MULTIPLICATION DIVISION

CHAPTER 3

1 Given a multiplication sentence involving the numbers 0-99 in which the product is unknown, solves it.

2 Given a division sentence involving the numbers 0-99, solves it.

3 Given a multiplication or division problem, decides whether to multiply or divide to find the solution.

$97 \times 56 = \square$ $567 \div 7 = \square$

4 Given a multiplication or division sentence, writes three other multiplication or division sentences equivalent to the given sentence.

5 Given two whole numbers whose product is less than 10,000, finds their product.

6 Given a one-digit number and a number less than 1,000, divides the larger number by the smaller using the compact division algorithm

ACTIVITY 3A

MULTIPLICATION AND DIVISION

MATERIALS

Student Page 1

EXPLORING THE CONCEPT - MULTIPLICATION AND DIVISION

LESSON

WHAT I AM TO DO	WHAT I A M TO SAY
1. Write the following sentences:	
10(1) = ☐	"WRITE THE NUMBER FOR EACH SENTENCE IN THE BOX."
10(10) = ☐	
10(100) = ☐	
10(1,000) = ☐	
10(10,000) = ☐	
NOTE: If your child has difficulty, then use objects to help. The discussion would go something like this…	
for 10(10) = ☐	"LET THIS OBJECT REPRESENT 10."
	"HOW MANY TENS ARE THERE?"
	(ANSWER: 10)
	"SINCE THERE ARE TEN TENS, WE NEED TEN OBJECTS. GET TEN OBJECTS."
	"SINCE EACH OBJECT REPRESENTS TEN, COUNT THE OBJECTS BY TENS TO FIND OUT WHAT TEN GROUPS OF TEN IS EQUAL TO.
for 10(100) =☐ let each object represent 100 and use the same type of discussion.	"LET THIS OBJECT REPRESENT 100."
	"HOW MANY 100'S ARE THERE?"
	(ANSWER: 10)
	"SINCE THERE ARE TEN GROUPS OF 100, WE NEED TEN OBJECTS. SELECT TEN."
	"SINCE EACH OBJECT REPRESENTS 100, COUNT THE OBJECTS BY 100'S TO FIND OUT WHAT TEN GROUPS OF 100 IS EQUAL TO."

2. Write these sentences: 100(1) = ☐	"WHAT DOES 100 GROUPS OF ONE EQUAL?"
100(10) = ☐	"WHAT DOES 100 GROUPS OF TEN EQUAL?"
If your child has difficulty, say…	"100 GROUPS OF TEN IS THE SAME AS TEN GROUPS OF 100. WHAT DOES TEN GROUPS OF 100 EQUAL?" (ANSWER: 1,000)
100(100) = ☐	"WHAT DOES 100 GROUPS OF 100 EQUAL?"
If your child has difficulty, say …	"IF 10 GROUPS OF 100 IS 1,000, THEN 100(100) IS TEN OF THOSE GROUPS."
100(1,000) = ☐	"WHAT DOES 100 GROUPS OF 1,000 EQUAL?" (ANSWER: 100,000)
At this point you may ask your child to compare the number of zeroes on each side of the equal sign. If your child does not see a relationship, do not tell him at this point.	"LOOK AT EACH SENTENCE. COUNT THE NUMBER OF ZEROES ON EACH SIDE OF THE EQUAL SIGN. DO YOU SEE A PATTERN? IF SO, WHAT IS IT?"
3. Write the following sentence: 41(10) =	"WE HAVE 41 GROUPS OF TEN. HOW MANY 10'S ARE IN 41?" (ANSWER: 4) "10 GROUPS OF TEN IS ….?" "20 GROUPS OF TEN IS ….?" "30 GROUPS OF TEN IS ….?" "40 GROUPS OF TEN IS ….?" "IF 40 GROUPS OF TEN IS 400 AND IF ONE GROUP OF TEN IS 10, THEN 41 GROUPS OF TEN IS …?" (ANSWER: 410)
4. Give your child Student Page 1. Provide as much assistance as your child needs.	"FILL IN EACH BOX WITH THE CORRECT NUMBER."

Answer Key

Student Page 1

1. 630
2. 3,000
3. 54,000
4. 810,000
5. 5,400
6. 45,000
7. 10,000
8. 2,800
9. 720,000
10. 4,000
11. 100,000
12. 350
13. 880
14. 4,800
15. 64,000
16. 90,000
17. There are the same number of zeroes on each side of the equal symbol.

