


Multiplication Problems

Learning Objective:

To use multiplying by 10 and 100 to solve a multi-step problem.



Do you remember what happens when you multiply a number by 10 or 100?

Describe what happens to your partner.

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When you multiply by 10 or 100, the digits move to the left in the place value columns.

Each time they move one column to the left, they get ten times bigger! Multiplying a number by 100 moves the digits two columns to the left. Can you explain why?

$$46 \times 10 = 460$$

Th	H	T	O
		4	6
	4	6	0

$$31 \times 100 = 3100$$

Th	H	T	O
		3	1
3	1	0	0

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Multiplying by 100 moves the digits two columns to the left because it is the same as multiplying by 10 and then 10 again. Why do we put in the zeroes?

46 x 10 = 460			
Th	H	T	O
		4	6
	4	6	0

31 x 100 = 3100			
Th	H	T	O
		3	1
3	1	0	0



The zeroes are there as placeholders to make sure the other digits in the number stay in the right columns.

$$46 \times 10 = 460$$

Th	H	T	O
		4	6
	4	6	0

$$31 \times 100 = 3100$$

Th	H	T	O
		3	1
3	1	0	0

Let's play a game.

$46 \times 10 = 460$			
Th	H	T	O
		4	6
	4	6	0

$31 \times 100 = 3100$			
Th	H	T	O
		3	1
3	1	0	0

Take it in turns to roll either one or two dice. If you have rolled two dice, add them together.

Next multiply your number by either 10 or 100 and cover the answer on the game board with one of your counters.

The first to get four in a row wins!

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The marine biologists for the aquarium have recently made an amazing discovery on their research trip.

They have found a new organism which they have named the deca-anemone.

They made their discovery in the depths of the ocean and they're very keen to study this new creature.

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The deca-anemone is a very curious creature as it only seems to grow in sets of ten!

It has ten main columns with ten branches growing from each of them. On each branch there are ten tentacles and on each tentacle there are ten buds.



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You are going to join the marine biologist's study team to find out how many buds there are on the entire deca-anemone.



How are you going to start this investigation?

What kind of calculations might you use here?

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How are you getting on study teams?

I'm afraid I have some bad news!

When the marine biologists went back to the deca-anemone, they found that one whole column, a branch on another column, another tentacle and a bud had fallen off!

How many buds are on the deca-anemone now?



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Are these statements about the deca-anemone true or false?

One whole column has 10,000 buds on it.

Two branches would have 200 buds altogether.

If you took one bud from each tentacle on a branch, there would be 90 buds left on that branch.

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Plenary



One column would have 1000 buds on it.

One whole column has 10,000 buds on it.

Two branches would have 200 buds altogether.

If you took one bud from each tentacle on a branch, there would be 90 buds left on that branch.