Knowledge Organiser

Year Group	Subject	Topic
4	Maths	Place value

The Big Picture
Children will be working on place value in the autumn term. We will be revisiting some of our learning from year 3 to make sure we are secure before moving on to the year 4 curriculum. Children will be working on tens and ones using part-whole model, bar model, number lines, base 10, diennes and various other methods and strategies to help us solve problems in number.

Key Concepts

- Roman Numerals to 100
- Rounding to the nearest 10, 100 and 1000
- Counting in 25s and 1000s
- Recognising the place value of each digit in a four digit number
- Partitioning
- Comparing and ordering numbers
- 1000 more or less
- Negative numbers

Key Vocabulary

- increase/decrease
- rounding
- nearest
- negative number
- compare
- order
- digit
- sequence
- place value
- ones, tens, hundreds, thousands

Rounding

Rounding to the nearest 10

To round a number to the nearest 10, you should look at the ones digit. If the ones digit is 5 or more, round up. If the ones digit is 4 or less, round down.

In the number **427**, the ones digit is the **7**. **7** rounds up so **427 rounds up to 430.**

Rounding to the nearest 100

To round a number to the nearest 100, you should look at the tens digit. If the tens digit is 5 or more, round up. If the tens digit is 4 or less, round down.

In the number **328**, the tens digit is the **2**. **2** rounds down so **328 rounds down to 300.**

Rounding to the nearest 1000

To round a number to the nearest 1000, you should look at the hundreds digit. If the hundreds digit is 5 or more, round up. If the hundreds digit is 4 or less, round down.

In the number **1532**, the hundreds digit is the **5**. **5** rounds up so **1532 rounds up to 2000.**

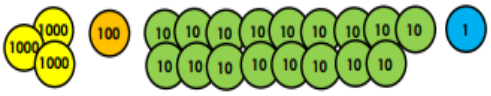
Partitioning

Numbers can be partitioned (broken apart) in more than one way...

3271 = 3000 + 200 + 70 + 1

3271 = 2000 + 1200 + 60 + 11

3271 = 3000 + 100 + 170 + 1



Ordering and Comparing Numbers

When we put numbers in order, we need to compare the value of their digits.

3518 **3736** **2845**

First, look at the thousands digits in each number. 2 is the smallest thousand digit so 2845 is the smallest number. The other two numbers both have a 3 in the thousands place so we then need to compare the hundreds digit. 5 is smaller than 7 therefore 3518 is smaller than 3736.

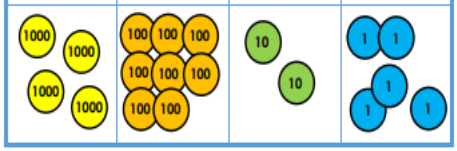
We can compare numbers using symbols:
< = less than and > = greater than

2845 < 3518 3736 > 3518

Place Value of Digits

Place value helps us know the value of a digit, depending on its place in the number.

TH	H	T	O
4	8	2	5



In the number above, the 4 digit is in the thousands place so it really means 4000.

The 8 digit is in the hundreds place so it really means 800.

The 2 digit is in the tens place so it really means 20.

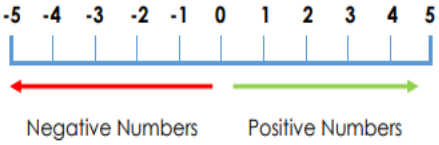
The 5 digit is in the ones place so it means 5.

Negative Numbers

If you count backwards from zero, you reach negative numbers.

Positive numbers are any numbers **more than** zero e.g. 1, 2, 3, 4, 5.

Negative numbers are any numbers **less than** zero e.g. –1, -2, -3, -4, -5.



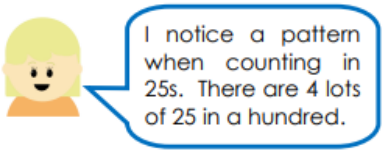
Roman Numerals

I = 1	X = 10
II = 2	XX = 20
III = 3	XXX = 30
IV = 4	XL = 40
V = 5	L = 50
VI = 6	LX = 60
VII = 7	LXX = 70
VIII = 8	LXXX = 80
IX = 9	XC = 90
X = 10	C = 100

Counting in 25s and 1000s

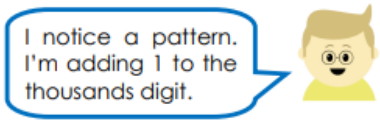
Counting in 25s

25, 50, 75, 100, 125, 150, 175, 200



Counting in 1000s

1000, 2000, 3000, 4000, 5000



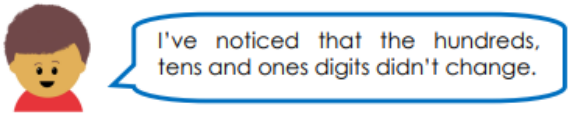
1000 More or 1000 Less

To find 1000 more or less than a number, you first need to find the digit in the thousands place.

TH	H	T	O
5	6	3	9

Finding 1000 more will increase the thousands digit by 1. So in this example, the 5 will become a 6. ***1000 more than 5639 is 6639.***

Finding 1000 less will decrease the thousands digit by 1. So in this example, the 5 will become a 4. ***1000 less than 5639 is 4639.***



TTH	TH	H	T	O
0	9	6	3	9

Finding 1000 more when the number has a 9 in the thousands place is slightly different. Adding 1 to the thousands place would give 10, so to show that, the ten thousands increases by 1 and a 0 is put in the thousands place. ***1000 more than 9639 is 10, 639.***