


ESSENTIAL KNOWLEDGE FOR YEAR 7


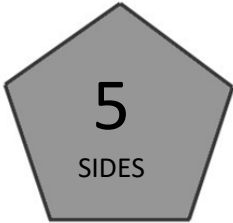

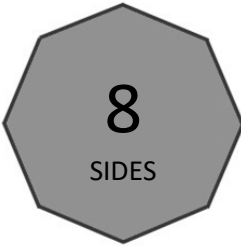
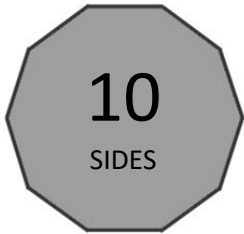
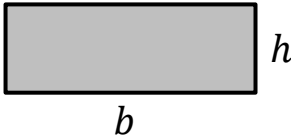
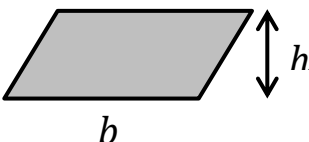
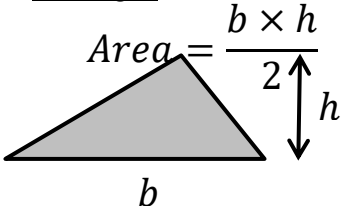
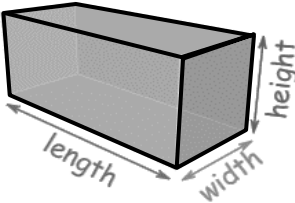
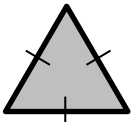
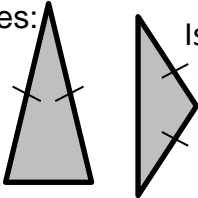

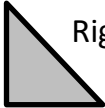
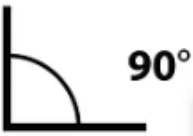
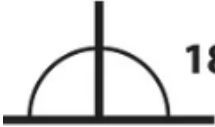


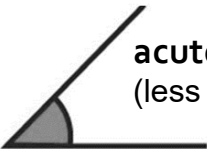

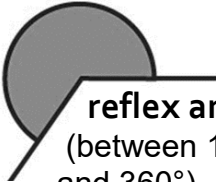
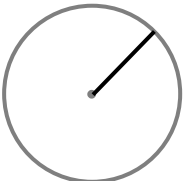
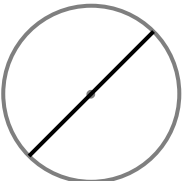
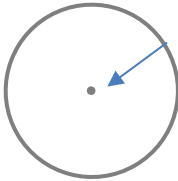
(LEARN THESE KEY FACTS FROM PREVIOUS YEARS)

Know

1.	Integer means ‘whole number’.																																				
2.	Place Value chart <div><table><tr><td>Hundred Thousands</td><td>Ten Thousands</td><td>Thousands</td><td>Hundreds</td><td>Tens</td><td>Ones</td><td>.</td><td>tenths</td><td>hundredths</td><td>thousandths</td><td>ten thousandths</td><td>hundred thousandths</td></tr><tr><td>HTH</td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td><td>.</td><td>t</td><td>h</td><td>th</td><td>tth</td><td>hth</td></tr><tr><td>100,000</td><td>10,000</td><td>1,000</td><td>100</td><td>10</td><td>1</td><td>.</td><td>$\frac{1}{10}$</td><td>$\frac{1}{100}$</td><td>$\frac{1}{1,000}$</td><td>$\frac{1}{10,000}$</td><td>$\frac{1}{100,000}$</td></tr></table><div><div>Whole Number Part</div><div>Decimal Point</div><div>Fractional Part</div></div></div>	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	.	tenths	hundredths	thousandths	ten thousandths	hundred thousandths	HTH	TTh	Th	H	T	O	.	t	h	th	tth	hth	100,000	10,000	1,000	100	10	1	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1,000}$	$\frac{1}{10,000}$	$\frac{1}{100,000}$
Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	.	tenths	hundredths	thousandths	ten thousandths	hundred thousandths																										
HTH	TTh	Th	H	T	O	.	t	h	th	tth	hth																										
100,000	10,000	1,000	100	10	1	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1,000}$	$\frac{1}{10,000}$	$\frac{1}{100,000}$																										
3.	To write in figures means using the digits 0-9 to write the number and not use words																																				
4.	The first ten square numbers are: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100																																				
5.	The first five cube numbers are: 1, 8, 27, 64, 125																																				
6.	An inverse operation is the opposite or reverse operation. <div><div>Addition</div><div>inverse</div><div>Subtraction</div><div>Multiplication</div><div>inverse</div><div>Division</div></div>																																				
7.	Product means ‘multiply’ (e.g. the product of 4 and 3 is 12)																																				
8.	The multiples of a number are its times table (e.g. multiples of 10 are 10, 20, 30, ...)																																				
9.	A factor goes into another number (e.g. the factors of 10 are 1 & 10, 2 & 5)																																				
10.	A prime number has exactly two factors (1 and itself) Learn the first few primes: 2, 3, 5, 7, 11, 13, 17, 19, ...																																				
11.	Evaluate means to work out the answer.																																				
12.	Placeholder is a number that occupies a position to give value																																				
13.	Solve means find the value of the unknown.																																				
14.	The difference between two quantities or values involves subtraction. The smaller number is subtracted from the larger number.																																				
15.	The sum means finding the total of 2 or more numbers by adding them together.																																				
16.	<div><div></div><div>Mathematical operations need to be done in the correct order. This is called the order of operations. Work from the top of the triangle down.</div></div>																																				
17.	An expression is a combination of numbers or letters e.g. 5h, 3a + 9b ² (An expression does not include an = symbol)																																				
18.	A term in a number in a sequence or a part of an algebraic expression which can be a number, letters or both.																																				
19.	In algebra, a coefficient is the number part of a term (e.g. in 4x – 3y, the coefficient of x is 4 and the coefficient of y is -3.)																																				