ACTIVITY 3B

MULTIPLICATION AND DIVISION

MATERIALS

Student Pages 2 - 8

EXPLORING THE CONCEPT
MULTIPLICATION AND DIVISION SENTENCES

LESSON

WHAT I AM TO DO	WHAT I AM TO SAY
1. Give your child Student Page 2. Have your child look at story 1.	"MAKE FIVE EQUAL GROUPS."
	"HOW MANY APPLE TREES ARE IN EACH GROUP?"
	"HOW MANY APPLE TREES ARE THERE IN ALL?"
	"WRITE A GROUPING SENTENCE TO DESCRIBE WHAT YOU DID."
	(ANSWER: 5(2) = 10)
Write:	
5 x 2 = 10	"ANOTHER WAY TO SAY FIVE GROUPS OF TWO EQUALS TEN IS TO SAY FIVE TIMES TWO EQUALS TEN."
	"WHAT IS THE TOTAL NUMBER OF APPLE TREES?
Write:	"THIS SENTENCE MEANS THAT TEN APPLE TREES DIVIDED INTO FIVE GROUPS HAS TWO IN EACH GROUP."
10 ÷ 5 = 2	
	"INSTEAD OF MAKING FIVE GROUPS. MAKE TWO GROUPS."
	"HOW MANY APPLE TREES ARE IN EACH GROUP?'
	"WRITE A GROUPING SENTENCE TO DESCRIBE WHAT YOU DID."
	(ANSWER: 2(5) = 10)
Write:	"TWO GROUPS OF FIVE EQUALS TEN MEANS THE SAME AS TWO TIMES FIVE EQUALS TEN."
2 x 5 = 10	
Write:	"THIS SENTENCE MEANS THAT TEN APPLE TREES DIVIDED INTO TWO GROUPS HAS FIVE IN EACH GROUP."
10 ÷ 2 = 5	
	"ALL SIX OF THESE SENTENCES DESCRIBE THIS STORY."

for stories 3 and 4 your child may need to draw a picture of the orchards.	"THE SENTENCES USING THE PARENTHESIS ARE CALLED GROUPING SENTENCES." "THE SENTENCES USING THE 'X' ARE CALLED MULTIPLICATION SENTENCES." "THE SENTENCES USING THE LINE WITH A DOT ABOVE AND BELOW ARE CALLED DIVISION SENTENCES." "WRITE TWO GROUPING, TWO MULTIPLICATION, AND TWO DIVISION SENTENCES FOR EACH OF THE REMAINING STORIES." "WHEN YOU MULTIPLY TWO NUMBERS TOGETHER, YOU GET THE TOTAL NUMBER OF OBJECTS." "WHEN YOU DIVIDE, YOU DIVIDE THE TOTAL NUMBER OF OBJECTS BY THE NUMBER OF EQUAL GROUPS OR BY THE SIZE OF EACH GROUP."
2. Give your child Student Page 3. Do the first story together.	"READ EACH STORY. DECIDE IF THE STORY TELLS YOU THE TOTAL. WRITE ONE GROUPING, ONE MULTIPLICATION, AND ONE DIVISION SENTENCE FOR EACH STORY. USE A BOX TO REPRESENT WHAT YOU DO NOT KNOW.
3. Give your child Student Page 4.	"READ EACH STORY. CHOOSE THOSE SENTENCES THAT REPRESENT THE STORY. DRAW A RING AROUND THOSE THAT DO. DO NOT SOLVE THE SENTENCES."
4. Give your child Student Pages 5 and 6. As your child works on these pages, ask…	"FOLLOW THE INSTRUCTIONS FOR EACH PAGE." "READ THIS SENTENCE TO ME… WHAT DOES IT MEAN? … WHAT IS THE TOTAL?"
5. Give your child Student Pages 7 and 8. NOTE: At the top of page 7, your child writes a specific kind of equivalent sentence for a given sentence. There is more than one correct answer. For example, A x S = P could be written $P \div S = A$ $A = P \div S$ $P \div A = S$ $S = P \div A$ At the bottom of the page your child chooses sentences that are equivalent to a sentence.	"FOLLOW THE DIRECTIONS IN EACH PART."

On page 8 your child is asked to write a certain number of equivalent sentences for a math sentence. For example, write 1 multiple sentence equivalent to 34 ÷17 = 2.

The following answers are possible:

2 x 17 = 34

17 x 2 = 34

34 = 2 x 17

34 = 17 x 2

Answer Key

Student Page 2

1. 5(2) = 10 2(5) = 10
   5 x 2 = 10 2 x 5 = 10
   10÷5 = 2 10÷2 = 5
2. 7(3) = 21 3(7) = 21
   7 x 3 = 21 3 x 7 = 21
   21÷7 = 3 21÷3 = 21
3. 8(5) = 40 5(8) = 40
   8 x 5 = 40 5 x 8 = 40
   40÷8 = 5 40÷5 = 8
4. 10(6) = 60 6(10) = 60
   10x6 = 60 6x10 = 60
   60÷10 = 6 60÷6 = 10

