 3 \times 7 \times$ =

4. $400 \times 4 = 4 \times$ $\times 100 =$

5. $700 \times 9 = 7 \times 9 \times$ =

6. $600 \times 3 = 6 \times$ $\times 100 =$

7. $50 \times 4 = 5 \times$ $\times 10 =$

$$7. \quad 50 \times 4 = 5 \times \boxed{} \times 10 = \boxed{}$$

$$8. \quad 90 \times 10 = 9 \times \boxed{} \times \boxed{} = 900$$

$$9. \quad 70 \times 10 = \boxed{} \times 10 \times 10 = 700$$

$$10. \quad 100 \times 10 = 10 \times 10 \times \boxed{} = 1000$$

Lesson 10

Estimating Products



Warm-Up

A. Round each number to the nearest 10.

1. 64 _____

6. 83 _____

2. 7 _____

7. 85 _____

3. 45 _____

8. 97 _____

4. 14 _____

9. 102 _____

5. 71 _____

10. 165 _____

B. Round each number to the nearest 100.

1. 212 _____

6. 517 _____

2. 746 _____

7. 267 _____

3. 804 _____

8. 351 _____

4. 450 _____

9. 1415 _____

5. 961 _____

10. 2222 _____

**It's Your Turn**

Estimate these products. Show your estimation and all your work.

1. 63
 $\times 3$

2. 93
 $\times 6$

3. 45
 $\times 8$

4. 71
 $\times 7$

4. 59
 $\times 5$

5. 37
 $\times 9$

6. 147
 $\times 8$

7. 371
 $\times 6$

8. 109
 $\times 9$

9. 237
 $\times 7$

10. 357
 $\times 9$

Lesson 11

Multiplying a 2-Digit Number by a 1-Digit Number



Warm-Up

Multiply, then add.

Example: $4 \times 5 + 3 =$

$4 \times 5 = 20$ (Multiply 4×5 .)

$20 + 3 = 23$ (Add 3.)

1. $1 \times 8 + 5 =$ _____

2. $2 \times 4 + 2 =$ _____

3. $5 \times 4 + 1 =$ _____

4. $9 \times 8 + 7 =$ _____

5. $4 \times 4 + 1 =$ _____

6. $6 \times 7 + 2 =$ _____

7. $8 \times 9 + 3 =$ _____

8. $6 \times 10 + 5 =$ _____

9. $5 \times 6 + 6 =$ _____

10. $7 \times 2 + 1 =$ _____

**It's Your Turn**

- A. Print the missing numbers when multiplying using the long method.

Example:
$$\begin{array}{r} 29 \\ \times 6 \\ \hline 54 \end{array}$$

$$\begin{array}{r} 120 \\ \hline 174 \end{array} \leftarrow 20 \times 6 = 120$$

1.
$$\begin{array}{r} 35 \\ \times 4 \\ \hline 20 \end{array}$$

_____ ←
_____ ←
_____ ←

2.
$$\begin{array}{r} 52 \\ \times 6 \\ \hline \end{array}$$

300 ←
_____ ←
_____ ←

3.
$$\begin{array}{r} 86 \\ \times 3 \\ \hline 18 \end{array}$$

_____ ←
_____ ←
_____ ←

4.
$$\begin{array}{r} 77 \\ \times 5 \\ \hline \end{array}$$

350 ←
_____ ←
_____ ←

5.
$$\begin{array}{r} 62 \\ \times 9 \\ \hline 18 \end{array}$$

_____ ←
_____ ←
_____ ←

B. Multiply using the short method.

Example:

$\begin{array}{r} 2 \\ \times 7 \\ \hline 161 \end{array}$	$\rightarrow 3 \times 7 = 21$, trade the 2 tens $\rightarrow 20 \times 7 = 140$, add the 2 tens = 160
--	--

1.
$$\begin{array}{r} 25 \\ \times 5 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 60 \\ \times 7 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 39 \\ \times 2 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 93 \\ \times 6 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 19 \\ \times 7 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 47 \\ \times 4 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 84 \\ \times 4 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 59 \\ \times 8 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 42 \\ \times 8 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 62 \\ \times 7 \\ \hline \end{array}$$

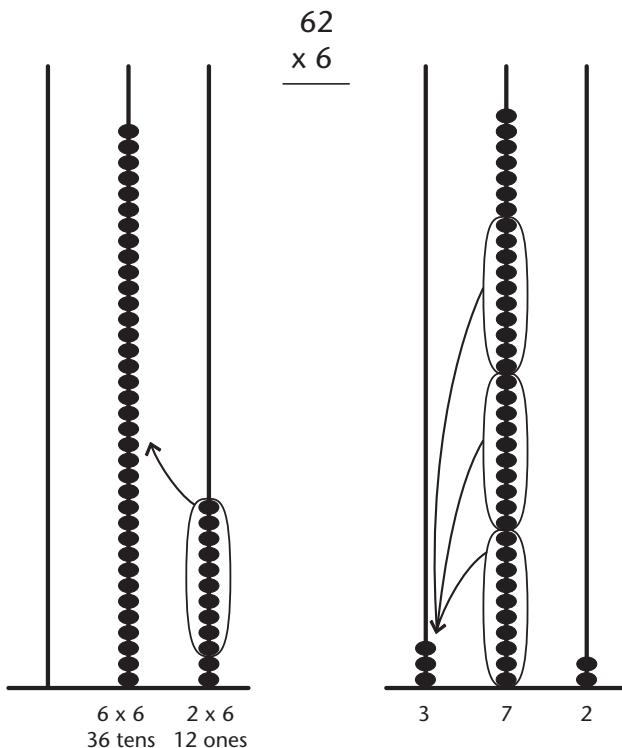
11.
$$\begin{array}{r} 99 \\ \times 3 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 55 \\ \times 9 \\ \hline \end{array}$$



Challenge Yourself

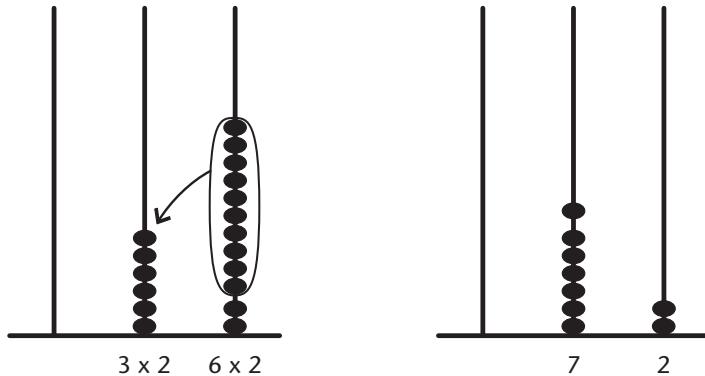
Draw the correct number on each abacus. Use the first abacus to show the numbers being multiplied and the second one to show the regrouping done to find the answer. Write the numerals being multiplied and the answer under each abacus.



$$(360 + 12) = 372$$

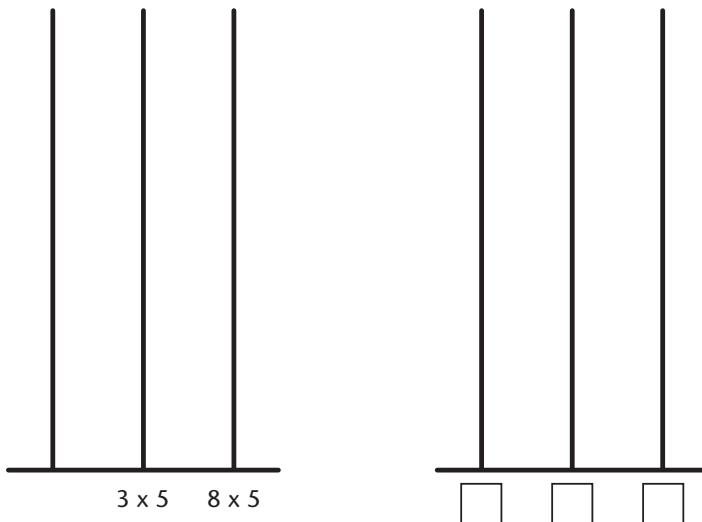
$$62 \times 6 = 372$$

Example:
$$\begin{array}{r} 36 \\ \times 2 \\ \hline \end{array}$$



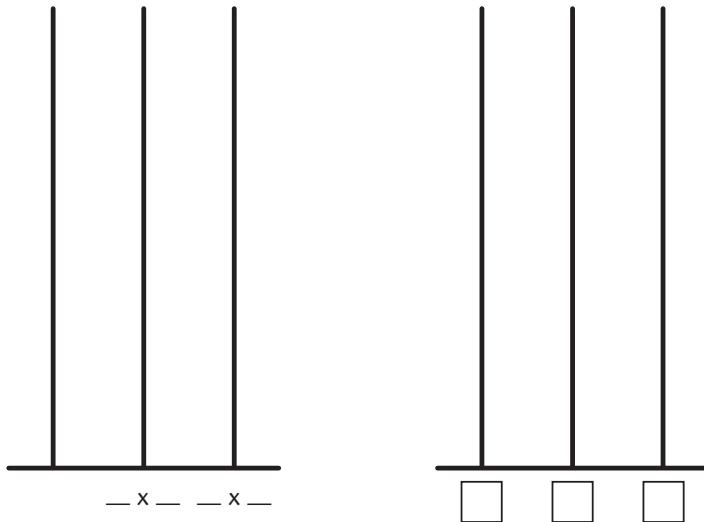
$$36 \times 2 = 72$$

1.
$$\begin{array}{r} 38 \\ \times 5 \\ \hline \end{array}$$



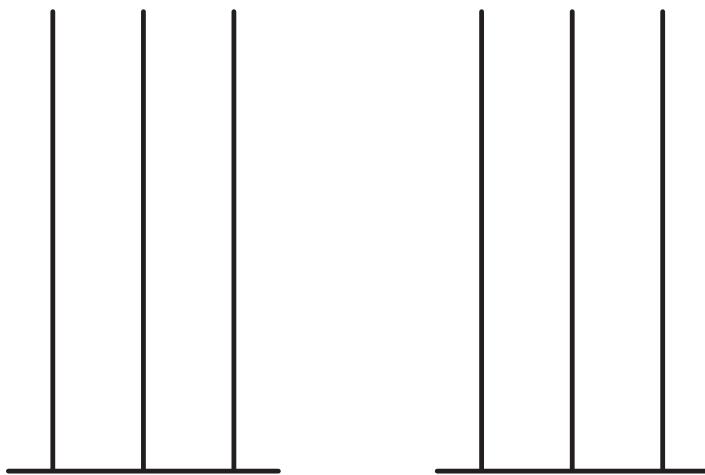
$$38 \times 5 = \underline{\hspace{2cm}}$$

2.
$$\begin{array}{r} 53 \\ \times 4 \\ \hline \end{array}$$



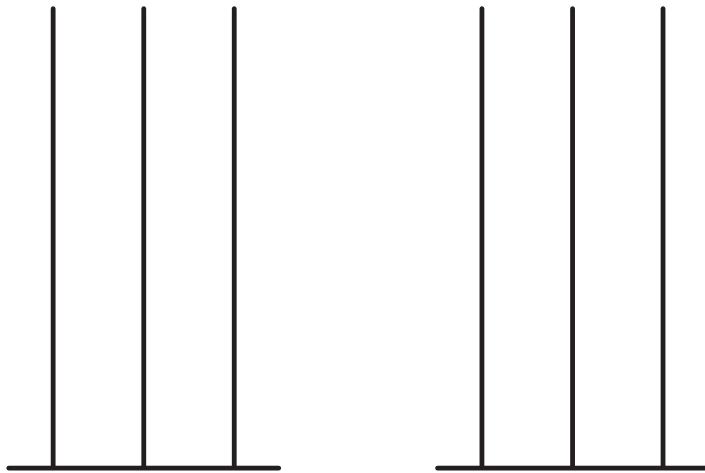
$$53 \times 4 = \underline{\quad \quad \quad}$$

