Chapter 5

Multiply with Two-Digit Numbers

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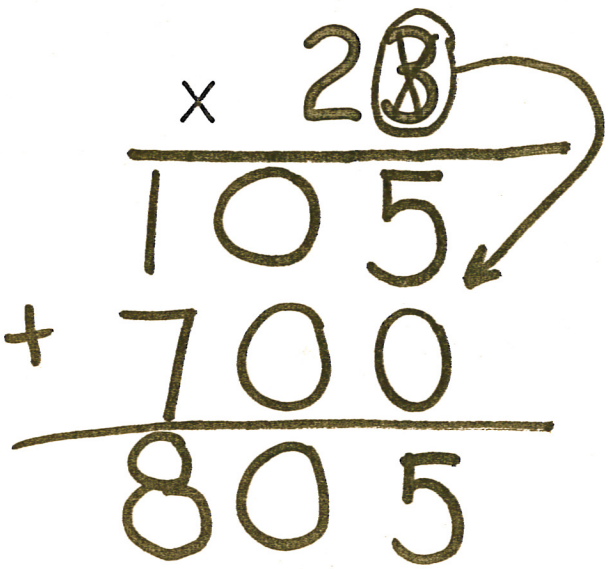


Study Buddy

MATH at HOME

Dear Family,

Today my class started the **Multiply with Two-Digit Numbers** chapter. I will be learning to multiply by tens and two-digit numbers. I will also learn how to use rounding to estimate products. Here are my vocabulary words that I will be using during my lessons.

Love, _____

p.s. Look on the back of this letter to find some quick practice tips that we can do together in the car, along with an activity and books for us to read at home.

Vocabulary

Distributive Property of Multiplication: to multiply a *sum* by a number, multiply each addend by the number and then add the products

$$6 \times 38 = (6 \times 30) + (6 \times 8)$$

estimate: a number close to an exact value; an estimate indicates about how much
Example: 47 + 22 (estimate 50 + 20), about 70.

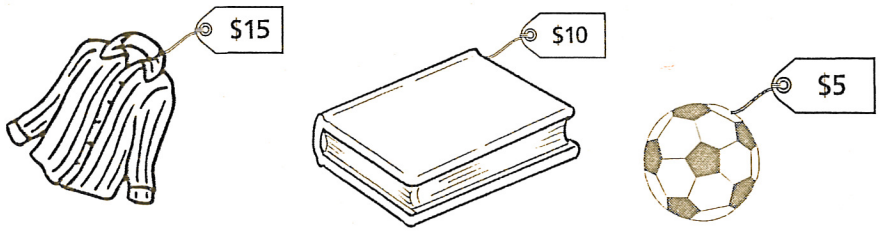
product: the answer to a multiplication problem. It also refers to expressing a number as a product of its factors
Example: $7 \times 2 = 14$, 14 is the product.

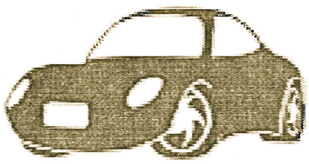
operation: a mathematical process such as addition +, subtraction −, multiplication ×, or division ÷

MATH at HOME

At Home Activity

- Pretend you are selling items in a store. Collect the following items and label them accordingly: (1) book, $10; (2) shirt, $15 each; and (3) ball, $5 each. If a teacher wanted to buy 10 of the books, how much would it cost? If someone wanted to buy 23 shirts, how much would it cost? If someone wanted to buy 12 balls, how much would it cost?





Travel Talk

Practice rounding numbers that you see around you. For example, license plate number HGY356. Round the number 356 to the nearest tens place, 360. Also try multiplying two, and three-digit numbers by multiples of 10. For example, State Route 75 multiplied by 10 is 750.