20.	A formula is a mathematical rule written using symbols (letters), usually as an equation describing a certain relationship between quantities.		
21.	Percentage is a proportion of a whole represented as a number between 0 and 100.		
22.	The top number of a fraction is called the numerator . The bottom number of a fraction is called the denominator .		
23.	$\frac{1}{4} = 0.25 = 25\%$ $\frac{1}{2} = 0.5 = 50\%$ $\frac{3}{4} = 0.75 = 75\%$ $\frac{1}{10} = 0.1 = 10\%$		
24.	A proper fraction is where the numerator is smaller than the denominator. E.g. $\frac{2}{3}$		
25.	An improper fraction is where the numerator is larger than or equal to the denominator. E.g. $\frac{5}{2}$		
26.	A mixed number is a number written as a whole number with a fraction. E.g. $2\frac{1}{2}$		
27.	<div><div>Equivalent fractions have the same value. E.g. $\frac{1}{2} = \frac{2}{4}$</div><div><div>1</div><div><div>$\frac{1}{2}$</div><div>$\frac{1}{2}$</div></div><div><div>$\frac{1}{4}$</div><div>$\frac{1}{4}$</div><div>$\frac{1}{4}$</div><div>$\frac{1}{4}$</div></div></div></div>		
28.	To simplify a fraction means to write an equivalent fraction using the smallest integers possible. You do this by dividing the numerator and denominator by the same number.		
29.	Ascending means ‘going up’ or ‘getting bigger’		
30.	Descending means ‘going down’ or ‘getting smaller’		
31.	<div><div>The coordinate grid is divided into 4 quadrants the x and y axes. The x axis is horizontal. The y axis is vertical.</div><div><div>by</div><div><div><div>II quadrant 2</div><div>I quadrant 1</div><div>III quadrant 3</div><div>IV quadrant 4</div></div><div><div>y axis</div><div>x axis</div></div></div></div></div>		
32.	<div><div>Position on a grid is described using a coordinate. The x coordinate is first, followed by the y coordinate. You must put brackets around the pair of numbers. E.g. (2, 7)</div></div>		
33.	The origin is the point (0,0)		
34.	<div><div>Compass directions</div><div><div><div>N 000°</div><div>NE 045°</div><div>E 090°</div><div>SE 135°</div><div>S 180°</div><div>SW 225°</div><div>W 270°</div><div>NW 315°</div></div><div><div>Know</div></div></div></div>		
35.	A polygon is any shape with straight sides (e.g. triangle, hexagon, octagon)		
36.	A regular polygon has <u>all equal sides</u> and <u>all equal angles</u>		
37.	Perimeter is the total distance around the outside of a shape		
38.	Units of length: 10mm = 1cm 100cm = 1m 1000m = 1km		
39.	Units of mass/weight: 1 kg = 1000 g		

