M1e: Can use place value to multiply whole numbers by 10, 100 or 1000

Commissioned by The PiXL Club Ltd.
July 2018

Vocabulary: multiplying whole numbers using place value

place value
columns
place holder
digit
multiply

Teacher's Note:
See 'Vocabulary Shorts' resource below for ideas and games to develop and embed vocabulary.

Vocabulary Shorts

Review previous learning

1. Put these numbers in ascending order:

37.18, 37.98, 34.098, 35.982, 34.098

2. Put these numbers in descending order:

24.781, 25.997, 24.672, 25.668, 26.981

3. Round these numbers to the nearest 10, 100 and 1000.

A. 8415

B. 3960

C. 6500

D. 24,645

Reviewing previous learning:
Adding, subtraction and multiplying fractions.

Don't forget to simplify your answers!

1. 7/10 - 1/5 =

2. 3/5 + 1/7 =

3. 8/9 - 1/5 =

Don't forget to simplify your answers!

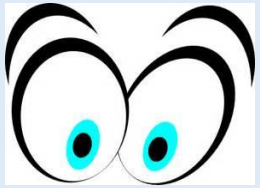
4. 1/4 x 3/8 =

5. 3/8 x 4/5=

6. 5/6 x 3/9 =

Can use place value to multiply whole numbers by 10, 100 or 1000

Multiplying by 10, 100 or 1000



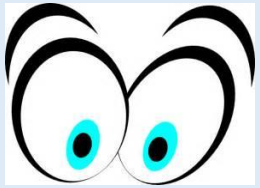
When multiplying whole numbers, we need to remember the **place value** of **digits**.

Hundreds	Tens	Ones
3	1	7

The number 317 = 300 + 10 + 7

Can use place value to multiply whole numbers by 10, 100 or 1000

Multiplying by 10



When you multiply a number by 10, each digit moves **one place to the left.**

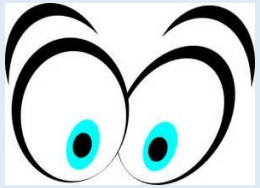
The **ones** digit moves to the **tens** column, the **tens** digit moves to the **hundreds** column etc.

Hundreds	Tens	Ones

Let's look at some examples…

Can use place value to multiply whole numbers by 10, 100 or 1000

Multiplying by 10



Hundreds	Tens	Ones
		9
	9	0

When you multiply a number by 10, each digit moves **one place to the left.**

9 x 10 becomes 90 (ninety). We add a zero as a place holder.

Can use place value to multiply whole numbers by 10, 100 or 1000

Your turn

Multiply each of these numbers by 10:

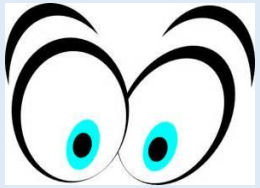
A. 5 B.

16 C. 45 D. 210 E. 305

Thousands	Hundreds	Tens	Ones

Can use place value to multiply whole numbers by 10, 100 or 1000

Multiplying by 100



Hundreds	Tens	Ones
		9
	9	0
9	0	0

When you multiply a number by 100, each digit moves **two places to the left.**

9 x 100 becomes 900

(Nine hundred)

Can use place value to multiply whole numbers by 10, 100 or 1000

Your turn

Multiply each of these numbers by 100:

A. 6 B. 19 C. 35 D. 482

E. 603

Ten thousands	Thousands	Hundreds	Tens	Ones

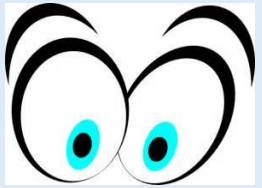
Reasoning

Joe says the answer to 25 x 100 and 250 x 10 is the same.

Is he right?

Can use place value to multiply whole numbers by 10, 100 or 1000

Multiplying by 1000



Thousands	Hundreds	Tens	Ones
			9
		9	0
	9	0	0
9	0	0	0

When you multiply a number by 1000, each digit moves **three places to the left.**

9 x 1000 becomes 9000

(nine thousand)

Can use place value to multiply whole numbers by 10, 100 or 1000

Your turn

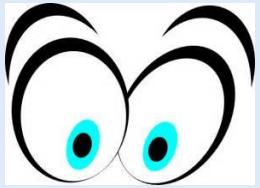
Multiply each of these numbers by 1000:

A. 4 B. 12 C. 74 D. 31

Ten thousands	Thousands	Hundreds	Tens	Ones

Can use place value to multiply whole numbers by 10, 100 or 1000

This is what 35 x 10, 100 and 1000 looks like:-



Ten thousands	Thousands	Hundreds	Tens	Ones
			3	5
		3	5	0
	3	5	0	0
3	5	0	0	0

35 x 10 = 350

35 x 100 = 3500

35 x 1000 = 35,000

Can use place value to multiply whole numbers by 10, 100 or 1000

Your turn

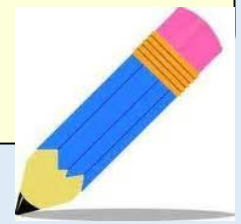
Ten thousands	Thousands	Hundreds	Tens	Ones
				7

In your book draw and complete the chart yourself:

7 x 10 =

7 x 100 =

7 x 1000 =



Can use place value to multiply whole numbers by 10, 100 or 1000

Your turn

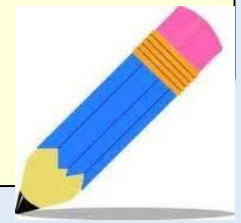
Ten thousands	Thousands	Hundreds	Tens	Ones
			3	2

In your book draw and complete the chart yourself:

32 x 10 =

32 x 100 =

32 x 1000 =



Can use place value to multiply whole numbers by 10, 100 or 1000

Your turn

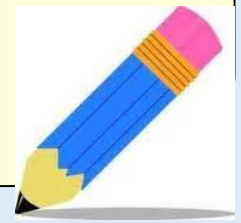
Ten thousands	Thousands	Hundreds	Tens	Ones
			8	3

In your book draw and complete the chart yourself:

83 x 10 =

83 x 100 =

83 x 1000 =



Problem Solving

A sheet of paper is 34mm thick.
There are 1000 sheets in a pack.
How thick is the pack of paper?

Problem Solving

How can you use 6 x 100 = 600 to work out 60 x 10?