3.
$$\begin{array}{r} 71 \\ \times 4 \\ \hline \end{array}$$



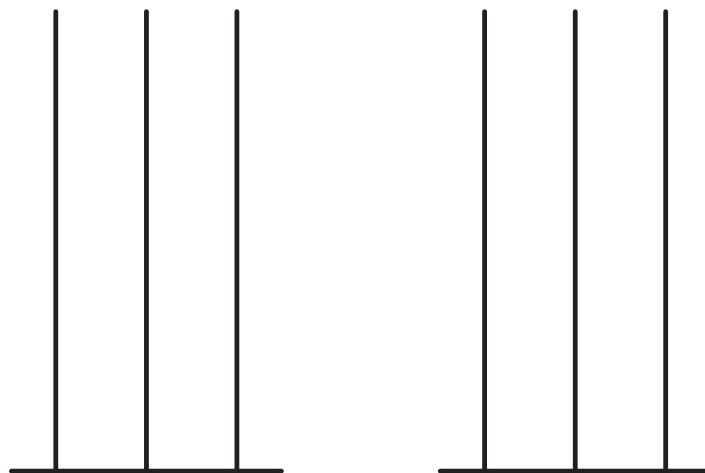
$$71 \times 4 = \underline{\quad \quad \quad}$$

4.
$$\begin{array}{r} 62 \\ \times 3 \\ \hline \end{array}$$



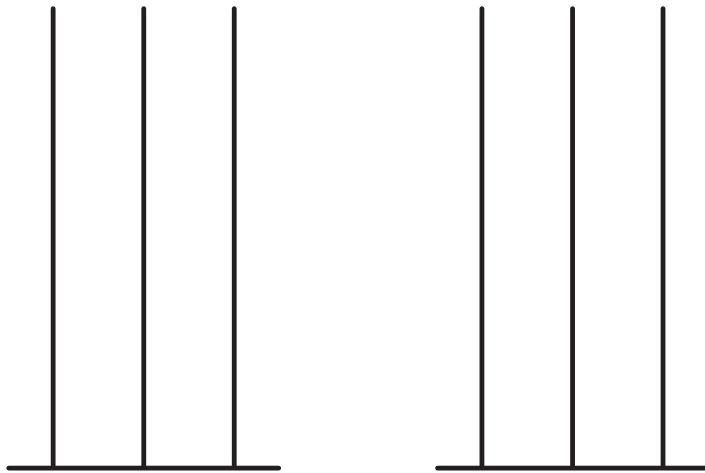
$$62 \times 3 = \underline{\hspace{2cm}}$$

5.
$$\begin{array}{r} 45 \\ \times 6 \\ \hline \end{array}$$



$$45 \times 6 = \underline{\hspace{2cm}}$$

6.
$$\begin{array}{r} 64 \\ \times 6 \\ \hline \end{array}$$



$$64 \times 6 = \underline{\hspace{2cm}}$$

Lesson 12

Multiplying a 3-Digit Number by a 1-Digit Number



Warm-Up

Multiply, then add.

Example: $4 \times 7 + 6 = 34$

First multiply: $4 \times 7 = 28$

Then add: $28 + 6 = 34$

1. $8 \times 4 + 3 =$ _____
2. $6 \times 5 + 4 =$ _____
3. $9 \times 6 + 2 =$ _____
4. $4 \times 9 + 1 =$ _____
5. $7 \times 7 + 6 =$ _____
6. $5 \times 9 + 7 =$ _____
7. $8 \times 7 + 6 =$ _____
8. $6 \times 7 + 8 =$ _____
9. $8 \times 8 + 9 =$ _____
10. $9 \times 7 + 5 =$ _____

**It's Your Turn**

- A. Find the answers to these questions using the long multiplication method.

$$\begin{array}{r} 1. \quad 146 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 129 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 962 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 464 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 506 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 927 \\ \times 9 \\ \hline \end{array}$$

- B. Find the answers to these questions using the short multiplication method.

$$\begin{array}{r} 1. \quad 216 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 445 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 706 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 179 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 509 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 425 \\ \times 9 \\ \hline \end{array}$$

**Challenge Yourself**

Double **one factor** of a basic times fact and then double the original **answer** to get the new product.

Example:

$$\text{2} \times \text{6} = \text{12}$$

therefore

$$\text{4} \times \text{6} = \text{24}$$

1. $3 \times 7 = 21$ _____ $\times 7 =$ _____
2. $4 \times 5 = 20$ _____ $\times 5 =$ _____
3. $3 \times 8 = 24$ _____ $\times 8 =$ _____
4. $2 \times 7 = 14$ _____ $\times 7 =$ _____
5. $3 \times 8 = 24$ _____ $\times 8 =$ _____
6. $4 \times 4 = 16$ _____ $\times 4 =$ _____
7. $3 \times 4 = 12$ _____ $\times 4 =$ _____
8. $3 \times 6 = 18$ _____ $\times 6 =$ _____
9. $2 \times 9 = 18$ _____ $\times 9 =$ _____
10. $4 \times 8 = 32$ _____ $\times 8 =$ _____

Lesson 13

Some Multiplication Rules



Warm-Up

A. Complete these questions. Use the short form of multiplication.

$$\begin{array}{r} 1. \quad 38 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 63 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 192 \\ \times 20 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 306 \\ \times 29 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 425 \\ \times 90 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 37 \\ \times 95 \\ \hline \end{array}$$

2. Write the answers to these number facts as quickly as you can.

$$1. \quad 3 \times 7 = \underline{\hspace{2cm}}$$

$$8. \quad 7 \times 0 = \underline{\hspace{2cm}}$$

$$2. \quad 8 \times 6 = \underline{\hspace{2cm}}$$

$$9. \quad 5 \times 5 = \underline{\hspace{2cm}}$$

$$3. \quad 4 \times 4 = \underline{\hspace{2cm}}$$

$$10. \quad 6 \times 4 = \underline{\hspace{2cm}}$$

$$4. \quad 6 \times 3 = \underline{\hspace{2cm}}$$

$$11. \quad 9 \times 3 = \underline{\hspace{2cm}}$$

$$5. \quad 9 \times 2 = \underline{\hspace{2cm}}$$

$$12. \quad 4 \times 5 = \underline{\hspace{2cm}}$$

$$6. \quad 7 \times 3 = \underline{\hspace{2cm}}$$

$$13. \quad 6 \times 10 = \underline{\hspace{2cm}}$$

$$7. \quad 9 \times 8 = \underline{\hspace{2cm}}$$

$$14. \quad 4 \times 8 = \underline{\hspace{2cm}}$$

**It's Your Turn**

A. Use the rules you read to complete the following questions.

1. $80 \times 0 =$ _____ 6. $0 \times 6 \times 7 =$ _____

2. $71 \times 1 =$ _____ 7. $67 \times 0 =$ _____

3. $4 \times 8 \times 1 =$ _____ 8. $0 \times 1 \times 8 =$ _____

4. $1 \times 621 =$ _____ 9. $1 \times 1 \times 1 =$ _____

5. $3760 \times 1 =$ _____ 10. $0 \times 41 =$ _____

B. Find the missing factor or product.

1. $\boxed{\quad} \times 8 = 8$

2. $7 \times \boxed{\quad} = 7$

3. $4 \times 5 = \boxed{\quad} \times 4$

4. $7 \times \boxed{\quad} \times \boxed{\quad} = 7$

5. $\boxed{\quad} \times 8 = 0$

6. $7 \times \boxed{\quad} = 0$

7. $6 \times 7 \times 5 = 7 \times 5 \times \boxed{}$

8. $660 \times 2 \times \boxed{} = 1320$

9. $652 \times \boxed{} \times 456 = 0$

10. $7 \times 4 \times 5 \times 6 = 4 \times \boxed{} \times 5 \times 6$

C. Continue each pattern. Use your calculator to check your answers. Be careful, these are tricky!

1. $1 \times 1 = 1$

$11 \times 11 = 121$

$111 \times 111 = 12\,321$

_____ \times _____ = _____

_____ \times _____ = _____

_____ \times _____ = _____

2. $37 \times 3 = 111$

$37 \times 6 = 222$

$37 \times 9 = 333$

_____ \times _____ = _____

_____ \times _____ = _____

_____ \times _____ = _____

3. $1 \times 9 + 2 = 11$

$$12 \times 9 + 3 = 111$$

$$123 \times 9 + 4 = 1111$$

$$\underline{\hspace{1cm} \times \hspace{1cm} + \hspace{1cm} =}$$

$$\underline{\hspace{1cm} \times \hspace{1cm} + \hspace{1cm} =}$$

D. (1) Magic Squares This is a Brain Teaser!

2	7	6
9	5	1
4	3	8

1. What is the sum of each of the rows? _____
2. What is the sum of each of the columns? _____
3. What is the sum of each of the diagonals? _____

D. (2) Here comes the real challenge!

Multiply each number in the previous magic square by 27. Use your calculator to find the answers.

Example: Multiply the first square by 27. The answer is 54.

54		

1. What is the sum of all the rows? _____
2. What is the sum of all the columns? _____
3. What is the sum of all of the diagonals? _____

Lesson 14

Product of Three Factors



Warm-Up

Complete these questions as quickly as you can.

1. $6 \times 2 =$ _____

16. $4 \times 2 =$ _____

2. $9 \times 4 =$ _____

17. $9 \times 9 =$ _____

3. $0 \times 6 =$ _____

18. $3 \times 7 =$ _____

4. $8 \times 7 =$ _____

19. $0 \times 8 =$ _____

5. $5 \times 7 =$ _____

20. $2 \times 9 =$ _____

6. $9 \times 6 =$ _____

21. $4 \times 8 =$ _____

7. $6 \times 3 =$ _____

22. $5 \times 4 =$ _____

8. $7 \times 6 =$ _____

23. $9 \times 9 =$ _____

9. $9 \times 7 =$ _____

24. $4 \times 7 =$ _____

10. $2 \times 2 =$ _____

25. $8 \times 8 =$ _____

11. $3 \times 5 =$ _____

26. $6 \times 5 =$ _____

12. $5 \times 8 =$ _____

27. $9 \times 3 =$ _____

13. $9 \times 5 =$ _____

28. $2 \times 5 =$ _____

14. $6 \times 4 =$ _____

29. $7 \times 7 =$ _____

15. $8 \times 6 =$ _____

30. $4 \times 3 =$ _____

**It's Your Turn**

- A. Rewrite the order of the numbers so that each question can be done in your head. Then complete each question.

Examples: $9 \times 8 \times 5$

Change order to: $8 \times 5 \times 9$
= 40×9
= 360

$50 \times 14 \times 2$

Change order to: $50 \times 2 \times 14$
= 100×14
= 1400

1. $5 \times 7 \times 2$

Change order to:

= _____

= _____

2. $5 \times 9 \times 6$

Change order to:

= _____

= _____

3. $5 \times 7 \times 8$

Change order to:

= _____

= _____

4. $5 \times 7 \times 20$

Change order to:

= _____

= _____

B. Multiply to find the answers to these questions. Show all the steps.

Example: $9 \times 7 \times 7 = 63 \times 7$ $\begin{array}{r} 2 \\ 63 \\ \times 7 \\ \hline 441 \end{array}$
 $= 441$

1. $8 \times 4 \times 8$

2. $9 \times 3 \times 6$

3. $7 \times 5 \times 3$



Challenge Yourself

Complete the first step of these questions in your mind. Complete the second step on the paper.

Example: $4 \times 20 \times 29 = 80 \times 29$ 80

$$\begin{array}{r}
 \times 29 \\
 \hline
 720 \\
 \hline
 1600 \\
 \hline
 2320
 \end{array}$$

$$1. \quad 3 \times 90 \times 18 = \underline{\hspace{2cm}}$$

2. $2 \times 78 \times 7 =$ _____

3. $48 \times 3 \times 8 =$ _____

4. $10 \times 18 \times 22 =$ _____

5. $20 \times 4 \times 32 =$ _____

6. $60 \times 72 \times 6 =$ _____

7. $17 \times 9 \times 70 =$ _____

8. $45 \times 19 \times 10 =$ _____

Lesson 15

Multiply With Money



Warm-Up

Round each dollar amount to the nearest dollar.

Example: \$5.49 → \$5.00 or \$5.

1. \$6.70 _____ 6. \$49.60 _____

2. \$2.15 _____ 7. \$18.85 _____

3. \$0.79 _____ 8. \$69.60 _____

4. \$10.45 _____ 9. \$22.15 _____

5. \$14.90 _____ 10. \$42.75 _____



It's Your Turn

Part A:

- A. Estimate the products by rounding off to the nearest dollar and then multiply.