Know

40.	<p>Know the names of these polygons:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>4 SIDES</p> <p>Quadrilateral</p> </div> <div style="text-align: center;">  <p>5 SIDES</p> <p>Pentagon</p> </div> <div style="text-align: center;">  <p>6 SIDES</p> <p>Hexagon</p> </div> <div style="text-align: center;">  <p>8 SIDES</p> <p>Octagon</p> </div> <div style="text-align: center;">  <p>10 SIDES</p> <p>Decagon</p> </div> </div>
41.	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p><u>Rectangle</u></p> <p>$Area = b \times h$</p>  </div> <div style="text-align: center;"> <p><u>Parallelogram</u></p> <p>$Area = b \times h$</p>  </div> <div style="text-align: center;"> <p><u>Triangle</u></p> <p>$Area = \frac{b \times h}{2}$</p>  </div> </div>
42.	<p>Volume of a cuboid</p> <p>$Volume = l \times w \times h$</p> 
43.	<p>Know these special triangles:</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Equilateral triangle (3 equal sides)</p> </div> <div style="text-align: center;">  <p>Isosceles triangle (2 equal sides)</p> </div> <div style="text-align: center;">  <p>Scalene triangle (no equal sides)</p> </div> <div style="text-align: center;">  <p>Right-angled triangle</p> </div> </div>
44.	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>90°</p> <div style="border: 1px solid green; padding: 2px; display: inline-block;">1 right angle</div> <div style="border: 1px solid red; padding: 2px; display: inline-block;">quarter turn</div> </div> <div style="text-align: center;">  <p>180°</p> <div style="border: 1px solid green; padding: 2px; display: inline-block;">2 right angles</div> <div style="border: 1px solid red; padding: 2px; display: inline-block;">half turn</div> </div> <div style="text-align: center;">  <p>270°</p> <div style="border: 1px solid green; padding: 2px; display: inline-block;">3 right angles</div> <div style="border: 1px solid red; padding: 2px; display: inline-block;">three quarter turn</div> </div> <div style="text-align: center;">  <p>360°</p> <div style="border: 1px solid green; padding: 2px; display: inline-block;">4 right angles</div> <div style="border: 1px solid red; padding: 2px; display: inline-block;">full turn</div> </div> </div>
45.	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>acute angle (less than 90°)</p> </div> <div style="text-align: center;">  <p>obtuse angle (between 90° and 180°)</p> </div> <div style="text-align: center;">  <p>reflex angle (between 180° and 360°)</p> </div> </div>
46.	<p>Know these parts of a circle:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>radius</p> </div> <div style="text-align: center;">  <p>diameter</p> </div> <div style="text-align: center;">  <p>centre</p> </div> </div>

47.	There are 52 weeks in a year and 12 months in a year.
48.	There are 365 days in a year (366 in a leap year which happen every 4 years – 2024 is a leap year).
49.	Frequency means how often something happens.
50.	<p>The three averages are median, mode and mean.</p> <p>Median – the middle number when all the values are in order.</p> <p>Mode – the most common value</p> <p>Mean – the sum of all the values divided by how many there are.</p>

Know

1x table	2x table	3x table	4x table	5x table	6x table
1x1=1	1x2=2	1x3=3	1x4=4	1x5=5	1x6=6
2x1=2	2x2=4	2x3=6	2x4=8	2x5=10	2x6=12
3x1=3	3x2=6	3x3=9	3x4=12	3x5=15	3x6=18
4x1=4	4x2=8	4x3=12	4x4=16	4x5=20	4x6=24
5x1=5	5x2=10	5x3=15	5x4=20	5x5=25	5x6=30
6x1=6	6x2=12	6x3=18	6x4=24	6x5=30	6x6=36
7x1=7	7x2=14	7x3=21	7x4=28	7x5=35	7x6=42
8x1=8	8x2=16	8x3=24	8x4=32	8x5=40	8x6=48
9x1=9	9x2=18	9x3=27	9x4=36	9x5=45	9x6=54
10x1=10	10x2=20	10x3=30	10x4=40	10x5=50	10x6=60
11x1=11	11x2=22	11x3=33	11x4=44	11x5=55	11x6=66
12x1=12	12x2=24	12x3=36	12x4=48	12x5=60	12x6=72
7x table	8x table	9x table	10x table	11x table	12x table
1x7=7	1x8=8	1x9=9	1x10=10	1x11=11	1x12=12
2x7=14	2x8=16	2x9=18	2x10=20	2x11=22	2x12=24
3x7=21	3x8=24	3x9=27	3x10=30	3x11=33	3x12=36
4x7=28	4x8=32	4x9=36	4x10=40	4x11=44	4x12=48
5x7=35	5x8=40	5x9=45	5x10=50	5x11=55	5x12=60
6x7=42	6x8=48	6x9=54	6x10=60	6x11=66	6x12=72
7x7=49	7x8=56	7x9=63	7x10=70	7x11=77	7x12=84
8x7=56	8x8=64	8x9=72	8x10=80	8x11=88	8x12=96
9x7=63	9x8=72	9x9=81	9x10=90	9x11=99	9x12=108
10x7=70	10x8=80	10x9=90	10x10=100	10x11=110	10x12=120
11x7=77	11x8=88	11x9=99	11x10=110	11x11=121	11x12=132
12x7=84	12x8=96	12x9=108	12x10=120	12x11=132	12x12=144

1. Learn them so you can say them without stopping: 1x4=4, 2x4=8, 3x4=12, 4x4=16....
2. Be able to answer questions out of order and in reverse: what is 5x3, what is 2x3, what is 3x8?
3. Be able to answer related division: what is 12÷6, what is 66÷6, what is 36÷6?