

Multiplying by 1-Digit Numbers SLM

Use Arrays lesson 5-1
think in groups!

1 group of 10 is equal to a tens stick.

T	O
1	0
x	4
4	0

4 groups of 10

1 group of 100 is equal to a hundreds square.

H	T	O
1	0	0
x	2	0
2	0	0

2 groups of 100

EQ: What strategies can you use to multiply multi-digit numbers by 1-digit numbers?

★ Multiplying 22 times 4 might seem like a hard problem, but it can be broken into two easier problems.

Break Apart lesson 5-3
make it simple!

You know that 20+2 equals 22. You can multiply 4 by each of these numbers to make two easier problems.

$$\begin{array}{r}
 20 + 2 \\
 \swarrow \searrow \\
 22 \times 4 = \\
 (20 \times 4) + (2 \times 4) \\
 \swarrow \quad \searrow \\
 80 \quad + \quad 8 \\
 \hline
 = 88
 \end{array}$$

Solve the easier problems. Then add for your answer.

Rule of 10s and 100s lesson 5-2
think basic facts!

T	O
5	0
x	3
15	0

- How?**
1. Bring down your 0s.
 2. Solve your basic fact and record it to the left.

H	T	O
7	0	0
x		2
1,5	0	0

Rule of 10s and 100s → When multiplying by 10s and 100s, bring down your 0s then solve for your basic fact.

Partial Products lesson 5-3
think place value!

H	T	O
3	2	5
x		3

$$\begin{array}{r}
 3 \quad 0 \quad 0 \times 3 = 900 \\
 2 \quad 0 \times 3 = 60 \\
 5 \times 3 = +15 \\
 \hline
 975
 \end{array}$$

✓ Pull out each number in the larger factor by its place value and multiply each by 3.

✓ Then add all of your products together.

Mental Math

lesson
5-4

remember the
Compensation strategy!

Adjust!

Don't forget to **add** the 2 groups of 4 that you lost by rounding down.

Rounding Down!

$$4 \times \underline{12}$$

$$4 \times 10 = 40$$

$$4 \times 2 = + 8$$

answer: **48**

The 2 tells the 1 to stay the same.

★ Use rounding to create a 10s or 100s multiplication problem that is easier to solve!

Rounding Up!

The 7 tells the two to go up +1.

$$6 \times \underline{27} =$$

$$6 \times 30 = \del{90}$$

$$6 \times 3 = - 18$$

answer: **72**

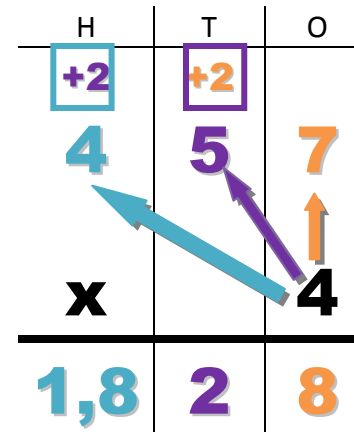
Adjust!

Don't forget to **subtract** the 3 groups of 3 that you added by rounding up.

Standard Algorithm

lesson
6-2

the old fashioned way!



- ✓ Multiply the bottom factor by each digit in the top factor.
- ✓ Place each product in the correct column.
- ✓ Regroup by adding the leftovers to the next column after multiplying.

lessons
6-1, 6-2,
6-3, 6-4,
6-5

EQ:

How can you use models to help you record multiplication?

Partial Products
(Expanded Algorithm)

Standard Algorithm

lesson
5-5

EQ:

Why do you estimate when multiplying?
How do you do it?

why?

when you don't need exact answers

to check the reasonableness of an answer

James solves the following problem like this:

$$\begin{array}{r} +1+1 \\ 275 \\ \times 3 \\ \hline 615 \end{array} \qquad \begin{array}{r} \del{275} \rightarrow 300 \\ \times 3 \quad \times 3 \\ \hline 900 \end{array}$$

Is his answer reasonable?

No, the answer will be close to 900 and 615 is not close to 900.