1. \$1.16

x5

2. \$8.60

x8

3. \$15.70

x4

4. \$22.40

x7

- B. Geoff wanted to buy models of old and new planes. Each model cost \$9.95. He estimated the cost for different numbers of models on a chart. Complete the chart for Geoff.

Number of Planes	Cost
1	
2 (10×2)	\$20
3	
4	
5	
6	
7 (10×7)	\$70
8	
9	
10	
20	
30	

Part B:

- A. Multiply to find the answers to these questions. Don't forget the decimal point or the dollar sign.

$$\begin{array}{r} 1. \quad \$7.65 \\ \hline \times 5 \end{array}$$

$$\begin{array}{r} 2. \quad \$12.50 \\ \hline \times 8 \end{array}$$

$$3. \quad \$10.99$$
$$\underline{\times 5}$$

$$4. \quad \$22.25$$
$$\underline{\times 6}$$

$$5. \quad \$14.75$$
$$\underline{\times 9}$$

2. Solve the following problem. Remember to show all your work in the box and to write the answer statement.

Apples cost \$ 1.77 per kilogram. Granny Brown bought 5 kilograms. How much did Granny Brown spend on apples?

Statement: _____

Lesson 16

Multiplying Numbers by 2 Digits



Warm-Up

Calculate the answers to these questions in your mind. The first question is done for you.

1. $13 \times 20 = (10 + 3) \times 20$

$$= (10 \times 20) + (3 \times 20) = 200 + 60 = 260$$

2. $17 \times 30 =$ _____

3. $60 \times 25 =$ _____

4. $72 \times 200 =$ _____

5. $66 \times 300 =$ _____

6. $400 \times 42 =$ _____

**It's Your Turn**

- A. Find the answers to these two questions using the long form.
Check your answers with a calculator.

Example: 34

$$\times \underline{38}$$

$$\quad\quad\quad 32$$

$$\quad\quad\quad 240$$

$$\quad\quad\quad 160$$

$$\quad\quad\quad \underline{1200}$$

$$\quad\quad\quad 1632$$

1. 56

$$\times \underline{92}$$

2. 83

$$\times \underline{71}$$

B. Complete these questions using the short form.

Example:

$$\begin{array}{r} 1 \\ \times 45 \\ \hline 215 \\ 1720 \\ \hline 1935 \end{array}$$

1. 68
x52

2. 47
x35

3. 84
x19

4. 68
x24

5. 492
x83

6. 742
x63

7. 591
x22

8. 376
x53

**Challenge Yourself**

Complete the following questions. Show your work and write a sentence statement.

1. How many hours are there in 56 days?

Statement: _____

2. A high school bought 126 basketballs at a cost of \$35 each. How many dollars did the school spend?

Statement: _____

Lesson 17
Review

A. Multiply to find the answers to the following questions.

1. $3 \times 3 =$ _____ 2. $4 \times 2 =$ _____ 3. $2 \times 7 =$ _____

4. $3 \times 9 =$ _____ 5. $9 \times 6 =$ _____ 6. $7 \times 5 =$ _____

7. $2 \times 8 =$ _____ 8. $6 \times 2 =$ _____ 9. $8 \times 7 =$ _____

10. $8 \times 8 =$ _____ 11. $6 \times 5 =$ _____ 12. $4 \times 4 =$ _____

13.
$$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 10 \\ \times 8 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 1 \\ \times 5 \\ \hline \end{array}$$

B. Calculate the answers in your head.

- | | |
|------------------------------|------------------------------|
| 1. $14 \times 10 =$ _____ | 11. $8 \times 100 =$ _____ |
| 2. $9 \times 10 =$ _____ | 12. $12 \times 100 =$ _____ |
| 3. $22 \times 10 =$ _____ | 13. $6 \times 100 =$ _____ |
| 4. $6 \times 10 =$ _____ | 14. $47 \times 100 =$ _____ |
| 5. $18 \times 10 =$ _____ | 15. $62 \times 100 =$ _____ |
| 6. $37 \times 10 =$ _____ | 16. $245 \times 100 =$ _____ |
| 7. $125 \times 10 =$ _____ | 17. $89 \times 100 =$ _____ |
| 8. $276 \times 10 =$ _____ | 18. $94 \times 100 =$ _____ |
| 9. $350 \times 10 =$ _____ | 19. $125 \times 100 =$ _____ |
| 10. $1855 \times 10 =$ _____ | 20. $742 \times 100 =$ _____ |

C. List the *first ten* multiples of each number. Use commas to separate numbers in a series.

- a. 5 _____
- b. 7 _____
- c. 6 _____
- d. 9 _____

D. Write related multiplication sentences for each of the facts below.

a. 54 _____

b. 42 _____

c. 72 _____

d. 48 _____

E. Write the factors of the following numbers.

a. 48 _____

b. 54 _____

c. 30 _____

d. 18 _____

F. Find the partial product, then add them to find the final product. Show all your work.

Example:

$$\begin{array}{r} 62 \\ \times 7 \\ \hline 14 \end{array} \leftarrow \text{partial product}$$
$$\begin{array}{r} 420 \\ \hline 434 \end{array} \leftarrow \text{partial product}$$
$$\begin{array}{r} \\ \hline 434 \end{array} \leftarrow \text{final product}$$

1. $\begin{array}{r} 68 \\ \times 2 \\ \hline \end{array}$

2. $\begin{array}{r} 71 \\ \times 7 \\ \hline \end{array}$

$$\begin{array}{r} 34 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 52 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 83 \\ \times 3 \\ \hline \end{array}$$

- G. Multiply to find the answers to the following questions. Use the short method.

Example:
$$\begin{array}{r} 26 \\ \times 4 \\ \hline 104 \end{array}$$

$$\begin{array}{r} 42 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 22 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 84 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 51 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 23 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 53 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 63 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 64 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 95 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 75 \\ \times 2 \\ \hline \end{array}$$

H. Complete the following questions. Change the order of numbers so you can find a friendly product, and then multiply.

Show all your work.

1. $6 \times 5 \times 5 =$

2. $3 \times 5 \times 5 =$

3. $10 \times 18 \times 10 =$

4. $4 \times 5 \times 9 =$

5. $25 \times 8 \times 4 =$

I. Multiply. Do not forget to put the dollar sign and the decimal point.

1. $\begin{array}{r} \$3.45 \\ \times 5 \\ \hline \end{array}$

2. $\begin{array}{r} \$12.75 \\ \times 7 \\ \hline \end{array}$

3. $\begin{array}{r} \$23.25 \\ \times 9 \\ \hline \end{array}$

J. Use the short method to complete these questions.

1. $\begin{array}{r} 76 \\ \times 19 \\ \hline \end{array}$

2. $\begin{array}{r} 89 \\ \times 23 \\ \hline \end{array}$

3. $\begin{array}{r} 19 \\ \times 38 \\ \hline \end{array}$

4. $\begin{array}{r} 36 \\ \times 36 \\ \hline \end{array}$

K. Solve the following problem. Show all your work and write the statement answer.

The Smith family went on a camping trip. They drove 130km a day and travelled for 14 days. How many kilometers did they travel on their trip?

Statement: _____

Games

Your child may enjoy playing the following commercially produced games.

- Uno
- Yahtzee
- Racko
- Wizard
- Dominoes
- Skip Bo

You can also make up your own games or try the games that follow.

Fat Cat

Number of Players: 3 to 13. Best played by 4.



What You Need:

- a deck of cards

Cards:

Take out sets of four identical cards, with as many sets as there are players. Sets are made of 4 Kings, 4 threes, 4 nines, etc. Three players would use three sets (12 cards).

Deal:

Choose one player to shuffle the cards and deal four cards to each player, one at a time.

How to Play:

1. After a player has looked at his or her cards, she or he places one card face down, in front of the player to his or her left.
2. Each player picks up the card and adds it to her or his hand.
3. Continue to pass cards until one player has four cards of a set.
4. As soon as a player collects a set, he or she stops exchanging and puts one hand on the top of her or his head.
5. Other players are to stop play and also put their hands on their heads.

6. The last player to do this becomes the "Fat Cat", loses the game, and become the next dealer.

Scoring:

The first player to make a set	10 points
Last player "Fat Cat"	0 points
Remaining players	5 points

The first player to reach 50 points is the winner.

Ninety- Nine

Number of players: 3 to 5, but best for 4

Cards:

The cards are ranked from King down to Ace. Face cards count 10 each, ace 1, and other cards their face value.

Game Cards:

The 4, 9, 10 and King of each suit are known as Game Cards and have special jobs.

- A **four** played on any discard pile reverses the flow of play from clockwise to counterclockwise or vice versa, returning the play to the player who last played their card.
- A **nine** played at any time puts the total of the discard piles at 99 or, when played on a pile already totalling 99, maintains the total at 99.
- A **ten** reduces the count of the discard piles by 10.
- The **king** holds the count at ninety-nine and there is no change in the total.

Deal:

Three cards are dealt to each player, one at a time. The rest of the pack is placed face down in the center of the table, forming the stock pile. Each player is also given three chips, or three jelly beans, or three of some other small item.

How to Play:

1. The player to the right of the dealer starts by placing one of his or her three cards face up in front of him or herself, calling out the face value of that card. This is the starter card.
2. The player then draws a card from the stock to replace the card played. If the card is not picked up immediately, the player then only has two cards to play with.
3. The next player plays a card in front of him or herself, calling out the total face value of the two cards and then draws a card from the stock.
4. Each player in turn repeats this procedure, adding the value of his or her card to the cumulative total of the discard piles.
5. Game cards can be used at any time once play has started. Use the rules above to determine what those cards do.
6. The total of the cards in the individual discard piles cannot be increased beyond 99. A player who has no card or Game Card that can be played to reduce or maintain the total of 99 is forced to pass. He or she places a chip (or other item) in the kitty as a penalty.
7. To start the next hand the cards are gathered up, shuffled, and dealt by the person sitting to the right of the last dealer.
8. After three passes, a player may remain in the game and play “on honours” until forced to pass one last time. At this time the player is out of the game and forfeits all the items he or she has deposited in the kitty.
9. Play continues until only one player remains in the game. This player is the winner and collects the kitty.

Spades

This game has relatively easy bidding, play, and scoring.

Number of players: Four in two partnerships.

Cards:

A pack of 52 cards. They rank A (high), K, Q, J, 10, down to 2. Spades are trumps.

Deal:

Thirteen cards are dealt to each player, one at a time.

Bidding:

The game consists of thirteen tricks. Starting with the dealer, and moving to the left, each player in turn bids the number of tricks he or she expects to win. His or her bid is added to that of his or her partner to form the contract bid by that partnership.

It is not necessary for the total of the contracts bid by the two sides to equal 13 tricks. The total can be more or less.

A player who does not expect to win any tricks may bid "nil" and discard three cards from his hand, face down, in the center of the table. If his partner has already bid, the partner gives him three cards from his hand and picks up the three discards. If partner has not yet bid, he must wait until after he has bid to make the exchange.

Before looking at his hand a player may bid "double nil" and bonuses or penalties are doubled (explained below). As in bidding "nil", he discards three cards for his partner and receives three in return.

If both partners bid "nil" or "double nil" there is no exchange.

How to Play:

1. The player at the left of the dealer leads first and may play any suit **except** Spades, which may not be led until the suit is “broken” by a spade being discarded on a trick. A player must follow suit if he or she is able. If a player has no cards in the suit led he or she can play a spade or trump card.
2. A trick is won by the highest card of the suit led or by the highest trump played.

Scoring:

The object of the game is to take at least as many tricks as bid by the side (partnership). If one partner has bid “nil”, his contract and his partner’s are scored separately and then the scores are combined.

Each trick bid counts 10 points for a side if the contract is made, against a side if the contract is set (not met). A side may have a minus score.

Overtricks (more tricks than bid) count 1 each.

A bid of “nil” receives a bonus of 100 points if made (no tricks are taken) or a penalty of 100 points if set (player is forced to take a trick or tricks).

The bonus or penalty for “double nil” is 200 points.

If both partners bid “nil” or “double nil” the side receives 200 points if both make their contract, but there is no score if either or both are set.

Game consists of 500 points. If the two sides both go over 500 points in the same hand, the one with the larger score is the winner.