Books to Read

Anno's Mysterious Multiplying Jar
by Mitsumasa Anno

Amanda Bean's Amazing Dream
by Cindy Neuschwander

One Hundred Hungry Ants
by Elinor Pinczes

Name _____ Date _____

Game Time

A Multiplication Race

Ready

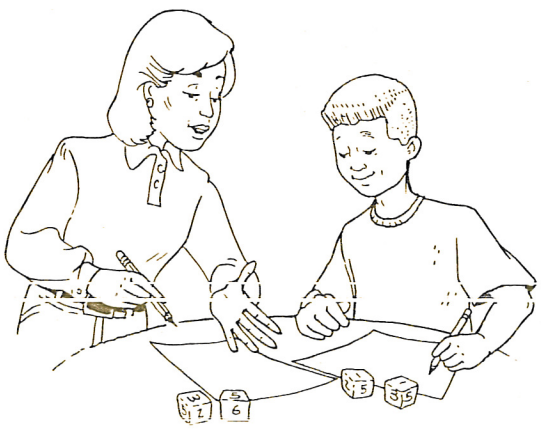
You will need:
Number cubes (2 per player)
Paper and pencils

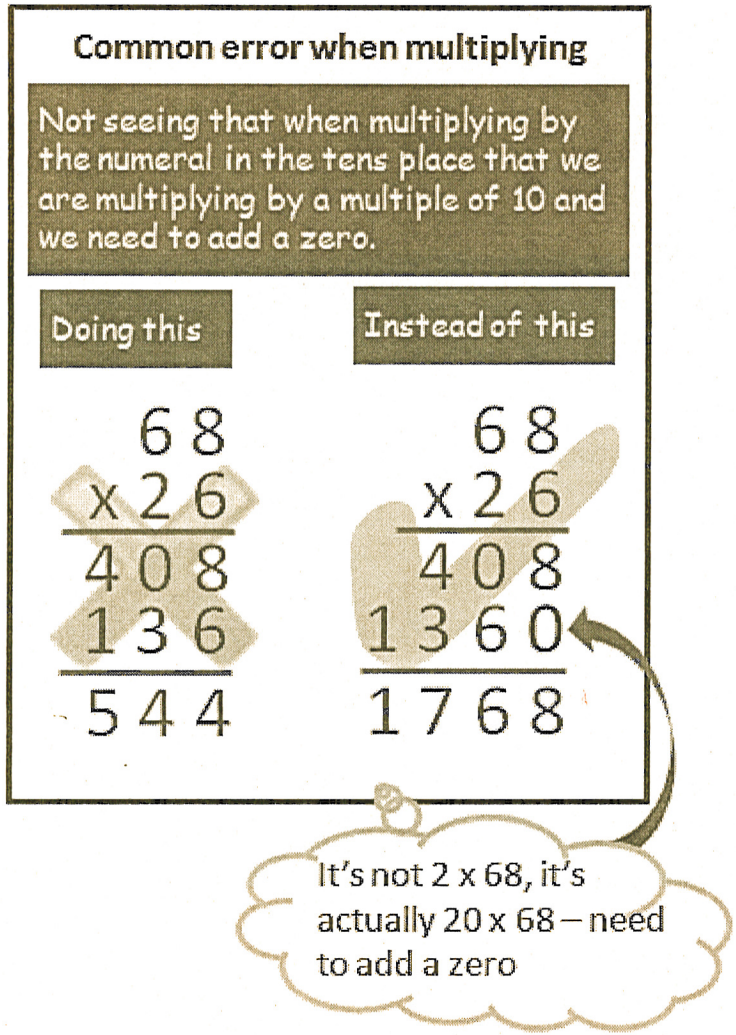
Set

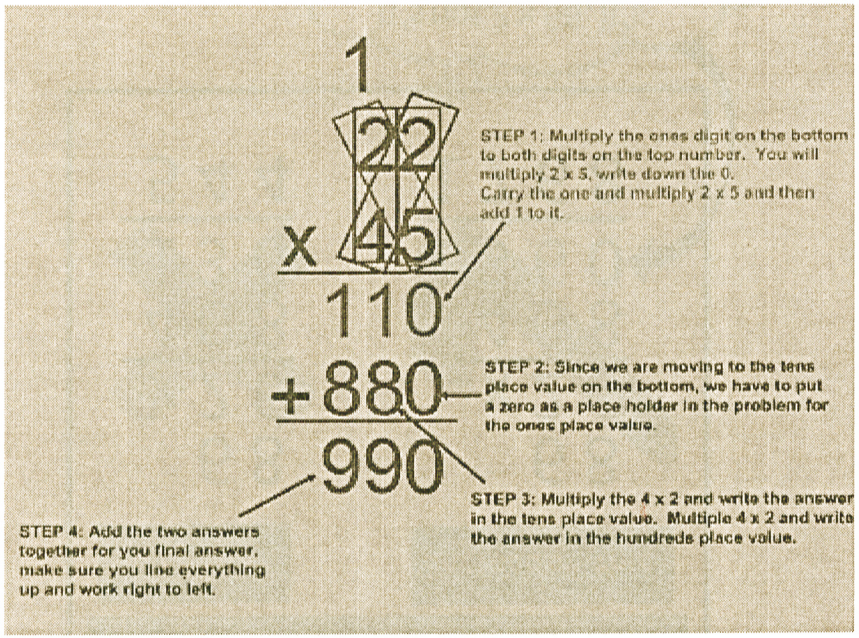
Give each player a pair of number cubes, a sheet of paper, and a pencil.

Go!

1. Each player tosses the pair of number cubes twice and forms 2 two-digit numbers from the numbers tossed.
2. The player multiplies his or her numbers together and records the product.
3. Players follow Steps 1 and 2 again, adding the products from the first and second round together.
4. Players repeat Steps 1–3 until one reaches a sum of 10,000 and wins the game.




Common error when multiplying
Not seeing that when multiplying by the numeral in the tens place that we are multiplying by a multiple of 10 and we need to add a zero.
Doing this
68
x26
408
136
544
Instead of this
68
x26
408
1360
1768
It's not 2 x 68, it's actually 20 x 68 – need to add a zero


1
22
x 45
110
+880
990
