
















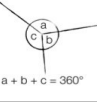

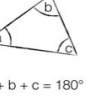
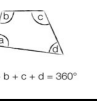
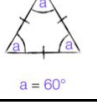
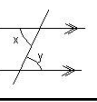
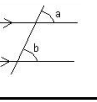
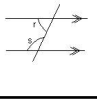
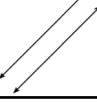
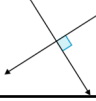
Unit 1 - primes		
No.	Question	Answer
1.1	What is a prime number?	A number that only has two factors, one and itself
1.2	What is a square number?	The result of multiplying a number by itself
1.3	What is the square root?	The inverse of squaring e.g. the square root of 64 is 8
1.4	What is an integer?	A whole number
1.5	What is a multiple?	A number in the times table
1.6	What is a factor?	A number that divides into another number without any remainder
1.7	What is the HCF?	The highest common factor (the largest whole number that is a factor of both numbers)
1.8	What is the LCM?	The lowest common multiple (the smallest number that is a multiple of both numbers)
1.9	What is the index?	How many times a number has been multiplied by itself e.g. $3^5 = 3 \times 3 \times 3 \times 3 \times 3$
1.10	What does power mean?	How many times a number has been multiplied by itself e.g. $3^5 = 3 \times 3 \times 3 \times 3 \times 3$ "three to the power of five"
1.11	What does squared mean?	A number to the power of 2
1.12	What does cubed mean?	A number to the power of 3
1.10	What are the prime factors?	The factors of a number that are also prime numbers
1.11	What is prime factor decomposition?	Breaking down a number into the product of its prime factors using a prime factor tree
1.12	What does product mean?	Multiply

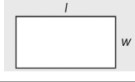
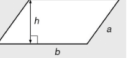
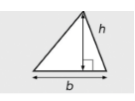
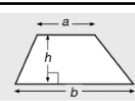
Unit 2 - fractions		
No.	Question	Answer
2.1	What is an improper fraction?	A fraction where the numerator is bigger than the denominator
2.2	What is a mixed fraction?	A fraction where there is a whole number and a fraction (it is bigger than one)
2.3	What is a unit fraction?	A fraction with a numerator of one
2.4	How do you multiply fractions?	Multiply the numerators and multiply the denominators
2.5	How do you divide fractions?	Find a common denominator Divide the numerators
2.6	How do you add fractions?	Find a common denominator Add the numerators
2.7	How do you subtract fractions?	Find a common denominator Subtract the numerators
2.8	How do you find a fraction of an amount?	Divide the amount by the denominator and multiply by the numerator
2.9	To find... $\frac{1}{2}$	Divide by 2
2.10	To find... $\frac{1}{3}$	Divide by 3
2.11	To find... $\frac{1}{4}$	Divide by 4
2.12	To find... $\frac{1}{5}$	Divide by 5
2.13	To find... $\frac{1}{6}$	Divide by 6
2.14	To find... $\frac{1}{7}$	Divide by 7
2.15	To find... $\frac{1}{8}$	Divide by 8
2.16	To find... $\frac{1}{9}$	Divide by 9
2.17	To find... $\frac{1}{10}$	Divide by 10

Unit 4 – negative numbers		
No.	Question	Answer
4.1	What is a positive number?	Any number greater than zero
4.2	What is a negative number?	Any number smaller than zero
4.3	A positive x a positive is a...	Positive
4.4	A positive x a negative is a...	Negative
4.5	A negative x a positive is a...	Negative
4.6	A negative x a negative is a...	Positive

Unit 5 - equations		
No.	Question	Answer
6.1	What is a variable?	A letter used to represent an unknown number e.g. x
6.2	What is a term?	Each part of an expression e.g. $2x$ ; $4$ ; $x^2$
6.3	What is the constant?	The number on its own
6.3	What is an expression?	A mixture of numbers and letters e.g. $2x + 5$
6.4	What is an equation?	Two expressions equal to one another e.g. $2x + 5 = 10$
6.5	What is a coefficient?	The number in front of the variable e.g. $2x$ (2 is the coefficient of x)
6.6	What does substitute mean?	Replace the variable with a number
6.7	What does solve mean?	Find the variable
6.8	What are like terms?	Terms that have the same letter and same index e.g. $2x^2$ and $5x^2$
6.9	What does simplify mean?	Collect the like terms e.g. $2x^2 + 5x^2 = 7x^2$
6.10	What is the nth term?	An algebraic expression giving the rule to find any number in a sequence
6.11	What is the term (in a sequence)?	The numbers in a sequence
6.12	What does consecutive mean?	Next to e.g. 5 and 6 are consecutive
6.13	What is a linear sequence?	A sequence that increases or decreases by the same amount between terms
6.14	What is the common difference?	The difference between any two consecutive terms

Unit 6/7 – triangles and quadrilaterals			
No.	Question	Answer	Example
6.1	What are the properties of an equilateral triangle?	All angles are the same size and all sides are the same length.	
6.2	What are the properties of a scalene triangle?	All angles are different sizes and all sides are different lengths.	
6.3	What are the properties of a right-angled triangle?	Contains one angle of 90°	
6.4	What are the properties of an isosceles triangle?	Has 2 sides of equal length and 2 angles of equal size	
6.5	What are the properties of a square?	<ol style="list-style-type: none"> <li>All of its sides are the same length.</li> <li>All of its angles are equal (90°)</li> <li>It has 2 pairs of parallel sides</li> </ol>	
6.6	What are the properties of a rectangle?	<ol style="list-style-type: none"> <li>Opposite sides are the same length</li> <li>All of its angles are equal (90°)</li> <li>It has 2 pairs of parallel sides</li> </ol>	
6.7	What are the properties of a rhombus?	<ol style="list-style-type: none"> <li>All sides are the same length</li> <li>None of its angles are 90°</li> <li>It has 2 pairs of parallel sides</li> </ol>	
6.8	What are the properties of a parallelogram?	<ol style="list-style-type: none"> <li>Opposite sides are the same length</li> <li>None of its angles are 90°</li> <li>It has 2 pairs of parallel sides</li> </ol>	
6.9	What are the properties of a kite?	<ol style="list-style-type: none"> <li>Adjacent sides are the same length</li> <li>1 pair of opposite angles are equal</li> <li>It has 0 pairs of parallel lines</li> </ol>	
6.10	What are the properties of a trapezium?	<ol style="list-style-type: none"> <li>It has 1 pair of parallel lines</li> <li>In the special case of an isosceles trapezium it has 1 pair of opposite sides of equal length</li> </ol>	

