Monday 8th JUNE 2020

MATHS

PLACE VALUE – This week you will be counting and rounding large numbers up to 1,000,000.

I can count forwards and backwards in steps of powers of 10 to 1,000,000.

What does it mean to count in powers of 10?

We get powers of 10 by starting with 1 and multiply by 10.

$$1 \times 10 = 10$$

$$10 \times 10 = 100$$

$$100 \times 10 = 1000$$

$$1000 \times 10 = 10000$$

Name	Common Notation	Math Notation	Exponent	Prefix
Quintillion	1 000 000 000 000 000 000	10^{18}	18	Exa (E)
Quadrillion	1 000 000 000 000 000	10^{15}	15	Peta (P)
Trillion	1 000 000 000 000	10^{12}	12	Tera (T)
Billion	1 000 000 000	10^{9}	9	Giga (G)
Million	1 000 000	10^{6}	6	Mega (M)
Thousand	1 000	10^{3}	3	kilo (k)
Hundred	100	10^{2}	2	hecto (h)
Ten	10	10^{1}	1	Deca (da)
One	1	10^{0}	0	
One Tenth	0.1	10^{-1}	-1	deci (d)
One Hundredth	0.01	10^{-2}	-2	centi (c)
One Thousandth	0.001	10^{-3}	-3	milli (m)
One Millionth	0.000 001	10^{-6}	-6	micro (μ)
One Billionth	0.000 000 001	10^{-9}	-9	nano (n)
One Trillionth	0.000 000 000 001	10^{-12}	-12	pico (p)
One Quadrillionth	0.000 000 000 000 001	10^{-15}	-15	femto (f)
One Quintillionth	0.000 000 000 000 000 001	10^{-18}	-18	atto (a)

So, our powers of 10 are: 1, 10, 100, 1000, 10000...

Let's start by adding 10s to 2135

2135

$$2135 + 10 = 2145$$

$$2145 + 10 = 2155$$

$$2155 + 10 = 2165$$

And we can create a sequence; 2135, 2145, 2155, 2165...

Looking at the sequence we can see that the next number will be 2175.

What is the next number in the sequence?

3400, 3500, 3600, 3700, ...

Starter activity

Complete the sequence below and the counting in multiple of 10 on page 3.

- Complete the sequence.

  ____ , ____ , 2 , ____ , 22 , ____ , 42 , ____ , ____ , 72

  The rule for the sequence is _____.

- Circle and correct the mistake in each sequence.
  - 7,875, 8,875, 9,875, 11,875, 12,875, 13,875, ...
  - 864,664, 764,664, 664,664, 554,664, 444,664, ...

TASK A - Counting in multiples of 10

Nura counts forwards and backwards in 10s from 29. Which numbers could Nura count as she does this?

3579	8923	-29	-201
10 899	307 819	270 009	999 999
58 991	-999	3972	-29 831

Write three more numbers she would count.

TASK B - Count in multiples of 100

Count forwards in hundreds from these numbers.

What are the second and fifth numbers that you arrive at?

289

891

19 034

99 607

610 729

Now try backwards.

What is the second and fifth numbers to which you arrive?

Try this with two more numbers of your own, maybe starting with a negative number:

1.

2.

If you are able to please go to the next slide

TASK C - Count in multiples of 1000

Counting in 1000s

George counts **forwards** from 34 819 in thousands.

Write some numbers that George might say as he counts. (up to 4)

Explain which digits will change and which will not change and why this happens.

What about if George counts **backwards?** (up to 4)

Share your explanations. Is there anything you can improve in your own explanation?

Challenge: This is optional

Counting in 10 000s

Keziah counts forwards in ten thousands. Write the next three numbers from these:

45 901

193 619

10 720

287 718

519 374

Which sequence would become negative after counting backwards three times in 10 000s?

Answers to:

Task A

Any positive number ending in 9 or negative number ending in 1.

Task B

Count forwards in hundreds from these numbers.

What are the second and fifth numbers that you arrive at?

Number	Second	Fifth	Second (Backwards)	Fifth (Backwards)
289	489	789	89	-211
891	1091	1391	691	391
19 034	19 234	19 534	18 834	18 534
99 607	99 807	100 107	99 407	99 107
610 729	610 929	611 229	610 529	610 229

Task C

Any number ending 819.

Counting in thousands from 34 819:

- The hundreds, tens and ones will stay as 819.
- The whole number of thousands can be any number (e.g. there are 34 thousands in 34 819) so the thousands, ten thousands, hundred thousands etc. can be any number.

Counting backwards the hundreds, tens and ones will change to 181 when negative.