STEP 1: Multiply the ones digit on the bottom to both digits on the top number. You will multiply 2 x 5, write down the 0. Carry the one and multiply 2 x 5 and then add 1 to it.
STEP 2: Since we are moving to the tens place value on the bottom, we have to put a zero as a place holder in the problem for the ones place value.
STEP 3: Multiply the 4 x 2 and write the answer in the tens place value. Multiple 4 x 2 and write the answer in the hundreds place value.
STEP 4: Add the two answers together for you final answer, make sure you line everything up and work right to left.

Two-Digit Area Models

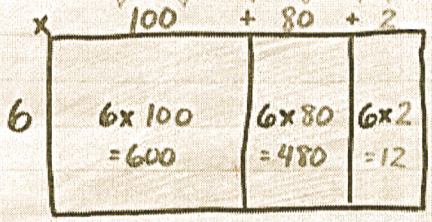
	50	6
30	30 x 50 1,500	30 x 6 180
5	5 x 50 250	5 x 6 30

$$\begin{array}{r} {\scriptstyle 1} \\ 1,500 \\ 180 \\ 250 \\ +\quad 30 \\ \hline 1,960 \end{array}$$

Multiplication Strategies

Example: 6 x 182

Area Model



600 + 480 + 12 = 1,092

Distributive Property

6 x 182 = 6 x (100 + 80 + 2)
= (6 x 100) + (6 x 80) + (6 x 2)
= 600 + 480 + 12
= 1,092

Partial Products

182
x 6

600 ← 6 x 1 hundred
480 ← 6 x 8 tens
+ 12 ← 6 x 2 ones
1,092

Standard Algorithm

4 1
182
x 6
1,092

Start in the ONES place

MENTAL MATH
6 x 2 = 12
6 x 8 = 48 + 1 = 49
6 x 1 = 6 + 4 = 10

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144