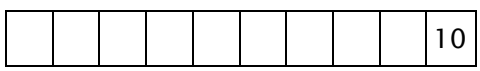
LESSON 5

Multiply by 10, 10¢ = 1 Dime

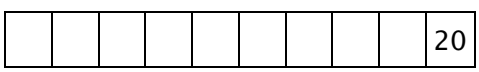
When multiplying by 10, encourage the student to look for patterns. Notice that whenever you multiply 10 times any number, the answer is that number plus a zero. That is because 10 is made up of a "1" digit which means one ten and a "0" digit that means zero units. Thus, 4×10 is the same as 4×1 ten = 4 tens *and* 4×0 units = 0 units, or 40. The "ty" in forty stands for 10.

To make sure the student has this concept, I like to ask, "What is banana times 10?" The answer is "banana tens," written "banana 0" and pronounced "banana-ty." These are easy facts to learn and remember, but don't take them for granted. Make sure they are mastered using any of the techniques shown below.

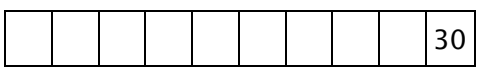
On the worksheets, there have been rectangles where the student wrote in the fact at the end of the line in the space with an underline. These can be put to another use by adding the multiplication problem that corresponds to the multiple of 10. Here are a few examples.



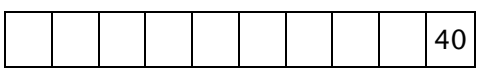
Ten counted one time equals ten; $10 \times 1 = 10$



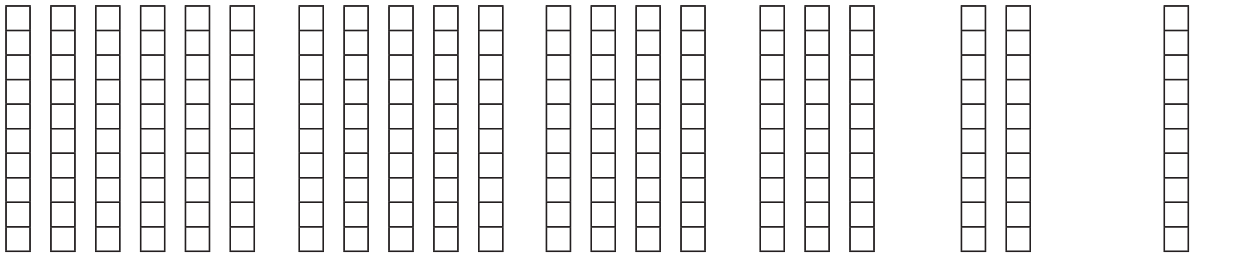
Ten counted two times equals twenty; $10 \times 2 = 20$



Ten counted three times equals thirty; $10 \times 3 = 30$



Ten counted four times equals forty; $10 \times 4 = 40$

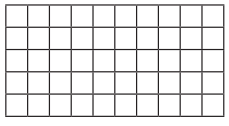


10 · 6 = 60 10 · 5 = 50 10 · 4 = 40 10 · 3 = 30 10 · 2 = 20 10 · 1 = 10

Another way to show this is on a number chart. Circling all of the 10 facts, or multiples of 10, reveals the pattern that corresponds to the blocks above.

(0)	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)	81	82	83	84	85	86	87	88	89
(90)	91	92	93	94	95	96	97	98	99
(100)									

Each ten fact can be built in the shape of a rectangle. Whenever illustrating with the blocks, also write the problem and say it as you build.



10 counted 5 times is the same as 50; 10 times 5 equals 50; 10 over and 5 up is 50.

We may also think of a multiplication problem as a size comparison of the blocks. One of the numbers that we say when we skip count by 10 is 30. Writing this as a multiplication problem gives us $10 \times 3 = 30$. Turning the equation around gives us $30 = 10 \times 3$. We can verbalize $30 = 10 \times 3$ as "Thirty is ten times greater than three." Use the blocks to illustrate this if you wish.

Counting by 10 is the first step. After this is accomplished, say the factors slowly and ask the student to say the product. For example, you say "ten counted one time," or "ten times one," and the student says "ten." Continue by saying "ten times two" and having the student say "twenty." (I often have the student say "two-ty" as well as twenty to show the meaning behind the words.) Proceed through all the facts sequentially, just as when the student learned to count by 10.

Here are the 10 facts with the corresponding products.

0	10	20	30	40	50	60	70	80	90	100
(10)(0)	(10)(1)	(10)(2)	(10)(3)	(10)(4)	(10)(5)	(10)(6)	(10)(7)	(10)(8)	(10)(9)	(10)(10)
	↑			↑					↑	
	10 counted 1 time			10 counted 4 times					10 counted 9 times	

0 × 0	0 × 1	0 × 2	0 × 3	0 × 4	0 × 5	0 × 6	0 × 7	0 × 8	0 × 9	0 × 10
1 × 0	1 × 1	1 × 2	1 × 3	1 × 4	1 × 5	1 × 6	1 × 7	1 × 8	1 × 9	1 × 10
2 × 0	2 × 1	2 × 2	2 × 3	2 × 4	2 × 5	2 × 6	2 × 7	2 × 8	2 × 9	2 × 10
3 × 0	3 × 1	3 × 2	3 × 3	3 × 4	3 × 5	3 × 6	3 × 7	3 × 8	3 × 9	3 × 10
4 × 0	4 × 1	4 × 2	4 × 3	4 × 4	4 × 5	4 × 6	4 × 7	4 × 8	4 × 9	4 × 10
5 × 0	5 × 1	5 × 2	5 × 3	5 × 4	5 × 5	5 × 6	5 × 7	5 × 8	5 × 9	5 × 10
6 × 0	6 × 1	6 × 2	6 × 3	6 × 4	6 × 5	6 × 6	6 × 7	6 × 8	6 × 9	6 × 10
7 × 0	7 × 1	7 × 2	7 × 3	7 × 4	7 × 5	7 × 6	7 × 7	7 × 8	7 × 9	7 × 10
8 × 0	8 × 1	8 × 2	8 × 3	8 × 4	8 × 5	8 × 6	8 × 7	8 × 8	8 × 9	8 × 10
9 × 0	9 × 1	9 × 2	9 × 3	9 × 4	9 × 5	9 × 6	9 × 7	9 × 8	9 × 9	9 × 10
10 × 0	10 × 1	10 × 2	10 × 3	10 × 4	10 × 5	10 × 6	10 × 7	10 × 8	10 × 9	10 × 10

10¢ = 1 Dime

A good place to apply multiplication by ten is with money. We've learned that 10¢ is the same as one dime, so we can ask how many pennies are the same as six dimes or how many cents are in six dimes. The answer is $6 \times 10¢$, or 60¢.

Example 1

How many cents are in six dimes?

$6 \cdot 10¢ = 60¢$

We will be reviewing and using multiplication facts throughout the student workbook. Go to mathusee.com for more resources that may be used to review multiplication facts.