

# YR5 PLACE VALUE KNOWLEDGE ORGANISER

## Key Concepts

- Roman Numerals to 1000
- Numbers to a million
- Rounding to the nearest 10, 100, 1000 and 10,000
- Recognising the place value of numbers up to 100,000
- Partitioning
- 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
- ones, tens, hundreds, thousands, ten thousands, hundred thousands



## Place Value of Digits

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

| HTH | TTH | TH | H | T | O |
|-----|-----|----|---|---|---|
| 7   | 1   | 4  | 8 | 2 | 5 |

In the number above, the 7 digit is in the hundred thousands place so it really means 700,000.

The 1 digit is in the ten thousands place so it really means 10,000.

The 4 digit is in the thousands place so it really means 4,000.

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.

## Partitioning

Numbers can be partitioned (broken apart) in more than one way. The number 714,825 could be partitioned in many ways such as:

$700,000 + 10,000 + 4,000 + 800 + 20 + 5$  or

$714,000 + 825$  or  $700,000 + 14,000 + 700 + 125$  or

$600,000 + 140,000 + 600 + 220 + 5$



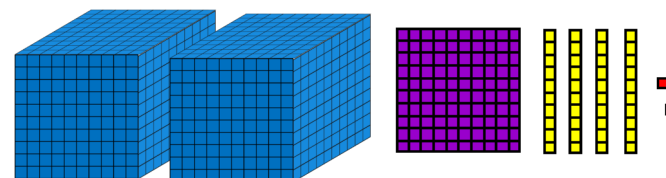
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## Representing Numbers to 10,000

A four-digit number is made up of thousand, hundreds, tens and ones. Different concrete manipulatives and pictorial diagrams can be used to represent these numbers.

The number 2,132 can be represented like this:



This shows 2 thousands, 1 hundred, 4 tens and 2 ones.

The same number can also be represented with place value counters:



## Roman Numerals

|         |
|---------|
| I = 1   |
| II = 2  |
| III = 3 |
| IV = 4  |
| V = 5   |
| X = 10  |
| XX = 20 |

|           |
|-----------|
| XXX = 30  |
| XL = 40   |
| L = 50    |
| LX = 60   |
| LXX = 70  |
| LXXX = 80 |
| XC = 90   |

|                |
|----------------|
| C = 100        |
| D = 500        |
| M = 1000       |
| MMXVIII = 2018 |

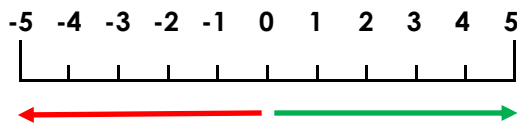
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## Negative Numbers

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.

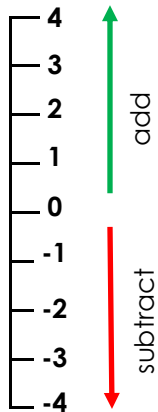
**Negative** numbers are any numbers **less than** zero e.g. -1, -2, -3, -4, -5.



Negative numbers    Positive numbers

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

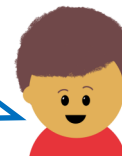
When rounding, you first need to identify which digit will tell you whether to round up or down.

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



I've noticed a pattern. You always need to look at the digit that is one place value lower than that which you are rounding to.

27,356 to the **nearest 10** is 27,360  
27,356 to the **nearest 100** is 27,400



27,356 to the **nearest 1000** is 27,000  
27,356 to the **nearest 10,000** is 30,000



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## Ordering Numbers

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

123,518

123,736

122,845

First, look at the hundred thousands digits in each number. Each number has the same digit in the hundred thousand 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 122,845 is the smallest number because it has a 2 in the thousands place. Looking at the hundreds digits, we can see that 123,518 is the next smallest.

122,845

123,518

123,736

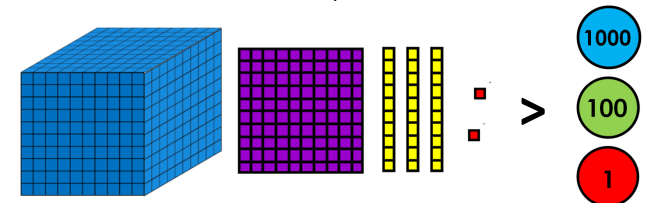
Smallest

## Comparing Numbers

We can compare numbers using the < and > symbols.

< means less than    > means greater than

= means equal to



$$123,518 < 123,845$$

$$549,736 > 547,736$$