Two-Hand Spades

Number of Players: Two

Cards:

A pack of 52 cards. They rank A (high), K, Q, J, 10, down to 2. Spades are trumps.

Deal:

1. The deal alternates between the two players. The cards are shuffled by the dealer and the deck is placed face down in the center of the table to form the stock.
2. The non-dealer starts by taking the top card from the stock. If he wants to keep it in his hand he looks at the second card from the stock and discards it face down beside the stock to begin the discard pile. He may discard the first card and keep the second card drawn.
3. Both players in turn discard one card and keep one card until the entire stock has been drawn. Each player will then have a hand of 13 cards and bidding and play proceed as in Spades. The discard pile is not used in the play.

Multiplication Games

Multiplication Flip It!

Number of Players: Two

Cards:

A deck of cards with the face cards and jokers removed.

How to Play:

1. Shuffle the deck of cards and deal them all out, face down, between both players.
2. Each player flips over a card from her or his pile.

3. The person to multiply the two cards first and calls out the answer gets the card. If the answer is incorrect, the other player gets the card.
4. Continue playing until all the cards have been flipped.

The winner is the player with the most cards at the end of the game.

Multiplication Dots

Number of Players: Two



What You Need:

- A sheet of paper or a chalkboard
- A die

How to Play:

1. Draw four large circles on the chalkboard or on a sheet of paper.
2. Roll the die and tell the other player the number you rolled. If you rolled a 4, draw crosses in each circle.
3. Roll the die again and tell that number to the other player.
4. Draw that number of crosses in each of your circles. If you rolled a 5, you would draw five crosses in each circle.
5. Write a multiplication equation to match your drawing. You would write $4 \times 5 = 20$.
6. Record the total number of crosses in your circles. 20 is your score for this round.
7. Play four more rounds.
8. After the fifth round, total up all your crosses.

The player with the most crosses wins.

Multiplication Concentration



What You Need:

You can make a concentration game by printing multiplication equations on one set of flashcards and the answers on another set of flashcards. Just make sure there are not two equations with the same answer.

How to Play:

1. Mix the cards and lay them face down.
2. Take turns trying to match equations with their answers.

You could also make concentration cards with multiplication equations on one set of flashcards and the multiplication equation plus the answers on another set of cards.

Multiplication Card War

Number of Players: Two

Cards:

A deck of cards. Remove the face cards.

Deal:

Deal out the cards to each player.

How to Play:

1. Each player turns over one card at the same time.
2. When two cards are down see who can multiply the two cards the faster.
3. Whoever says the correct answer first wins the cards.

Scoring:

At the end of the game the players count their cards and whoever has the most cards wins.

Ladder Game

Your child can either write the answers as she or he goes up the ladder or give you the answers orally.



What You Need:

- a sheet of paper or a chalkboard

How to Play:

1. Draw a series of ladders on the chalkboard. See example below. A minimum of five ladders is suggested but the number and the length of each ladder is your choice.

6
7
3
8
5
0
4
9
x 6

2. Write a numeral on each space.
3. Write the operation on the bottom space.

For example: $\times 6$

4. Ask your child to get to the top of the ladder as fast as she or he can without making any mistakes.

Survive Math 5

Part 1

Multiplication

Answer Key

Pre-Test—Answer Key

Part A—Multiplication Number Facts to 90

These skills are covered in Lessons 1 through 7.

A. Answer the following questions as quickly as possible. This is not a timed test.

- | | | | |
|-----------------------|------------------------|------------------------|-----------------------|
| 1. $2 \times 3 = 6$ | 2. $2 \times 7 = 14$ | 3. $3 \times 0 = 0$ | 4. $2 \times 6 = 12$ |
| 5. $6 \times 6 = 36$ | 6. $7 \times 7 = 49$ | 7. $9 \times 1 = 9$ | 8. $6 \times 3 = 18$ |
| 9. $5 \times 7 = 35$ | 10. $8 \times 8 = 64$ | 11. $0 \times 9 = 0$ | 12. $5 \times 4 = 20$ |
| 13. $6 \times 8 = 48$ | 14. $9 \times 2 = 18$ | 15. $3 \times 9 = 27$ | 16. $2 \times 8 = 16$ |
| 17. $7 \times 8 = 56$ | 18. $4 \times 9 = 36$ | 19. $1 \times 8 = 8$ | 20. $0 \times 8 = 0$ |
| 21. $5 \times 8 = 40$ | 22. $7 \times 5 = 35$ | 23. $3 \times 3 = 9$ | 24. $2 \times 6 = 2$ |
| 25. $9 \times 7 = 63$ | 26. $9 \times 6 = 54$ | 27. $4 \times 8 = 32$ | 28. $5 \times 1 = 5$ |
| 29. $7 \times 4 = 28$ | 30. $9 \times 9 = 81$ | 31. $8 \times 10 = 80$ | 32. $9 \times 8 = 72$ |
| 33. $6 \times 7 = 42$ | 34. $5 \times 9 = 45$ | 35. $3 \times 8 = 24$ | 36. $6 \times 5 = 30$ |
| 37. $6 \times 9 = 54$ | 38. $10 \times 5 = 50$ | 39. $5 \times 5 = 25$ | 40. $8 \times 4 = 32$ |

Repeated Addition

B. Write the multiplication fact for the following repeated-addition questions.

Example: $5 + 5 + 5 + 5 = 20$

$$4 \times 5 = 20$$

$$7 + 7 + 7 + 7 + 7 = 35$$

$$5 \times 7 = 35$$

1. 12
 $2 \times 6 = 12$

2. 28
 $4 \times 7 = 28$

3. 49
 $7 \times 7 = 49$

4. 42
 $7 \times 6 = 42$

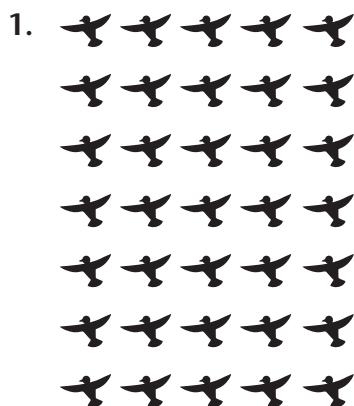
5. 54
 $9 \times 6 = 54$

6. 56
 $8 \times 7 = 56$

Writing Multiplication Sentences

Example: $5 \times 2 = 10$
 $2 \times 5 = 10$

C. Write two multiplication sentences for each diagram.



1. $5 \times 7 = 35$
 $7 \times 5 = 35$



2. $4 \times 8 = 32$
 $8 \times 4 = 32$

Multiples

Example: $2 = 2, 4, 6, 8, 10, 12, 14, 16, 18, 20$

D. List the first 10 multiples for each of the following numbers.

1. 3 6, 9, 12, 15, 18, 21, 24, 27, 30
2. 6 12, 18, 24, 36, 42, 48, 54, 60
3. 8 16, 24, 32, 40, 48, 56, 64, 72, 80
4. 9 18, 27, 36, 45, 54, 63, 72, 81, 90

Related Sentences

Example: $32 \quad 4 \times 8 = 32 \quad 8 \times 4 = 32$

E. Write the related multiplication sentences for each number.

1. 35 $7 \times 5 = 35 \quad 5 \times 7 = 35$
2. 72 $8 \times 9 = 72 \quad 9 \times 8 = 72 \quad \text{or} \quad 6 \times 12 = 72 \quad 12 \times 6 = 72$
3. 63 $7 \times 9 = 63 \quad 9 \times 7 = 63$
4. 24 $3 \times 8 = 24 \quad 8 \times 3 = 24 \quad \text{or} \quad 4 \times 6 = 24 \quad 6 \times 4 = 24$
 $2 \times 12 = 24 \quad 12 \times 2 = 24$
5. 54 $9 \times 6 = 54 \quad 6 \times 9 = 54$

Factors

Example: The factors of 20 are 5 and 4, 2 and 10

F. Write all of the factors for the following numbers.

1. 45 5 and 9, 1 and 45, 3 and 15,
2. 72 9 and 8, 2 and 36, 3 and 24, 4 and 18, 6 and 12,
3. 27 3 and 9
4. 30 6 and 5, 3 and 10, 2 and 15
5. 64 8 and 8, 2 and 32, 4 and 16,

Part B—Multiplying by 10's and 100's

These skills are covered in Lessons 8 through 15.

A. Multiply

- | | | |
|---------|---------|---------|
| 1. 360 | 2. 280 | 3. 240 |
| 4. 100 | 5. 4200 | 6. 6400 |
| 7. 1200 | 8. 4500 | |

Estimating Products

B. Estimate these products. Show your estimation and all your work.

$$\begin{array}{r} 1. \ 64 \\ \times 7 \\ \hline 428 \end{array}$$

$$\begin{array}{r} 2. \ 91 \\ \times 6 \\ \hline 546 \end{array}$$

$$\begin{array}{r} 3. \ 35 \\ \times 8 \\ \hline 280 \end{array}$$

$$\begin{array}{r} 4. \ 79 \\ \times 7 \\ \hline 553 \end{array}$$

$$\begin{array}{r} 5. \ 52 \\ \times 5 \\ \hline 260 \end{array}$$

$$\begin{array}{r} 6. \ 38 \\ \times 9 \\ \hline 342 \end{array}$$

$$\begin{array}{r} 7. \ 107 \\ \times 8 \\ \hline 856 \end{array}$$

$$\begin{array}{r} 8. \ 376 \\ \times 6 \\ \hline 2256 \end{array}$$

$$\begin{array}{r} 9. \ 197 \\ \times 8 \\ \hline 1576 \end{array}$$

$$\begin{array}{r} 10. \ 337 \\ \times 3 \\ \hline 1011 \end{array}$$

$$\begin{array}{r} 11. \ 167 \\ \times 9 \\ \hline 1503 \end{array}$$

Multiplying a 2-Digit Number by a 1-Digit Number

Example:

Long Method

$$\begin{array}{r} 62 \\ \times 7 \\ \hline 14 \text{ partial product} \\ 420 \text{ partial product} \\ 434 \text{ final product} \end{array}$$

Short Method

$$\begin{array}{r} 1 \\ 62 \\ \times 7 \\ \hline 434 \end{array}$$

- C. Print the missing numbers. Multiply using the long method. Accept the correct answer.

Example:

$ \begin{array}{r} 47 \\ \times 4 \\ \hline 160 \end{array} $	$ \begin{array}{r} 62 \\ \times 6 \\ \hline 360 \end{array} $
<i>or</i>	
$ \begin{array}{r} 47 \\ \times 4 \\ \hline 160 \end{array} $	$ \begin{array}{r} 62 \\ \times 6 \\ \hline 360 \end{array} $
$160 \leftarrow 40 \times 4 = 160$	
$180 \quad \quad \quad 372$	

$\leftarrow 6 \times 2 = 12$

1.

$$\begin{array}{r}
 37 \\
 \times 5 \\
 \hline
 185
 \end{array}$$

$35 \leftarrow 7 \times 5 = 35$

2.

$$\begin{array}{r}
 26 \\
 \times 9 \\
 \hline
 234
 \end{array}$$

$180 \leftarrow 20 \times 9 = 180$

3.

$$\begin{array}{r}
 43 \\
 \times 8 \\
 \hline
 320
 \end{array}$$

$344 \leftarrow 24 + 320 = 344$

4.

$$\begin{array}{r}
 61 \\
 \times 4 \\
 \hline
 244
 \end{array}$$

$240 \leftarrow 60 \times 4 = 240$

- D. Multiply using the short method.