Student Page 3

Math sentences may vary

1. NO
2. YES
   7(❑) = 105
   7 x ❑ = 105
   105 ÷ 7 = ❑
3. Yes
   4(❑) = 88
   4 x ❑ = 88
   88 ÷ 4 = ❑

Student Page 4

1. 9(47) = ❑
   ❑ = 47 x 9
   9 x 47 = ❑
2. 60 ÷ ❑ = 4
   60 ÷ 4 = ❑
   4(❑) = 60
3. ❑ x 45 = 135
   135 ÷ ❑ = 45
4. 96 ÷ ❑ = 8
   ❑ = 96 ÷ 8
   96 ÷ 8 = ❑
8. 16 ÷ 2 = ❑
9. 31 x ❑ = 155
10. 7 x 8 = ❑
11. 12 ÷ 4 = ❑
12. ❑ ÷ 13 = 6
13. V x P = M
    P = M ÷ V
14. 138 ÷ 3 = 46
    3 = 138 ÷ 46
15. 5 x 16 = ❑
    16 = ❑ ÷ 5
    ❑ = 16 x 5

Student Page 5

Totals:

63	98	❑
R	72	❑
48	27	❑
S	145	40

1- 4 answers will vary

Student Page 6

EGYPT YOU
GEOMETRY

Student Page 7

sentences may vary

1. P ÷ S = A
   P ÷ A = S
2. 6 x 25 = 150
3. B x T = W
4. 63 ÷ 7 = 9
5. 68 ÷ 4 = 17
6. ❑ ÷ 18 = 9
7. 7 x ❑ = 42

Student Page 8

sentences may vary

1. 17 x 2 = 34
2. 182 ÷ 26 = 7
   182 ÷ 7 = 26
3. P ÷ Z = S
   Z x S = P
   S x Z = P
4. 39 ÷ 13 = ❑
   ❑ = 39 ÷ 13
   13 x ❑ = 39
   ❑ x 13 = 39
5. ❑ x 4 = 24
   24 ÷ 4 = ❑
   24 ÷ ❑ = 4
   24 = 4 x ❑
   24 = ❑ x 4

ACTIVITY 3C

MULTIPLICATION AND DIVISION

MATERIALS

links, counting chips or connecting cubes (any objects will work)
100 pennies
Student Pages 9 - 18

EXPLORING THE CONCEPT - MULTIPLICATION AND DIVISION

LESSON

WHAT I AM TO DO	WHAT I AM TO SAY
1. Use this chart from Student Page 9.	"LOOK AT THE TOP OF STUDENT PAGE 9."

FRUIT PRICES	
grapes	1¢ each
plums	2¢ each
strawberries	3¢ each
apples	4¢ each
bananas	5¢ each
peaches	6¢ each
oranges	7¢ each
grapefruit	8¢ each
pineapples	9¢ each

2. Begin your discussion of the multiplication facts by presenting your child with the following stories…	"LET'S SUPPOSE THAT YOU RUN A FRESH FRUIT STAND AND ONE OF YOUR CUSTOMERS WANTS 5 GRAPES, 6 PLUMS, 2 STRAWBERRIES, AND 7 APPLES. HOW MUCH SHOULD YOU CHARGE?"
	"WRITE THE FOUR MULTIPLICATION SENTENCES TO DESCRIBE THE STORY."
	ANSWER: $5 \times 1 = \square$
	$6 \times 2 = \square$
Remind your child that 5×1 means the same thing as 5 groups of 1…etc.	$2 \times 3 = \square$
	$7 \times 4 = \square$
	"USE PENNIES TO DETERMINE THE COST OF EACH ITEM AS WELL AS THE TOTAL COST."
	"HOW MUCH SHOULD YOU CHARGE?"

