

Year 8 Maths Knowledge Organiser – Autumn 1 – Place value and Proportion

Place Value and Ordering			Examples / Illustrations
1	Place value	The value of a digit relating to its position.	
2	Decimal system	Number system based on the number 10. This means only 10 digits are needed.	
3	Digit	A numeral which forms part of a number (or is the number).	
4	Billion	A number a thousand times bigger than a million (nine zeros)	Four billion = 4,000,000,000
5	Integer	Any whole number (including zero).	-2, -1, 0, 1, 2, 3, ...
6	Approximate	Calculate a rough answer with rounded numbers.	$2.3 \times 18.4 \approx 2 \times 20 = 40$
7	Round	Express to a required level of accuracy.	987 to the nearest thousand is 1000
8	Equals signs	A way of representing how values relate to each other.	= Equal to \approx Roughly equal to \neq Not equal to \equiv Identity (always equal)
9	Inequality	Similar to an equation , but the unknown has a range of values, not just a single value.	> Greater than \geq Greater than/equal to < Less than \leq Less than or equal to
10	Difference	The value between two numbers (often calculated by subtraction).	Difference between 13 and 29 is 16 because $29-13=16$
11	Range	A measure of the spread of the data, (<i>largest value – smallest value</i>).	Range: 14 , 16, 16, 17, 19 $\rightarrow 19 - 14 = 5$
12	Average	The central or typical value in a data set	Mode, median, mean
13	Median	The middle value when the data is in order.	Median: 9, 5, 15, 6, 8 \rightarrow 5, 6, 8 , 9, 15 = 8
14	Significant figure	Total number of digits in a number, not counting zeros at the beginning or the end of a number.	345 000 has 3 significant figures 0.3047 has 4 significant figures
15	Base number	Basis of the place value number system.	
16	Power of	Number of times a base number is multiplied by itself (shown by a small, raised number to the right)	
Fractions, decimals and percentages			Examples / Illustrations
17	Tenths	The digit after the decimal point.	0.1 is one-tenth, 0.7 is seven-tenths
18	Hundredths	The second digit after the decimal point	0.01=one-hundredth; 0.09=nine-hundredths
19	Fraction	Parts of a whole. Appears on a number line in-between integers.	<u>Numerator</u> <u>Denominator</u>
20	Numerator	The top number in a fraction . Shows how many parts we have.	$\frac{3}{8}$ numerator is 3
21	Denominator	The bottom number in a fraction . Shows how many equal parts the item is divided into.	$\frac{3}{8}$ denominator is 8 (eighths)
22	Proper	The numerator is smaller than the denominator .	Smaller \rightarrow $\frac{3}{5}$ Larger (or equal) \rightarrow $\frac{9}{5}$
23	Improper	The numerator is greater than or equal to the denominator .	Larger \rightarrow $\frac{3}{5}$ Smaller (or equal) \rightarrow $\frac{9}{5}$
24	Mixed Number	A whole number and a fraction .	Proper Fraction Improper Fraction Mixed Fraction $2\frac{1}{3}$
25	Terminating decimal	A decimal which has a finite number of digits (it has an end point).	$\frac{1}{2} = 0.5$
26	Recurring decimal	A decimal which has repeating digits or a repeating pattern of digits .	$0.\dot{3} \rightarrow 0.333333\dots$ $0.2\dot{4} \rightarrow 0.242424\dots$