Example:

$$\begin{array}{r}
 1 \\
 16 \\
 \times 9 \\
 \hline
 144
 \end{array}$$

1. 154

2. 147

3. 456

4. 576

E. Calculate the two partial products, and then add to find the final product.

Example:

$$\begin{array}{r} 74 \\ \times 6 \\ \hline 24 \end{array}$$

24 ← partial product

$$\begin{array}{r} 420 \\ \times 6 \\ \hline 420 \end{array}$$

420 ← partial product
444 ← Add partial products to find the final product.

$$\begin{array}{r} 49 \\ \times 4 \\ \hline 36 \\ 160 \\ \hline 196 \end{array}$$

$$\begin{array}{r} 57 \\ \times 8 \\ \hline 56 \\ 400 \\ \hline 456 \end{array}$$

$$\begin{array}{r} 31 \\ \times 4 \\ \hline 4 \\ 120 \\ \hline 124 \end{array}$$

$$\begin{array}{r} 93 \\ \times 5 \\ \hline 15 \\ 450 \\ \hline 465 \end{array}$$

$$\begin{array}{r} 80 \\ \times 6 \\ \hline 0 \\ 480 \\ \hline 480 \end{array}$$

$$\begin{array}{r} 92 \\ \times 3 \\ \hline 6 \\ 270 \\ \hline 276 \end{array}$$

$$\begin{array}{r} 51 \\ \times 6 \\ \hline 6 \\ 300 \\ \hline 306 \end{array}$$

$$\begin{array}{r} 40 \\ \times 9 \\ \hline 0 \\ 360 \\ \hline 360 \end{array}$$

Multiplying a 3-Digit Number by a 1-Digit Number

Example:

Long Method

$$\begin{array}{r} 247 \\ \times 6 \\ \hline 42 \text{ partial product} \\ 240 \text{ partial product} \\ \underline{1200} \text{ partial product} \\ 1482 \text{ final product} \end{array}$$

Short Method

$$\begin{array}{r} 24 \\ 247 \\ \times 7 \\ \hline 1482 \end{array}$$

F. Use the long method of multiplication to find the answers to these questions.

1. 205

$\times 6$

1230

2. 458

$\times 6$

2748

3. 942

$\times 3$

2772

G. Multiply using the short method.

1. 706

$\times 7$

4942

2. 524

$\times 6$

3144

3. 353

$\times 9$

3177

Product of Three Factors

Example:

$$\begin{array}{r} 9 \times 7 \times 7 = 63 \times 7 \\ \quad \quad \quad = 441 \\ & \begin{array}{r} 2 \\ 63 \\ \times 7 \\ \hline 441 \end{array} \end{array}$$

H. Multiply these 3 factors. Show all the steps.

1. $8 \times 4 \times 8 =$

$$\begin{array}{r} 8 \times 4 \times 8 = 32 \times 8 \\ \quad \quad \quad = 256 \\ & \begin{array}{r} 1 \\ 32 \\ \times 8 \\ \hline 256 \end{array} \end{array}$$

2. $9 \times 3 \times 6 =$

$$\begin{array}{r} 9 \times 3 \times 6 = 27 \times 6 \\ \quad \quad \quad = 162 \\ & \begin{array}{r} 4 \\ 27 \\ \times 6 \\ \hline 162 \end{array} \end{array}$$

3. $7 \times 5 \times 3 =$

$$\begin{array}{r} 7 \times 5 \times 3 = 35 \times 3 \\ \quad \quad \quad = 105 \\ & \begin{array}{r} 1 \\ 35 \\ \times 3 \\ \hline 105 \end{array} \end{array}$$

Multiply With Money

- I. Estimate the products by rounding off to the nearest dollar, and then multiply.

Example: \$16.25 → \$16

$$\begin{array}{r} \times 6 \\ \hline \end{array} \qquad \qquad \begin{array}{r} \times 6 \\ \hline \$96 \end{array}$$

1. \$10.75
x9

2. \$32.50
x4

1. \$11
x9
\$99

2. \$33
x4
\$132

3. \$74.95
x6

4. \$21.57
x5

3. \$75
x6
\$450

4. \$22
x5
\$110

- J. Multiply using the short method. Don't forget the decimal point.

1. \$7.95
x5

2. \$9.25
x6

1. \$7.95
x5
\$39.75

2. \$9.25
x6
\$55.50

3. \$20.16
x7

4. \$55.30
x8

3. \$20.16
x7
\$141.12

4. \$55.30
x8
\$442.40

Answer Key—Part 1



Lesson 2

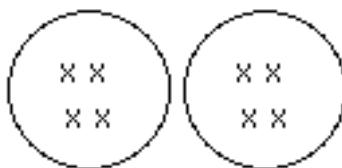
Multiplication: Groups of 0, 1, 2, 3, 4, and 5

Warm-Up

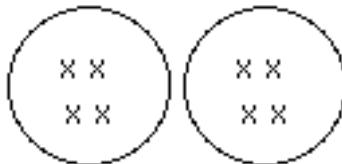
1. a. 4 rows
b. 12
2. a. 4 groups of 4 is 16
b. 3 groups of 6 is 18
c. 5 groups of 5 is 25
d. 2 groups of 7 is 14
e. 7 groups of 3 is 21
f. 2 groups of 9 is 18

It's Your Turn

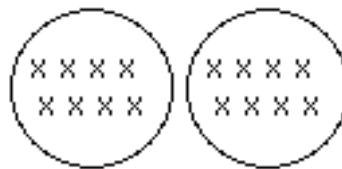
- A. 1. $3 \times 2 = 6$
2. $4 \times 1 = 4$
3. $2 \times 5 = 10$
4. $3 \times 3 = 9$
- B. 1. $3 \times 4 = 12$
2. $2 \times 5 = 10$
3. $4 \times 1 = 4$
- C. 1. $2 \times 4 = 8$



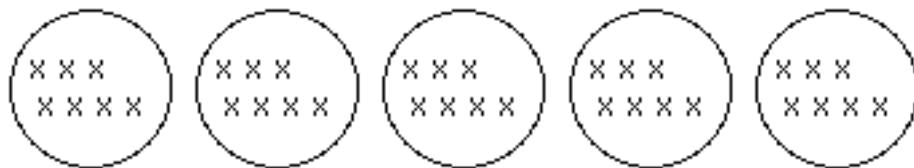
C. 1. $2 \times 4 = 8$



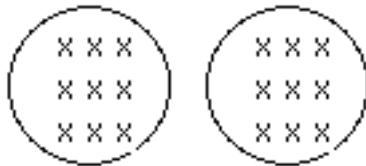
2. $2 \times 8 = 16$



3. $5 \times 7 = 35$



4. $2 \times 9 = 18$



D. 1. $7 + 7 + 7 = 21$
 $3 \times 7 = 21$

2. $9 + 9 + 9 + 9 = 36$
 $4 \times 9 = 36$

3. $5 + 5 + 5 + 5 = 20$
 $4 \times 5 = 20$

Challenge Yourself

- | | | | |
|----|--------|--------|--------|
| A. | 1. 15 | 2. 9 | 3. 6 |
| | 4. 10 | 5. 20 | 6. 25 |
| | 7. 32 | 8. 4 | 9. 30 |
| | 10. 18 | 11. 6 | 12. 7 |
| | 13. 20 | 14. 6 | 15. 45 |
| | 16. 35 | 17. 16 | 18. 24 |
| | 19. 32 | | |

B.

x	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25
6	6	12	18	24	30
7	7	14	21	28	35
8	8	16	24	32	40
9	9	18	27	36	45
10	10	20	30	40	50



Lesson 3

Multiplication Strategies

Warm-Up

1. $3 \times 5 = 5 + 5 + 5 = 15$
2. $2 \times 8 = 8 + 8 = 16$
3. $4 \times 6 = 6 + 6 + 6 + 6 = 24$
4. $5 \times 4 = 4 + 4 + 4 + 4 + 4 = 20$
5. $5 \times 1 = 1 + 1 + 1 + 1 + 1 = 5$
6. $4 \times 0 = 0 + 0 + 0 + 0 = 0$
7. $3 \times 7 = 7 + 7 + 7 = 21$
8. $5 \times 5 = 5 + 5 + 5 + 5 + 5 = 25$

It's Your Turn

1. 20 25 30 35 40 45
2. 16 20 24 28 32 36 40 44
3. 9, 12, 15, 18, 21, 24, 27
4. 52, 54, 56, 58, 60, 62, 64, 66, 68, 70
5. a. 3
b. 4
c. 5

Challenge Yourself

1. The factors are 5 and 5, 1 and 25
2. The factors are 4 and 4, 2 and 8, 1 and 16
3. The factors are 5 and 4, 2 and 10, 1 and 20
4. The factors are 3 and 5, 1 and 15
5. The factors are 3 and 3, 1 and 9
6. The factors are 2 and 6, 3 and 4, 1 and 12
7. The factors are 5 and 6, 3 and 10, 2 and 15
8. The factors are 2 and 4, 1 and 8



Lesson 4

Multiplication: Groups of 6 and 7

Warm-Up

- | | |
|--------|--------|
| 1. 24 | 11. 21 |
| 2. 12 | 12. 15 |
| 3. 45 | 13. 16 |
| 4. 28 | 14. 30 |
| 5. 15 | 15. 40 |
| 6. 20 | 16. 9 |
| 7. 24 | 17. 36 |
| 8. 18 | 18. 12 |
| 9. 25 | 19. 18 |
| 10. 32 | 20. 35 |

It's Your Turn

- | | | |
|----------|--------|--------|
| A. 1. 24 | 2. 7 | 3. 30 |
| 4. 35 | 5. 14 | 6. 42 |
| 7. 48 | 8. 36 | 9. 49 |
| 10. 54 | 11. 56 | 12. 28 |
| 13. 60 | 14. 42 | 15. 21 |
| 16. 24 | 17. 63 | |

B. 1. $6 \times 8 =$ or
$$\begin{array}{r} 8 \\ \times 6 \\ \hline 48 \end{array}$$

John has 48 stickers in his book.

2. $5 \times 5 =$ or
$$\begin{array}{r} 5 \\ \times 5 \\ \hline 25 \end{array}$$

The team members run 25 km in 5 days.

Challenge Yourself

- | | |
|-------|-------|
| 1. 7 | 6. 9 |
| 2. 7 | 7. 5 |
| 3. 6 | 8. 4 |
| 4. 56 | 9. 24 |
| 5. 2 | 10. 5 |

Lesson 5

Multiplication: Groups of 7 and 8

Warm-Up

- | | |
|--------|--------|
| 1. 6 | 16. 36 |
| 2. 18 | 17. 30 |
| 3. 14 | 18. 40 |
| 4. 27 | 19. 42 |
| 5. 48 | 20. 45 |
| 6. 21 | 21. 49 |
| 7. 32 | 22. 25 |
| 8. 4 | 23. 56 |
| 9. 54 | 24. 30 |
| 10. 12 | 25. 24 |
| 11. 7 | 26. 35 |
| 12. 25 | 27. 20 |
| 13. 36 | 28. 16 |
| 14. 63 | 29. 28 |
| 15. 20 | 30. 42 |

It's Your Turn

A.

X	8
1	8
2	16
3	24
4	32
5	40
6	48
7	56
8	64
9	72
10	80

B.

1. 40

$5 \times 8 = 40$

2. 24

$3 \times 8 = 24$

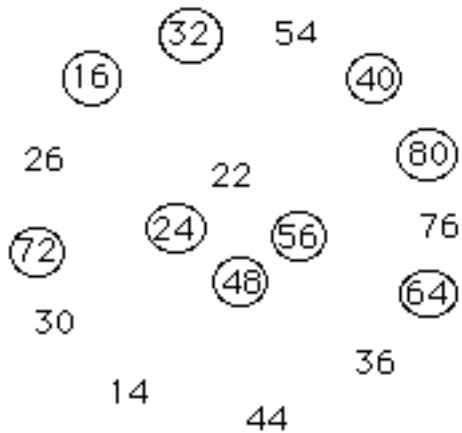
3. 56

$7 \times 8 = 56$

4. 48

$6 \times 8 = 48$

C.



Challenge Yourself

- A.
1. 14
 2. 48, 56
 3. 16, 24
 4. 56, 63

- B.
1. 6, 32, 60 are not multiples of 7
 2. 15, 34, 54 are not multiples of 6
 3. 18, 37, 78 are not multiples of 8



Lesson 6

Multiplication: Groups of 9

Warm-Up

X	1	2	3	4	5	6	7	8
1	1	2	3	4	5	6	7	8
2	2	4	6	8	10	12	14	16
3	3	6	9	12	15	18	21	24
4	4	8	12	16	20	24	28	32
5	5	10	15	20	25	30	35	40
6	6	12	18	24	30	36	42	48
7	7	14	21	28	35	42	49	56
8	8	16	24	32	40	48	56	64
9	9	18	27	36	45	54	63	72
10	10	20	30	40	50	60	70	80

It's Your Turn

- | | | |
|----|--------|--------|
| A. | 1. 54 | 2. 0 |
| | 4. 0 | 5. 36 |
| | 7. 0 | 8. 9 |
| | 10. 90 | 11. 54 |
| | 13. 0 | 14. 63 |
| | 16. 72 | 17. 18 |
| | 19. 0 | 20. 72 |
| | | 3. 18 |
| | | 6. 27 |
| | | 9. 45 |
| | | 12. 45 |
| | | 15. 81 |
| | | 18. 54 |

B.