	"A SECOND CUSTOMER PLACES THE FOLLOWING ORDER: 4 BANANAS, 9 PEACHES, 8 ORANGES, 3 GRAPEFRUIT, AND 1 PINEAPPLE." "WRITE THE FIVE MULTIPLICATION SENTENCES TO DESCRIBE THIS ORDER." ANSWER: $4 \times 5 = \square$ $9 \times 6 = \square$ $8 \times 7 = \square$ $3 \times 8 = \square$ $1 \times 9 = \square$ "USE THE PENNIES TO DETERMINE THE COST OF EACH INDIVIDUAL ITEM AS WELL AS THE TOTAL. REMEMBER 4 TIMES 5 MEANS THE SAME THING AS 4 GROUPS OF 5." "HOW MUCH SHOULD YOU CHARGE FOR THIS ORDER?"
3. Make up additional stories.	
4. Now focus on the bottom of Student Page 9.	"HOW MUCH WOULD SIX STRAWBERRIES COST?" "TO FIND THE ANSWER TO THIS PROBLEM WE CAN USE THE CHART AT THE BOTTOM OF THE PAGE. FIND THE STRAWBERRIES ON THE LEFT SIDE OF THE CHART. ACROSS THE TOP IS THE NUMBER OF ITEMS — FIND SIX. NEXT, FIND WHERE THE STRAWBERRY ROW AND THE SIX COLUMN INTERSECT. YOU WILL NOTICE THAT 18 IS WRITTEN IN THE SPACE. MAKE SIX GROUPS OF 3¢. HOW MANY PENNIES IS THAT? "SINCE STRAWBERRIES COST 3¢ EACH, SIX STRAWBERRIES WOULD COST 18¢." "SINCE BANANAS COST 5¢ EACH, FIVE BANANAS WOULD COST … ¢." "USING THE PENNIES, COMPLETE THE CHART ABOUT THE FRUIT."
5. Give your child Student Page 10. Make links, chips, or cubes available. Encourage your child to use objects to validate (confirm) his solution.	"SOLVE THE MULTIPLICATION SENTENCES. REMEMBER THAT 3×6 MEANS THE SAME THING AS THREE GROUPS OF SIX."
6. Give your child Student Page 11. Make objects available.	"MULTIPLY THE NUMBERS IN THE FIRST COLUMN. ADD THE DIGITS IN THE ANSWER. THE FIRST TWO HAVE BEEN DONE FOR YOU." "WHAT PATTERN DID YOU FIND?" (ANSWER: THE NUMBERS IN A 9'S PRODUCT ALWAYS ADD TO 9.)
7. Give your child Student Page 12. Make objects available.	"CHANGE $6 \div 2 = \square$ INTO A MULTIPLICATION SENTENCE."

	(ANSWER: 2 x □ = 6) "WHAT NUMBER WOULD YOU MULTIPLY TWO BY TO EQUAL SIX?" "TAKE SIX OBJECTS AND DIVIDE THEM INTO TWO GROUPS. HOW MANY DID YOU GET IN EACH GROUP?" "CHANGE 10 ÷ 5 = □ INTO A MULTIPLICATION SENTENCE." (ANSWER: 5 x □ = 10) "WHAT NUMBER WOULD YOU MULTIPLY FIVE BY TO EQUAL TEN?" "TAKE TEN OBJECTS AND DIVIDE THEM INTO FIVE GROUPS." "HOW MANY DID YOU GET IN EACH GROUP." "SOLVE THE REMAINING DIVISION SENTENCES. IF YOU CAN SOLVE THE DIVISION SENTENCE WITHOUT WRITING AN EQUIVALENT MULTIPLICATION SENTENCE, THAT IS GREAT."
8. Give your child Student Page 13.	"DRAW LINES TO FORM TRIANGLES CONNECTING THE THREE NUMBERS USED TO FORM A MULTIPLICATION OR DIVISION SENTENCE. FOR EXAMPLE 9,9, AND 81 WOULD BE CONNECTED BECAUSE THEY FORM THE SENTENCES 9 x 9 = 81 AND 81 ÷ 9 = 9."
9. Give your child Student Page 14.	"THIS PAGE CONTAINS A PUZZLE. CUT OUT THE PIECES AND REARRANGE THE RECTANGLES SO THAT THE MULTIPLICATION AND DIVISION PHRASES MATCH THEIR ANSWER."
10. Give your child Student Pages 15-18. NOTE TO PARENTS: The ability to recall the multiplication facts will vary among children. Some children may need more experience in figuring out the facts using objects. Still others may simply need to refer to the multiplication table (Student Page 9) until they know the facts. If after completing Student Page 18 your child is unable to recall the multiplication facts, very short periods of drill and practice are recommended. Practicing 3 to 5 minutes every other day should be sufficient. Suggested Activity: 1. Using 3 x 5 cards write each of the multiplication facts. 2. Shuffle the cards and turn them face down. 3. Have your child turn over one card at a time and tell you the answer. 4. Place the cards he answers correctly in one stack and the incorrect answers in another. 5. Using objects have your child solve the multiplication facts that he missed.	"FOLLOW THE INSTRUCTIONS GIVEN FOR EACH PAGE."

6. Shuffle the missed facts and begin with Step 3.
7. Continue until all facts are correctly answered.
8. Periodically reshuffle all cards and begin at Step 3.

	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	34
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

Answer Key

Student Page 10
1. 54
2. 72
3. 56
4. 10
5. 48
6. 40
7. 25
8. 64
9. 32
10. 45
11. 18
12. 21
13. 24
14. 14
15. 27
16. 12
17. 49
18. 16
19. 9
20. 1
21. 25

Student Page 11
27 2 + 7 = 9
36 3 + 6 = 9
45 4 + 5 = 9
54 5 + 4 = 9
63 6 + 3 = 9
72 7 + 2 = 9
81 8 + 1 = 9
90 9 + 0 = 9

Student Page 12
1. 3
2. 2
3. 2
4. 1
5. 5
6. 3
7. 1
8. 2
9. 3
10. 9
11. 7
12. 9
13. 5
14. 6
15. 8
16. 9

Student Page 15
The message reads:
YOU DID IT.

