YR6 PLACE VALUE KNOWLEDGE ORGANISER

Key Concepts

- Numbers to ten million
- Rounding any whole number to a required degree of accuracy
- Recognising the place value of numbers up to 10,000,000
- Compare and order numbers
- Negative numbers

Key Vocabulary

- increase/decrease
- less than/greater than
- equal to
- rounding
- nearest
- negative number
- compare
- order
- partitioning
- place value
- Part, part whole
- ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions, ten million

Place Value of Digits

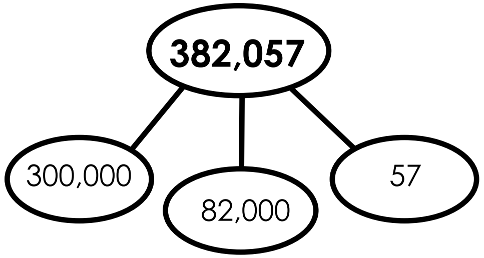
Place value helps us know the value of a digit, depending on its place in the number.

TM	M	HTH	TTH	TH	H	T	O
1	3	7	6	4	8	2	5

- In the number above, the 1 digit is in the ten millions place so it really means 10,000,000 (ten million).
- The 3 digit is in the millions place so it really means 3,000,000 (3 million).
- The 7 digit is in the hundred thousands place so it really means 700,000 (seven hundred thousand).
- The 6 digit is in the ten thousands place so it really means 60,000 (sixty thousand).
- The 4 digit is in the thousands place so it really means 4,000 (four thousand).
- The 8 digit is in the hundreds place so it really means 800 (eight hundred)
- The 2 digit is in the tens place so it really means 20 (twenty).
- The 5 digit is in the ones place so it means 5 (five).

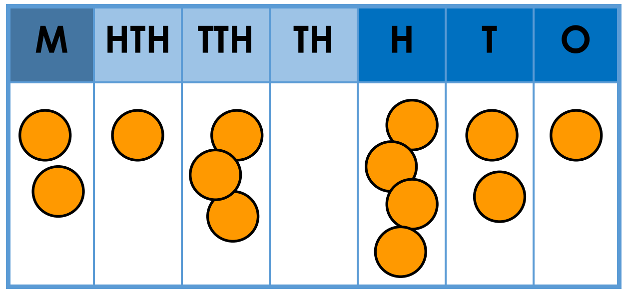
Representing Numbers

Numbers can be represented in a variety of ways:



4,812,300	
4,000,000	812,300

The above representations are often called part, part, whole diagrams. They can show different ways to partition a number.



The counters on this place value chart show the number 2,130,421. This is written as two million, one hundred and thirty thousand, four hundred and twenty-one.

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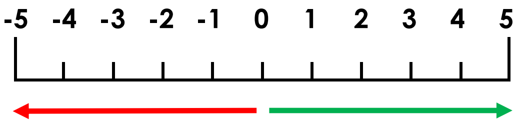
Negative Numbers

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

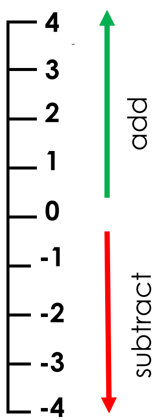
Positive numbers are any numbers **more than** zero e.g. 1, 2, 3, 4, 5.

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



The number line shows that –5 is smaller than –1.

Negative numbers are often shown vertically such as on thermometers.



When we add a positive number to a negative number, we count upwards towards zero.

-2 + 5 = 3

When we subtract a positive number from a negative, we count down away from zero.

-1 — 3 = -4

Rounding

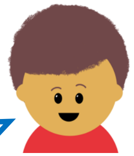
When rounding, you first need to identify which digit will tell you whether to round up or down.

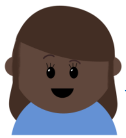
- To round a number to the **nearest 10,** you should look at the <u>ones</u> digit.
- To round a number to the **nearest 100**, you should look at the <u>tens</u> digit.
- To round a number to the **nearest 1000**, you should look at the <u>hundreds</u> digit.
- To round a number to the **nearest 10,000**, you should look at the <u>thousands</u> digit.
- To round a number to the **nearest 100,000**, you should look at the <u>ten thousands</u> digit.
- To round a number to the **nearest 1,000,000**, you should look at the <u>hundred thousands</u> digit.

527,356 to the **nearest 10** is 527,360

527,356 to the **nearest 100** is 527,400

527,356 to the **nearest 1000** is 527,000





527,356 to the **nearest 10,000** is 530,000

527,356 to the **nearest 100,000** is 500,000

527,356 to the **nearest 1,000,000** is 1,000,000

Ordering Numbers

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

2,123,518 **2,123,736** **2,122,845**

First, look at the millions digits in each number. Each number has the same digit in the millions place so you then keep comparing digits of the same place value until you find ones that are different. The thousands digits are different so that tells us that 2,12**<u>2</u>**,845 is the smallest number because it has a 2 in the thousands place. Looking at the hundreds digits, we can see that 2,123,**<u>5</u>**18 is the next smallest.

2,122,845 **2,123,518** **2,123,736**

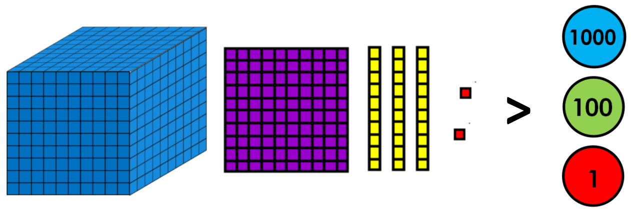
Smallest

Comparing Numbers

We can compare numbers using the **<** and **>** symbols.

< means less than > means greater than

= means equal to



,122,845 **<** 123,518 2,579,736 **>** 2,579,436