X	9
1	9
2	18
3	27
4	36
5	45
6	54
7	63
8	72
9	81
10	90

1. The ones decrease by 1 as you move down the table.
2. The tens increase by 1 as you move down the table.

Challenge Yourself

- | | |
|--------|--------|
| 1. 42 | 21. 56 |
| 2. 40 | 22. 21 |
| 3. 24 | 23. 48 |
| 4. 35 | 24. 49 |
| 5. 30 | 25. 12 |
| 6. 40 | 26. 64 |
| 7. 25 | 27. 21 |
| 8. 54 | 28. 16 |
| 9. 35 | 29. 63 |
| 10. 8 | 30. 18 |
| 11. 32 | 31. 42 |
| 12. 45 | 32. 24 |
| 13. 48 | 33. 56 |
| 14. 36 | 34. 27 |
| 15. 28 | 35. 24 |
| 16. 16 | 36. 8 |
| 17. 6 | 37. 18 |
| 18. 14 | 38. 18 |
| 19. 72 | 39. 0 |
| 20. 2 | 40. 7 |



Lesson 7

Review

4. $8 \times 9 = 72$ $9 \times 8 = 72$

5. $7 \times 8 = 56$ $8 \times 7 = 56$

6. $7 \times 10 = 70$ $7 \times 10 = 70$

- F. 1. From noon to 8 o'clock = 8 hours

8 planes an hour

8

x8

64

Sixty-four planes left the airport between noon and 8 o'clock.

2. 9

x7

63

Mike delivered 63 telephones books.



Lesson 8

Multiplying By Groups of 10 and 100

Warm-Up

A. (2) 2 4 6 8 10 12 14 16 18 20 22 24

(4) 4 8 12 16 20 24 28 32 36 40

(6) 6 12 18 24 30 36 42 48 54 60

B.	1. 5	2. 0
	3. 8	4. 0
	5. 8	6. 0
	7. 45	8. 98
	9. 0	10. 789
	11. 1342	12. 0

It's Your Turn

A. 1. $7 \times 10 = 70$

2. $9 \times 10 = 90$

B. 1. $7 \times 100 = 700$

2. $4 \times 100 = 400$

C.	1.	80	2.	180	3.	380
	4.	570	5.	160	6.	80
	7.	680	8.	1120		
	9.	2150	10.	11 500		
	11.	14 550	12.	26 240		
D.	1.	600	2.	1800	3.	2500
	4.	400	5.	7700		
	6.	500	7.	1800		
	8.	14 500	9.	26 200		
	10.	77 500				

Challenge Yourself

- A. When you multiply any number by 10, place a zero in the ones' place.
- B. When you multiply any number by 100, place the zeros in the tens' place and the ones' place.
- C. ·1. 600 cm 5. 9000 cm
2. 1400 cm 6. 10 000 cm
3. 900 cm 7. 50 cm
4. 2700 cm 8. 650 cm



Lesson 9

Multiplying By Multiples of 10 and 100

Warm –Up

- | | | |
|----|---------|----------|
| A. | 1. 60 | 9. 6500 |
| | 2. 80 | 10. 900 |
| | 3. 120 | 11. 6000 |
| | 4. 500 | 12. 1500 |
| | 5. 460 | 13. 3100 |
| | 6. 350 | 14. 7000 |
| | 7. 170 | 15. 8800 |
| | 8. 1100 | |
| B. | 1. 36 | 9. 49 |
| | 2. 32 | 10. 14 |
| | 3. 42 | 11. 72 |
| | 4. 12 | 12. 30 |
| | 5. 50 | 13. 81 |
| | 6. 64 | 14. 36 |
| | 7. 27 | 15. 25 |
| | 8. 56 | |

It's Your Turn

- | | | | |
|----|---------|---------|---------|
| A. | 1. 40 | 2. 24 | 3. 25 |
| B. | 1. 400 | 2. 240 | 3. 250 |
| C. | 1. 63 | 2. 32 | 3. 54 |
| D. | 1. 6300 | 2. 3200 | 3. 5400 |

Challenge Yourself

1. 10,360
2. 8,560
3. 10,210
4. 4,1600
5. 100,6300
6. 3,1800
7. 4,200
8. 10,10
9. 7
10. 10

**Lesson 10**
Estimating Products**Warm-Up**

- | | | |
|----|---------|----------|
| A. | 1. 60 | 6. 80 |
| | 2. 10 | 7. 90 |
| | 3. 50 | 8. 100 |
| | 4. 10 | 9. 100 |
| | 5. 70 | 10. 170 |
| | | |
| B. | 1. 200 | 6. 500 |
| | 2. 700 | 7. 300 |
| | 3. 800 | 8. 400 |
| | 4. 500 | 9. 1400 |
| | 5. 1000 | 10. 2200 |

It's Your Turn

1. $60 \times 3 = 180$ 2. $90 \times 6 = 540$ 3. $50 \times 8 = 450$
 4. $70 \times 7 = 490$ 5. $60 \times 5 = 300$ 6. $100 \times 8 = 800$
 7. $400 \times 6 = 2400$ 8. $100 \times 9 = 900$ 9. $200 \times 7 = 1400$
 10. $400 \times 9 = 3600$



Lesson 11

Multiplying a 2-Digit Number by a 1-Digit Number

Warm-Up

1. 13
2. 10
3. 21
4. 79
5. 17
6. 44
7. 75
8. 65
9. 36
10. 15

It's Your Turn

A. 1.
$$\begin{array}{r} 35 \\ \times 4 \\ \hline 120 \\ \hline 140 \end{array}$$

2.
$$\begin{array}{r} 52 \\ \times 6 \\ \hline 300 \\ \hline 312 \end{array}$$

3.
$$\begin{array}{r} 86 \\ \times 3 \\ \hline 258 \end{array}$$

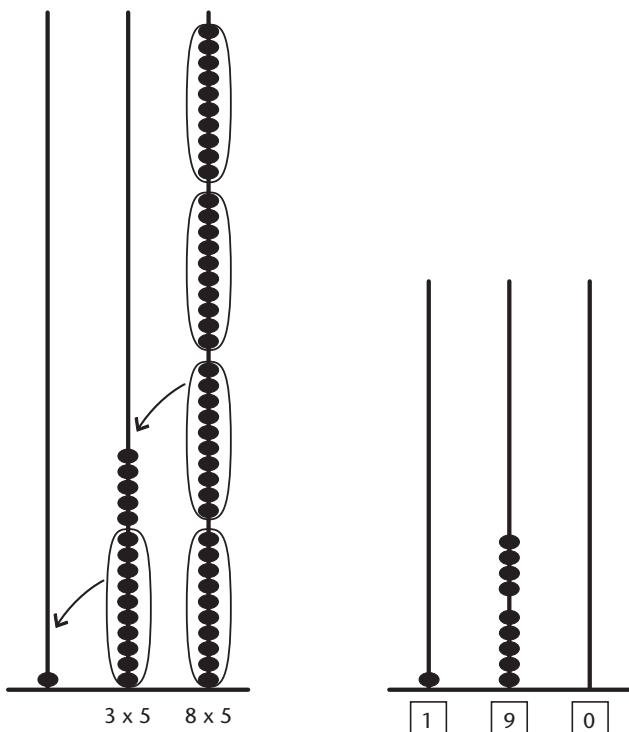
4.
$$\begin{array}{r} 77 \\ \times 5 \\ \hline 385 \end{array}$$

$$\begin{array}{r}
 5. \quad 62 \\
 \times 9 \\
 \hline
 18 \\
 540 \\
 \hline
 558
 \end{array}$$

- | | | | |
|----|---------|---------|---------|
| B. | 1. 125 | 2. 420 | 3. 78 |
| | 4. 558 | 5. 133 | 6. 188 |
| | 7. 336 | 8. 472 | 9. 336 |
| | 10. 434 | 11. 297 | 12. 495 |

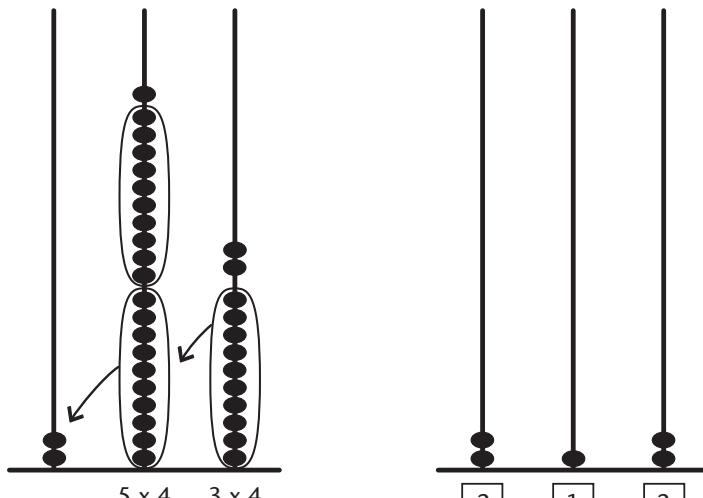
Challenge Yourself

$$\begin{array}{r}
 1. \quad 38 \\
 \times 5 \\
 \hline
 \end{array}$$



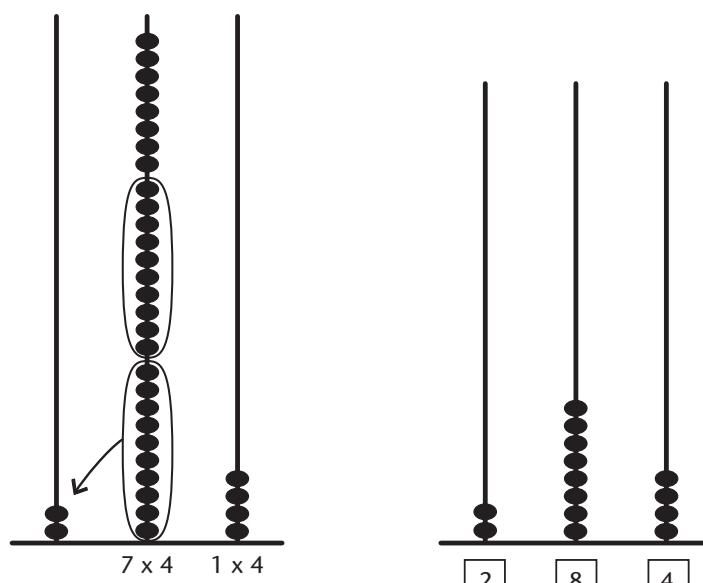
$$38 \times 5 = \underline{\hspace{2cm}} 190$$