Student Page 16
1. EVEREST
2. MCKINLEY
3. VESUVIUS
4. KILIMANJARO
5. MATTERHORN

Student Page 17
answers in clockwise direction

1. Inner circle: 4; 6; 2
   Outer circle: 54; 18; 48
2. Inner circle: 3; 6; 9;7
   Outer circle: 24; 6; 12; 15
3. Inner circle: 5; 8; 7
   Outer circle: 20; 30; 45; 10
4. Inner circle: 2; 6; 8; 9
   Outer circle: 28; 35; 49; 21
5. Inner circle: 3; 6; 4; 2
   Outer circle: 64; 56; 72; 40
6. Inner circle: 7; 2; 8; 4
   Outer circle: 6; 12; 18; 10
7. Inner circle: 6; 8; 2; 5
   Outer circle: 3; 4; 7; 9
8. Inner circle: 6; 5; 2; 8
   Outer circle: 27; 81; 63; 36

ACTIVITY 3D

MULTIPLICATION AND DIVISION

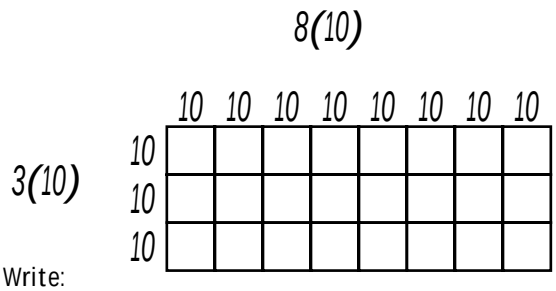
MATERIALS

graph paper
Student Pages 19 - 27

EXPLORING THE CONCEPT - MULTIPLICATION AND DIVISION

LESSON

WHAT I AM TO DO	WHAT I AM TO SAY
1. Using the graph paper, cut out 30 - 10 x 10 squares. Each large square must contain 100 smaller squares.	
2. Write:	
$30 \times 80 = \square$	"HOW COULD YOU SOLVE THIS PROBLEM?"
	"HOW MANY TENS ARE THERE IN 30?... IN 80?"
Set the graph paper squares as follows:	



Write:	
$3(10) \times 8(10) = \square$	"THIS IS READ THREE GROUPS OF TEN TIMES EIGHT GROUPS OF TEN."
	"HOW MANY LARGE SQUARES ARE THERE?"
$\underline{3 \times 8}$ $\quad$ $\underline{(10 \times 10)}$	(ANSWER: 24 OR 3×8)
	"HOW MANY LITTLE SQUARES IN EACH PART?" (ANSWER : 100 OR 10×10)
Write:	
$24(100) = \square$	"TWENTY FOUR GROUPS OF 100 IS ...?"
$30 \times 80 = \square$	"THEREFORE, 30 GROUPS OF 80, 30×80 IS EQUAL TO WHAT NUMBER?"
	"SINCE EACH LARGE GROUP OF SQUARES HAS 100 LITTLE SQUARES, YOU CAN COUNT THE TOTAL NUMBER OF LITTLE SQUARES SIMPLY BY COUNTING BY HUNDREDS."

"HOW MANY LITTLE SQUARES ARE THERE?"

(ANSWER: 2,400)

---

3. Tell your child the following story problem…

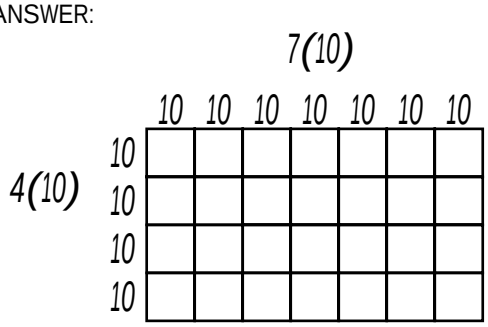
"MR. FINDLY HAS 40 ROWS OF TREES IN HIS ORCHARD. THERE ARE 70 TREES IN EACH ROW."

"WRITE A MULTIPLICATION SENTENCE TO DESCRIBE THE TOTAL NUMBER OF TREES HE HAS IN HIS ORCHARD."

(ANSWER: 40 x 70 = □)

"USE THE GRAPH PAPER SQUARES TO REPRESENT THE STORY."

(ANSWER:



"HOW MANY LARGE SQUARES ARE THERE?"

Write: 4 x 7

"DOES FOUR TIMES SEVEN REPRESENT THE NUMBER OF LARGE SQUARES?"