$$\begin{array}{r} 53 \\ \times 4 \\ \hline \end{array}$$



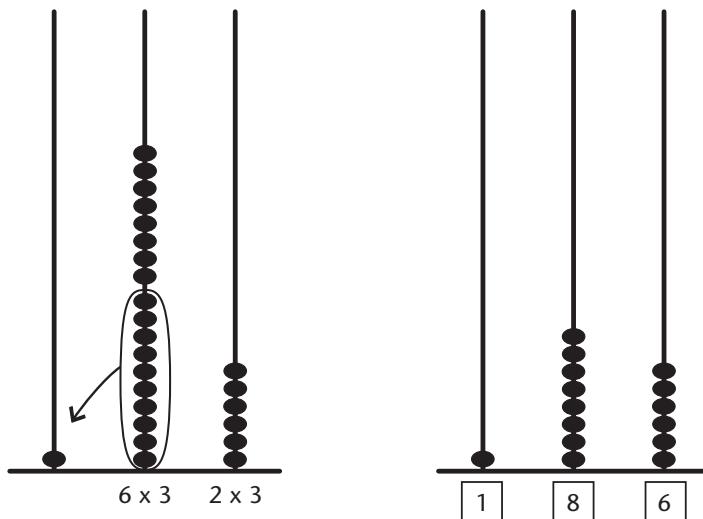
$$53 \times 4 = \underline{212}$$

$$\begin{array}{r} 71 \\ \times 4 \\ \hline \end{array}$$



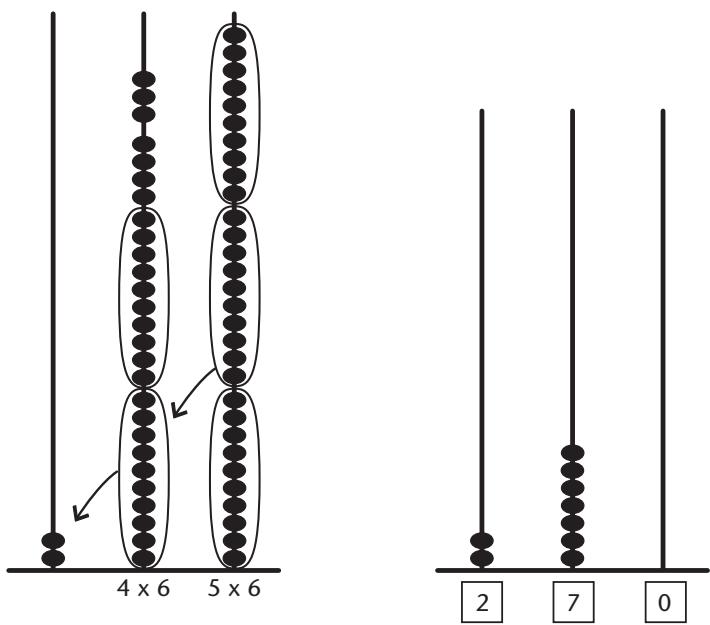
$$71 \times 4 = \underline{284}$$

4.
$$\begin{array}{r} 62 \\ \times 3 \\ \hline \end{array}$$

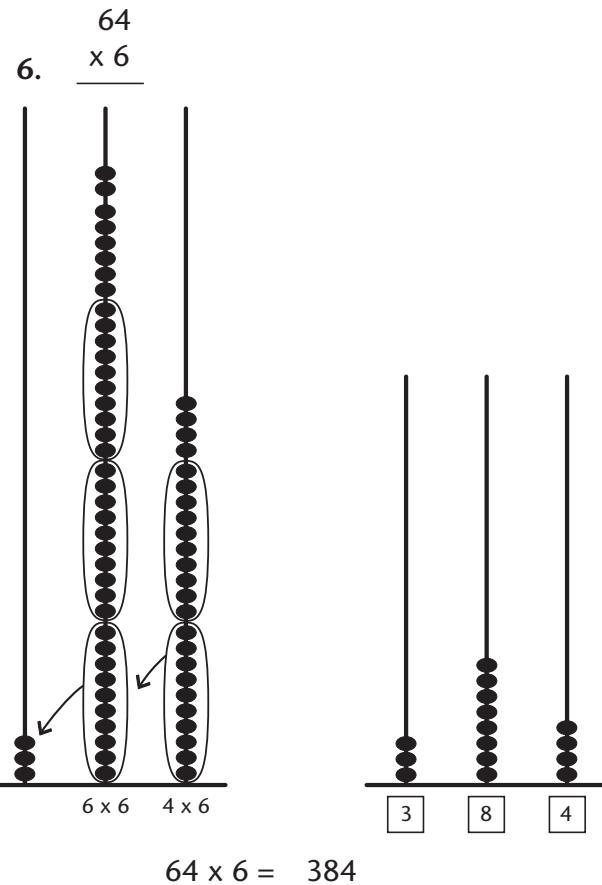


$$62 \times 3 = \underline{186}$$

5.
$$\begin{array}{r} 45 \\ \times 6 \\ \hline \end{array}$$



$$45 \times 6 = \underline{270}$$



Lesson 12 Multiplying a 3-Digit Number by a 1 Digit Number

Warm-Up

1. 35
2. 34
3. 56
4. 37
5. 55
6. 52
7. 62
8. 50
9. 73
10. 68

It's Your Turn

A. 1.
$$\begin{array}{r} 146 \\ \times 5 \\ \hline 730 \end{array}$$

2.
$$\begin{array}{r} 129 \\ \times 8 \\ \hline 1032 \end{array}$$

3.
$$\begin{array}{r} 962 \\ \times 3 \\ \hline 2886 \end{array}$$

4.
$$\begin{array}{r} 464 \\ \times 4 \\ \hline 1856 \end{array}$$

5.
$$\begin{array}{r} 506 \\ \times 5 \\ \hline 2530 \end{array}$$

6.
$$\begin{array}{r} 927 \\ \times 9 \\ \hline 8343 \end{array}$$

B. 1. 1512
4. 1432

2. 2670
5. 2545

3. 2824
6. 3825

Challenge Yourself

1. $6 \times 7 = 42$

6. $8 \times 4 = 32$

2. $8 \times 5 = 40$

7. $6 \times 4 = 24$

3. $6 \times 8 = 48$

8. $6 \times 6 = 36$

4. $4 \times 7 = 28$

9. $4 \times 9 = 36$

5. $6 \times 8 = 48$

10. $8 \times 8 = 64$



Lesson 13

Some Multiplication Rules

Warm-Up

A. 1. 190 2. 252 3. 3840
4. 8874 5. 38,250 6. 3515

Answer Key

- | | | |
|----|----------------------|------------------------|
| B. | 1. $3 \times 7 = 21$ | 8. $7 \times 0 = 0$ |
| | 2. $8 \times 6 = 48$ | 9. $5 \times 5 = 25$ |
| | 3. $4 \times 4 = 16$ | 10. $6 \times 4 = 24$ |
| | 4. $6 \times 3 = 18$ | 11. $9 \times 3 = 27$ |
| | 5. $9 \times 2 = 18$ | 12. $4 \times 5 = 20$ |
| | 6. $7 \times 3 = 21$ | 13. $6 \times 10 = 60$ |
| | 7. $9 \times 8 = 72$ | 14. $4 \times 8 = 32$ |

It's Your Turn

- | | | |
|----|---|-------|
| A. | 1. 0 | 6. 0 |
| | 2. 71 | 7. 0 |
| | 3. 32 | 8. 0 |
| | 4. 621 | 9. 1 |
| | 5. 3760 | 10. 0 |
| B. | 1. 1 | |
| | 2. 1 | |
| | 3. 5 | |
| | 4. 1, 1 | |
| | 5. 0 | |
| | 6. 0 | |
| | 7. 6 | |
| | 8. 1 | |
| | 9. 0 | |
| | 10. 7 | |
| C. | 1. $1111 \times 1111 = 1234321$
$11111 \times 11111 = 123454321$
$111111 \times 111111 = 12345654321$ | |
| | 2. $37 \times 12 = 444$
$37 \times 15 = 555$
$37 \times 18 = 666$ | |
| | 3. $1234 \times 9 + 5 = 11111$
$12345 \times 9 + 6 = 111111$ | |

- D. 1. 15
 2. 15
 3. 15
 4. 405
 5. 405
 6. 405

54	189	162
243	135	27
108	81	216

Lesson 14

Products of 3 Factors



Warm-Up

- | | |
|--------|--------|
| 1. 12 | 16. 8 |
| 2. 36 | 17. 81 |
| 3. 0 | 18. 21 |
| 4. 56 | 19. 0 |
| 5. 35 | 20. 18 |
| 6. 54 | 21. 32 |
| 7. 18 | 22. 20 |
| 8. 42 | 23. 81 |
| 9. 63 | 24. 28 |
| 10. 4 | 25. 64 |
| 11. 15 | 26. 30 |
| 12. 40 | 27. 27 |
| 13. 45 | 28. 10 |
| 14. 24 | 29. 49 |
| 15. 48 | 30. 12 |

It's Your Turn

- | | |
|--|--|
| A. 1. $2 \times 5 \times 7$
10×7
70 | 2. $5 \times 6 \times 9$
30×9
270 |
| 3. $5 \times 8 \times 7$
40×7
280 | 4. $5 \times 20 \times 7$
100×7
700 |

B. 1.
$$\begin{array}{r} 8 \times 4 \times 8 \\ 32 \times 8 \\ \hline 256 \end{array}$$

2.
$$\begin{array}{r} 9 \times 3 \times 6 \\ 27 \times 6 \\ \hline 162 \end{array}$$

3.
$$\begin{array}{r} 7 \times 5 \times 3 \\ 35 \times 3 \\ \hline 105 \end{array}$$

Challenge Yourself

1. $\begin{array}{r} 5 \\ 270 \\ \times 18 \\ \hline 2160 \\ 2700 \\ \hline 4860 \end{array}$	2. $\begin{array}{r} 3 \\ 14 \\ \times 78 \\ \hline 112 \\ 980 \\ \hline 1092 \end{array}$	3. $\begin{array}{r} 1 \\ 48 \\ \times 24 \\ \hline 192 \\ 960 \\ \hline 1152 \end{array}$	4. $\begin{array}{r} 1 \\ 180 \\ \times 22 \\ \hline 360 \\ 3600 \\ \hline 3960 \end{array}$
---	--	--	--

5. $\begin{array}{r} 4 \\ 80 \\ \times 32 \\ \hline 160 \\ 2400 \\ \hline 2560 \end{array}$	6. $\begin{array}{r} 1 \\ 360 \\ \times 72 \\ \hline 720 \\ 25200 \\ \hline 25920 \end{array}$	7. $\begin{array}{r} 2 \\ 630 \\ \times 17 \\ \hline 4410 \\ 6300 \\ \hline 10710 \end{array}$	8. $\begin{array}{r} 3 \\ 190 \\ \times 45 \\ \hline 950 \\ 7600 \\ \hline 8550 \end{array}$
---	--	--	--



Lesson 15

Multiply With Money

Warm-Up

(Either answer is correct.)

- | | | | |
|----|---------------|-----|---------------|
| 1. | \$7.00, \$7 | 6. | \$50.00, \$50 |
| 2. | \$2.00, \$2 | 7. | \$19.00, \$19 |
| 3. | \$1.00, \$1 | 8. | \$70.00, \$70 |
| 4. | \$10.00, \$10 | 9. | \$22.00, \$22 |
| 5. | \$15.00, \$15 | 10. | \$43.00, \$43 |

It's Your Turn

Part A

A.	1.	$\begin{array}{r} \$1 \\ \times 5 \\ \hline \$5 \end{array}$	2.	$\begin{array}{r} \$9 \\ \times 8 \\ \hline \$72 \end{array}$
	3.	$\begin{array}{r} \$16 \\ \times 4 \\ \hline \$64 \end{array}$	4.	$\begin{array}{r} \$22 \\ \times 7 \\ \hline \$154 \end{array}$

B.

Number of Planes	Cost
1 (10×1)	\$10
2 (10×2)	\$20
3 (10×3)	\$30
4 (10×4)	\$40
5 (10×5)	\$50
6 (10×6)	\$60
7 (10×7)	\$70
8 (10×8)	\$80
9 (10×9)	\$90
10 (10×10)	\$100
20 (10×20)	\$200
30 (10×30)	\$300

Part B

- | | | |
|----|-------------|-------------|
| A. | 1. \$38.25 | 2. \$100.00 |
| | 3. \$54.95 | 4. \$133.50 |
| | 5. \$132.75 | |

B. \$1.77

$$\begin{array}{r} \times 5 \\ \hline \$5.85 \end{array}$$

Granny Brown spent \$8.35 on apples.