"EACH LARGE SQUARE HAS HOW MANY LITTLE SQUARES?"

Write: 10 x 10

"DOES 10 TIMES 10 REPRESENT THE NUMBER OF LITTLE SQUARES ON EACH LARGE SQUARE?"

Write:

4 x 7 (10 x 10) = 28(100)

"WHAT DOES 28 GROUPS OF 100 EQUAL?"

"HOW MANY TREES ARE IN THE ORCHARD?"

(ANSWER: 2,800)

"COUNT THE GRAPH PAPER SQUARES TO MAKE SURE THERE ARE 2,800 LITTLE SQUARES.'

(ANSWER: YOUR CHILD SHOULD COUNT BY HUNDREDS)

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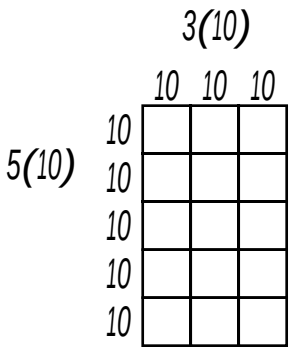
4. Tell your child another story problem …

"SUPPOSE MR. FINDLY HAD ANOTHER ORCHARD WITH 50 ROWS OF TREES WITH 30 IN EACH ROW."

"USE THE GRAPH PAPER SQUARES TO REPRESENT THE STORY."

Draw:



"DOES THIS DRAWING REPRESENT THE STORY?"

"WRITE THE MULTIPLICATION SENTENCE THAT REPRESENTS THE STORY."

(ANSWER: 50 x 30 = □)

"HOW MANY LARGE SQUARES ARE THERE?"

(ANSWER: 3 x 5 = 15)

"HOW MANY LITTLE SQUARES ARE THERE IN EACH LARGE SQUARE?"

(ANSWER: 10 x 10 = 100)

Write: 15(100) = □

"FIFTEEN TIMES 100 IS EQUAL TO WHAT NUMBER?"

"50 ROWS OF TREES WITH 30 IN EACH ROW REPRESENTS HOW MANY TREES?"

5. Give your child Student Pages 19 - 23.

"FOLLOW THE INSTRUCTIONS FOR EACH PAGE. USE THE GRAPH PAPER SQUARES IF YOU NEED TO DO SO."

6. Give your child Student Pages 24 - 27.

"FOLLOW THE INSTRUCTIONS FOR EACH PAGE."

Answer Key

Student Page 19
1. 1,200
2. 1,800
3. 2,400

Student Page 20
1. 2,400
2. 15,000
3. 18,000
4. 280
5. 1,200
6. 1,800

Student Page 21
1. 2,100 1,800 Martin
2. 28,00 24,000 Krider
3. 15,000 16,000 Hend.

Student Page 22
1. 4,800
2. 3,500
3. 32,000
4. 210,000

Student Page 23
1. 1,600
2. 21,000
3. 2,700
4. 60,000
5. 15,000
6. 80,000
7. 10,000
8. 90,000

Student Page 24
1. 10
2. 100
3. 1,000
4. 10,000
5. 100,000
6. 1,000,000
7. 8
8. 80
9. 800
10. 8,000
11. 80,000
12. 800,000
13. 50
14. 500
15. 5,000
16. 50,000
17. 500,000
18. 5,000,000
19. 30
20. 300
21. 300
22. 3,000
23. 90,000
24. 90,000

Student Page 25
1. 4,000
2. 56,000
3. 7,200
4. 15,000
5. 160,000
6. 60,000
7. 40,000
8. 560,000
9. 4,800
10. 2,800
11. 2,500
12 40,000

Student Page 26
YOUR BREATH

Student Page 27
1. 1,200
2. 3,600
3. 1,400
4. 3,000
5. 560,000
6. 45,000
7. 32,000
8. 42,000
9. 120,000
10. 540,000
11. 35,000
12. 32,000
13. 36,000
14. 12,000
15. 12,000
16. 360,000
17. 240,000
18. 360,000
19. 240,000
20. 6,000
21. 4,900

ACTIVITY 3E

MULTIPLICATION AND DIVISION

MATERIALS

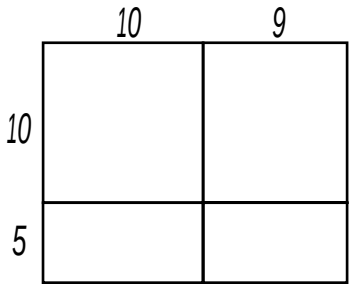
Student Pages 28 - 38
graph paper

EXPLORING THE CONCEPT - MULTIPLICATION AND DIVISION

LESSON

WHAT I AM TO DO	WHAT I AM TO SAY
1. Begin your discussion with this story…	"MIKE AND CHERYL FINISHED WORKING A JIGSAW PUZZLE. THEY SAW THAT THE PIECES FIT INTO ROWS OF 19 PIECES AND THAT THERE WERE 15 ROWS IN ALL. HOW MANY PIECES DID THE PUZZLE HAVE?" "WHAT IS KNOWN IN THIS STORY?" (ANSWER: THE NUMBER OF GROUPS AND THE NUMBER IN EACH GROUP.) "DO YOU KNOW THE TOTAL NUMBER OF PIECES?" (ANSWER: NO) "WRITE A MATH SENTENCE ABOUT THIS STORY (ANSWER: 15 x 19 = ❑ OR 19 x 15 = ❑) "HOW COULD YOU SOLVE THIS PROBLEM?"
2. You or your child need to cut the graph paper to the following dimensions: 10 by 10 square 9 squares by 10 squares 5 squares by 10 squares 5 squares by 9 squares	
19 = 10 + 9	"NINETEEN IS HOW MANY 10'S AND HOW MANY 1'S?" (ANSWER: 1 TEN AND 9 ONES)
15 = 10 + 5	"FIFTEEN IS HOW MANY TENS AND HOW MANY ONES?" (ANSWER: 1 TEN AND 5 ONES)

3. Arrange the graph paper cuts as shown:



100
90
50
+ 45
285

"THIS GRAPH PAPER ARRAY REPRESENTS THE PUZZLE STORY."

"ACROSS THE TOP ARE 19 SQUARES. DOWN THE SIDE ARE 15 SQUARES."

"HOW MANY LITTLE SQUARES ARE IN THE 10 BY 10 PART?"

(ANSWER: 10 x 10 = 100)

"HOW MANY LITTLE SQUARES ARE IN THE 10 BY 9 PART?"

(ANSWER: 10 x 9 = 90)

"HOW MANY LITTLE SQUARES ARE IN THE 5 BY 10 PART?"

(ANSWER: 5 x 10 = 50)

"HOW MANY LITTLE SQUARES ARE IN THE 5 BY 9 PART?"

(ANSWER: 5 x 9 = 45)

"HOW MANY LITTLE SQUARES ARE THERE ALTOGETHER?"

(ANSWER: 285)

"COUNT THE LITTLE SQUARES JUST TO BE SURE."

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4. Give your child another story…

"SHELLEY AND KATHY FINISHED WORKING A JIGSAW PUZZLE. THEY SAW THAT THE PIECES FIT INTO ROWS OF 16 PIECES AND THAT THERE WERE 12 ROWS IN ALL. HOW MANY PIECES DID THE PUZZLE HAVE?"

"WRITE A MATH SENTENCE ABOUT THIS STORY."

(ANSWER: 12 x 16 = ❑ OR 16 x 12 = ❑)

"HOW COULD YOU SOLVE THIS PROBLEM?"

16 = 10 + 6

"SIXTEEN IS HOW MANY 10'S AND HOW MANY 1'S?"

(ANSWER: 1 TEN AND 6 ONES)

12 = 10 + 2

"TWELVE IS HOW MANY TENS AND HOW MANY ONES?"

(ANSWER: 1 TEN AND 2 ONES)

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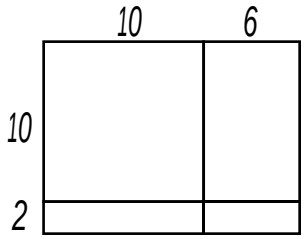
5. You need the following graph paper cuts:

10 squares by 10 squares
6 squares by 10 squares
2 squares by 10 squares
2 squares by 6 squares

6. Arrange the cuts as shown:



100
60
20
+ 12
192

"THIS GRAPH PAPER ARRANGEMENT REPRESENTS THIS STORY."

"HOW MANY LITTLE SQUARES ARE IN THE 10 BY 10 PART?"

(ANSWER: 10 x 10 = 100)

"HOW MANY LITTLE SQUARES ARE IN THE 10 BY 6 PART?"

(ANSWER: 10 x 6 = 60)

"HOW MANY LITTLE SQUARES ARE IN THE REMAINING PARTS?"

"HOW MANY LITTLE SQUARES ARE THERE IN THIS RECTANGLE?"

"COUNT THEM TO BE SURE."

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7. At this point I would give your child addition experience using the graph paper cuts. Use some or all the following sentences:

11 x 11 = □
13 x 13 = □
17 x 15 = □
19 x 14 = □
16 x 13 = □

NOTE: During this section provide the following terminology…

"THE TOTAL NUMBER OF SMALL SQUARES IN THE SQUARE OR RECTANGLE IS CALLED THE AREA."

"FROM NOW ON WE ARE GOING TO CALL THE NUMBER THAT REPRESENTS THE TOTAL THE PRODUCT."