Lesson 16

Multiplying Numbers by 2 Digits

Warm-Up

2. $(10 + 7) \times 30$
 $= (10 \times 30) + (7 \times 30) = 300 + 210 = 510$
3. $60 \times (20 + 5)$
 $= (60 \times 20) + (60 \times 5) = 1200 + 300 = 1500$
4. $(70 + 2) \times 200$
 $= (70 \times 200) + (2 \times 200) = 14\,000 + 400 = 14\,400$
5. $(60 + 6) \times 300$
 $= (60 \times 300) + (6 \times 300) = 18\,000 + 1800 = 19\,800$
6. $400 \times (40 + 2)$
 $= (400 \times 40) + (400 \times 2) = 16\,000 + 800 = 16\,800$

It's Your Turn

- | | | |
|----|--|---|
| A. | 1. $\begin{array}{r} 56 \\ \times 92 \\ \hline 12 \\ 100 \\ 540 \\ \hline 4500 \\ \hline 5152 \end{array}$ | 2. $\begin{array}{r} 83 \\ \times 71 \\ \hline 3 \\ 210 \\ 5600 \\ \hline 5893 \end{array}$ |
|----|--|---|

B.

$$\begin{array}{r} \overset{4}{1} \\ \times 52 \\ \hline 136 \\ 3400 \\ \hline 3536 \end{array}$$

$$\begin{array}{r} \overset{2}{3} \\ \times 35 \\ \hline 235 \\ 1410 \\ \hline 1645 \end{array}$$

$$\begin{array}{r} \overset{3}{84} \\ \times 19 \\ \hline 756 \\ 840 \\ \hline 1596 \end{array}$$

$$\begin{array}{r} \overset{1}{3} \\ \times 34 \\ \hline 272 \\ 1360 \\ \hline 1632 \end{array}$$

$$\begin{array}{r} \overset{2}{1} \\ \times 83 \\ \hline 1476 \\ 39360 \\ \hline 40836 \end{array}$$

$$\begin{array}{r} \overset{1}{1} \\ \times 63 \\ \hline 2226 \\ 44520 \\ \hline 46746 \end{array}$$

$$\begin{array}{r} \overset{1}{1} \\ \times 22 \\ \hline 1182 \\ 1180 \\ \hline 13002 \end{array}$$

$$\begin{array}{r} \overset{3}{3} \\ \times 53 \\ \hline 1128 \\ 18800 \\ \hline 19928 \end{array}$$

Challenge Yourself

$$\begin{array}{r} \overset{1}{2} \\ \times 24 \\ \hline 224 \\ 1120 \\ \hline 1344 \text{ h} \end{array}$$

There are
1344 h
in 56 days

$$\begin{array}{r} \overset{1}{3} \\ \times 126 \\ \hline 210 \\ 700 \\ 3500 \\ \hline \$4410 \end{array}$$

The school spent \$4410

Lesson 17

Review

A.	1. 9	2. 8	3. 14	4. 27	5. 36
	6. 35	7. 16	8. 12	9. 56	10. 64
	11. 30	12. 16	13. 42	14. 81	15. 10
	16. 24	17. 80	18. 5		

B.	1. 140	2. 90	3. 220	4. 60	5. 180
	6. 370	7. 1250	8. 2760	9. 3500	
	10. 18 550	11. 800	12. 1200	13. 600	
	14. 4700	15. 6200	16. 24500	17. 8900	
	18. 9400	19. 12500	20. 74200		

Answer Key

- C. a. 5 10, 15, 20, 25, 30, 35, 40, 45, 50
b. 7 14, 21, 28, 35, 42, 49, 57, 63, 70
c. 6 12, 18, 24, 30, 36, 42, 48, 54, 60
d. 9 18, 27, 36, 45, 54, 63, 72, 81, 90

- D. a. 54 $6 \times 9, 9 \times 6$
b. 42 $6 \times 7, 7 \times 6$
c. 72 $9 \times 8, 8 \times 9$
d. 48 $6 \times 8, 8 \times 6$

- E. a. 48 6 and 8
b. 54 9 and 6
c. 30 6 and 5, 3 and 10
d. 18 6 and 3, 2 and 9

- F. 1. 136 2. 497 3. 170 4. 208 5. 249

- G. 1. 252 2. 154 3. 336 4. 357 5. 207
6. 159 7. 441 8. 576 9. 570 10. 150

- H. 1. 150 2. 75 3. 1800 4. 180 5. 800

- I. 1. \$10.35 2. \$89.25 3. \$209.25

- J. 1. 1444 2. 2047 3. 722 4. 1296

- K. $130 \times 14 = 1820$
1820 km The Smiths drove 1820 km on their trip.

Mastery Test—Answer Key

Part A

Complete these questions as quickly as you can.

- | | |
|--------|--------|
| 1. 6 | 16. 36 |
| 2. 18 | 17. 30 |
| 3. 14 | 18. 40 |
| 4. 27 | 19. 42 |
| 5. 48 | 20. 45 |
| 6. 21 | 21. 49 |
| 7. 32 | 22. 25 |
| 8. 4 | 23. 56 |
| 9. 54 | 24. 30 |
| 10. 12 | 25. 24 |
| 11. 7 | 26. 35 |
| 12. 25 | 27. 20 |
| 13. 36 | 28. 16 |
| 14. 63 | 29. 28 |
| 15. 20 | 30. 42 |

Part B

Write a related multiplication sentence (equation) for each of the facts below.

a. 70 7×10 10×7

b. 56 7×8 8×7

c. 45 9×5 5×9

d. 63 7×9 9×7

Part C

Write the factors of the following numbers.

a. 1 **9 and 9**

b. 35 **7 and 5**

c. 72 **8 and 9, or 6 and 12, or 4 and 18, or 3 and 24, or 2 and 36**

d. 48 **6 and 8, or 2 and 24, or 3 and 16, or 4 and 12**

Part D.

Write the first 10 multiples of the following numbers.

- a. 6 12, 18, 24, 30, 36, 42, 48, 54, 60
- b. 9 18, 27, 36, 45, 54, 63, 72, 81, 90
- c. 10 20, 30, 40, 50, 60, 70, 80, 90, 100
- d. 4 8, 12, 16, 20, 24, 26, 28, 32, 36, 40

Part E

Find the answers using **sight multiplication**.

1. $50 \times 60 = 3000$
2. $\$400 \times 3 = \1200
3. $780 \times 10 = 7800$
4. $46 \times 1000 = 46\,000$
5. $30 \times 800 = 24\,000$
6. $20 \times 4000 = 80\,000$

$$7. \quad \$500$$

$$\begin{array}{r} \times 10 \\ \hline \$5000 \end{array}$$

$$8. \quad 679$$

$$\begin{array}{r} \times 100 \\ \hline 67\ 900 \end{array}$$

$$9. \quad 40$$

$$\begin{array}{r} \times 80 \\ \hline 3200 \end{array}$$

$$10. \quad 400$$

$$\begin{array}{r} \times 30 \\ \hline 12\ 000 \end{array}$$

$$11. \quad 700$$

$$\begin{array}{r} \times 500 \\ \hline 350\ 000 \end{array}$$

$$12. \quad 1000$$

$$\begin{array}{r} \times 569 \\ \hline 569\ 000 \end{array}$$

Part F

Estimate these products. Show your estimation.

$$1. \quad 60$$

$$\begin{array}{r} \times 6 \\ \hline 360 \end{array}$$

$$2. \quad 90$$

$$\begin{array}{r} \times 8 \\ \hline 720 \end{array}$$

$$3. \quad 400 \times 7 = 2800$$

$$4. \quad 1000 \times 9 = 9000$$

$$5. \quad 500 \times 3 = 1500$$

$$6. \quad 500 \times 90 = 45\ 000$$

$$7. \quad 40$$

$$\begin{array}{r} \times 40 \\ \hline 1600 \end{array}$$

$$8. \quad 80$$

$$\begin{array}{r} \times 70 \\ \hline 5600 \end{array}$$

$$9. \quad 40 \times 90 = 3600$$

$$10. \quad 300$$

$$\begin{array}{r} \times 30 \\ \hline 9000 \end{array}$$

$$11. \quad 800 \times 80 = 64\ 000$$

$$12. \quad 800 \times 100 = 80\ 000$$

Part G

Multiply to find the answers to these questions. Use the short form.

$$1. \begin{array}{r} 76 \\ \times 5 \\ \hline 380 \end{array}$$

$$2. \begin{array}{r} 148 \\ \times 7 \\ \hline 1036 \end{array}$$

$$3. \begin{array}{r} 623 \\ \times 6 \\ \hline 3738 \end{array}$$

$$4. \begin{array}{r} 79 \\ \times 8 \\ \hline 632 \end{array}$$

$$5. \begin{array}{r} 565 \\ \times 3 \\ \hline 1695 \end{array}$$

$$6. \begin{array}{r} 244 \\ \times 4 \\ \hline 976 \end{array}$$

Part H

Multiply to find the answers to these questions. Show all your work.

$$1. \begin{array}{r} 76 \\ \times 80 \\ \hline 6080 \end{array}$$

$$2. \begin{array}{r} 92 \\ \times 60 \\ \hline 5520 \end{array}$$

$$3. \begin{array}{r} 524 \\ \times 30 \\ \hline 15720 \end{array}$$

$$4. \begin{array}{r} 869 \\ \times 70 \\ \hline 60830 \end{array}$$

$$5. \begin{array}{r} 527 \\ \times 90 \\ \hline 47430 \end{array}$$

$$6. \begin{array}{r} 600 \\ \times 76 \\ \hline 42000 \\ \hline 45600 \end{array}$$

$$7. \begin{array}{r} 630 \\ \times 45 \\ \hline 3150 \\ 25200 \\ \hline 28350 \end{array}$$

$$8. \begin{array}{r} 907 \\ \times 62 \\ \hline 1814 \\ 54420 \\ \hline 56234 \end{array}$$

$$9. \begin{array}{r} 309 \\ \times 79 \\ \hline 2781 \\ 21630 \\ \hline 24411 \end{array}$$

$$10. \begin{array}{r} 608 \\ \times 40 \\ \hline 24320 \end{array}$$

Part I

Multiply the three factors. Remember to look for friendly numbers.

a. $3 \times 5 \times 6 = 90$

b. $4 \times 5 \times 9 = 180$

c. $6 \times 3 \times 10 = 180$

d. $8 \times 9 \times 5 = 360$

e. $8 \times 2 \times 10 = 160$

Part J

Multiply to find the answer. Remember to put in the dollar sign and the decimal point.

1. $\begin{array}{r} \$18.99 \\ \times 6 \\ \hline \$113.94 \end{array}$

2. $\begin{array}{r} \$55.72 \\ \times 7 \\ \hline \$390.04 \end{array}$

3. $\begin{array}{r} \$99.09 \\ \times 4 \\ \hline \$396.36 \end{array}$

4. $\begin{array}{r} \$27.16 \\ \times 5 \\ \hline \$135.80 \end{array}$

5. $\begin{array}{r} \$135.88 \\ \times 5 \\ \hline \$679.40 \end{array}$

Part K

- 27 tree planters planted 400 seedling trees each. How many trees were planted altogether? Show your work and write a statement answer.

$$27 \times 400 = 10,800$$

Statement: There were 10,800 trees planted.

- A company gave a Christmas gift of \$60 to each of its 700 employees. They gave an additional bonus to \$40 to 5 of the employees. How much money did the company pay out altogether? Show your work and write a statement answer.

$$\$60 \times 700 = \$42,000.00$$

$$\$40 \times 5 = \$200.00$$

$$\$42,000 + 200 = \$42,200.00$$

Statement: They paid \$42,200.00

Glossary

You may find these definitions useful when you are explaining multiplication and division concepts to your child.

array: an arrangement that shows objects in rows and columns.

division: the process of sharing a number of items to find how many equal groups can be made or how many items will be in a group.

dividend: the number that is being divided in a division problem.

$$\begin{array}{r} \overline{5)50} \\ \uparrow \end{array}$$

divisor: the number that divides the dividend

$$\begin{array}{r} \overline{5)50} \\ \uparrow \end{array}$$

equal groups: collection that each have the same number

fact family: the four number sentences that show how three numbers are related

Example:

$$\begin{array}{ll} 4 \times 3 = 12 & 12 \div 3 = 4 \\ 3 \times 4 = 12 & 12 \div 4 = 3 \end{array}$$

factor: a number that is multiplied by another number to find a product

Example:

$$\begin{array}{l} 4 \times 3 = 12 \\ \uparrow \quad \uparrow \end{array}$$

inverse: opposite

multiple: a number that is the product of a given number multiplied by a whole number such as 1, 2, 3, 4 and so on.

Example:

$$\begin{array}{cccc} 3 & 4 & 5 & 6 \\ \times 4 & \times 4 & \times 4 & \times 4 \\ 12 & 6 & 20 & 24 \end{array} \quad \text{← multiples of 4}$$

multiplication: the process of finding the total number of items that are in a certain number of equal groups.

product: the answer to a multiplication problem

quotient: the answer in a division problem

remainder: the number that is left over after dividing into equal groups.



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