"THE NUMBERS WE ADD TOGETHER FROM THE ARRAY TO GET THE PRODUCT ARE CALLED THE SUBPRODUCTS."

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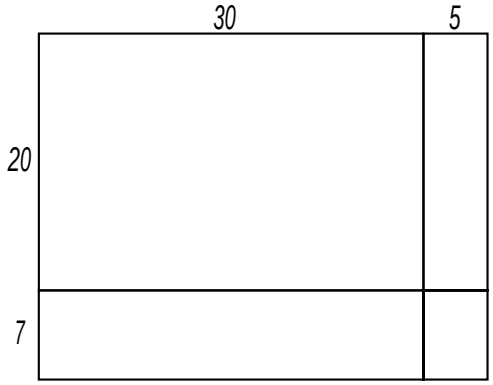
8. Give your child another story…and draw



"TOMMY AND BRYCE FINISHED WORKING A GIANT JIGSAW PUZZLE. THEY SAW THAT THE PIECES FIT INTO ROWS OF 35 PIECES AND THAT THERE WERE 27 ROWS IN ALL. HOW MANY PIECES DID THE PUZZLE HAVE?"

"HOW COULD YOU SOLVE THIS PROBLEM?"

"YES, YOU COULD CUT OUT GRAPH PAPER TO REPRESENT THE STORY."

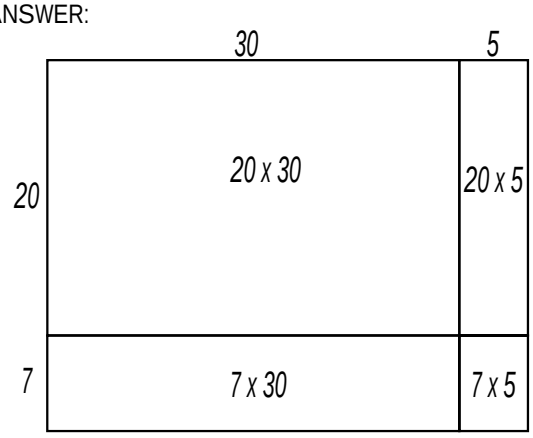
"I WANT TO SHOW YOU AN EASIER WAY. LET ME SKETCH THIS PUZZLE."

"WRITE THE MULTIPLICATION SENTENCE TO DESCRIBE THIS STORY."

(ANSWER: 27 x 35 = □)

"WRITE THE MULTIPLICATION SENTENCES FOR EACH SUBPRODUCT ON THE ARRAY."

(ANSWER:



Write the subproducts:

7 x 5 = _____

7 x 30 =

20 x 5 =

20 x 30 =

If your child has difficulty with 20 x 30, then remind him of Activity 3 D.

"FIND THE SUBPRODUCT FOR EACH PART."

"ADD THE SUBPRODUCTS TOGETHER TO FIND THE PRODUCT."

"WRITE THE PRODUCT IN THE BOX OF THE ORIGINAL SENTENCE."

(ANSWER: 27 x 35 = 945)

"WHAT IS THE AREA OF THIS RECTANGLE?"

9. Give your child Student Pages 32 - 42. Provide as much assistance as your child needs.

"FOLLOW THE INSTRUCTIONS GIVEN ON EACH PAGE."

10. Note for Student Page 38 ...

"CHANGE 28 TO 30 AND CHANGE 110 TO 100 ... "

"CHANGE 61 TO 60 AND 420 TO 400 ... "

Answer Key

Student Page 28
1. 10,488
2. Yes; Yes; multiplied in a different order
3. 1702

Student Page 29
1. 184,528
2. 212,868
3. 65,390
4. 37,694

Student Page 30
1. 4,608
2. 442
3. 10,075
4. 104,854
5. 12,038
6. 20,102

Student Page 31
1. 2,132
2. 6,192
3. 6,375
4. 14,432

Student Page 32
1. 227,298
2. 111,006

Student Page 33

1. 1,682; yes
2. 352; yes
3. 1,584; no
4. 1,872
5. 12,108; no

Student Page 34

1. A
2. T
3. N
4. A
5. L
6. T
7. A

ATLANTA

8. a; 15,210
9. c; 313,544
10. b; 234,168

Student Page 35

1. 2,093
2. 2,691
3. 2,046
4. 1,764
5. 2,584
6. 2,944

Student Page 36

Bedroom:
20,160
Living Room:
24,192
Kitchen:
14,976
Storage Room:
9,216
Total: 68,544

Student Page 37

1. 3,105
2. 6,110
3. 3,185
4. 5,184
5. 3,776
6. 4,320
7. 6,080
8. 4,370
9. 5,264
10. 3,726

Student Page 38

1. 12,312
   yes; 1,800
2. 28,704
3. 6,768
4. 130,188