Unit 8 – angles			
No.	Question	Answer	Example
8.1	What is an angle less than 90°?	Acute	
8.2	What is an angle between 90° and 180°?	Obtuse	
8.3	What is an angle greater than 180°?	Reflex	
8.4	What is a right angle?	90°	
8.5	Adjacent angles on a straight line sum to...	180°	
8.6	Angles around a point sum to...	360°	
8.7	Vertically opposite angles are...	Equal	
8.8	Interior angles in a triangle...	sum to 180°	
8.9	Interior angles in a quadrilateral...	sum to 360°	
8.10	All angles in an equilateral triangle...	are 60°	
8.11	Alternate angles...	are equal	
8.12	Corresponding angles...	are equal	
8.13	Co-interior angles...	add up to 180	
8.14	What does parallel mean?	2 lines at an equal distance apart that will never intersect	
8.15	What does perpendicular mean?	2 lines that meet at a 90° angle	

Unit 9 - area			
No.	Question	Answer	Example
9.1	1cm	10mm	
9.2	1m	100cm	
9.3	1km	1000m	
9.4	1g	10mg	
9.5	1kg	1000g	
9.6	1l	1000ml	
9.7		$\text{km} \begin{matrix} \xrightarrow{\times 1000} \\ \xleftarrow{\div 1000} \end{matrix} \text{m} \begin{matrix} \xrightarrow{\times 100} \\ \xleftarrow{\div 100} \end{matrix} \text{cm} \begin{matrix} \xrightarrow{\times 10} \\ \xleftarrow{\div 10} \end{matrix} \text{mm}$	
9.8		$\text{Kg} \begin{matrix} \xrightarrow{\times 1000} \\ \xleftarrow{\div 1000} \end{matrix} \text{g} \begin{matrix} \xrightarrow{\times 1000} \\ \xleftarrow{\div 1000} \end{matrix} \text{mg}$	
9.9		$\text{l} \begin{matrix} \xrightarrow{\times 1000} \\ \xleftarrow{\div 1000} \end{matrix} \text{ml}$	
9.10		$\text{mm}^2 \begin{matrix} \xrightarrow{\div 10^2} \\ \xleftarrow{\times 10^2} \end{matrix} \text{cm}^2 \begin{matrix} \xrightarrow{\div 100^2} \\ \xleftarrow{\times 100^2} \end{matrix} \text{m}^2 \begin{matrix} \xrightarrow{\div 1000^2} \\ \xleftarrow{\times 1000^2} \end{matrix} \text{km}^2$	
9.11	Area of a rectangle...	length x width	
9.12	Area of a parallelogram...	base x perpendicular height	
9.13	Area of a triangle...	$\frac{1}{2}$ base x perpendicular height	
9.14	Area of a trapezium...	$\frac{1}{2}(a + b) \times h$	

# Year 8 – Maths – Spring 2

Unit 10 - % increase and decrease			
No.	Percentage	Fraction	Decimal
10.1	25%	$\frac{1}{4}$	0.25
10.2	50%	$\frac{1}{2}$	0.5
10.3	75%	$\frac{3}{4}$	0.75
10.4	12.5%	$\frac{1}{8}$	0.125
10.5	20%	$\frac{1}{5}$	0.2
10.6	33. $\dot{3}$	$\frac{1}{3}$	0. $\dot{3}$
10.7	66. $\dot{6}$	$\frac{2}{3}$	0. $\dot{6}$
10.8	10%	$\frac{1}{10}$	0.1
10.9	20%	$\frac{2}{10} = \left(\frac{1}{5}\right)$	0.2
10.10	30%	$\frac{3}{10}$	0.3
10.11	40%	$\frac{4}{10} = \left(\frac{2}{5}\right)$	0.4
10.12	50%	$\frac{5}{10}$	0.5
10.13	60%	$\frac{6}{10} = \left(\frac{3}{5}\right)$	0.6
10.14	70%	$\frac{7}{10}$	0.7
10.15	80%	$\frac{8}{10} = \left(\frac{4}{5}\right)$	0.8
10.16	90%	$\frac{9}{10}$	0.9
10.17	100%	1 whole	1

Unit 10 - % increase and decrease (cont.)			
No.	Question	Answer	Example
10.18	How do you find 1% of an amount?	Divide by 100	1% of 70. $70 \div 100 = 0.7$
10.19	How do you find 10% of an amount?	Divide by 10	10% of 70. $70 \div 10 = 7$
10.20	How do you find 50% of an amount?	Divide by 2	50% of 70. $70 \div 2 = 35$
10.21	How do you find 25% of an amount?	Divide by 4	25% of 70. $70 \div 4 = 17.5$
10.22	How do you express a quantity as a percentage of another?	1. Represent the quantities as a fraction 2. Convert the fraction to decimal	I score 7 out of 25 on a test $\frac{7}{25} = \frac{28}{100} = 28\%$
10.23	How do you compare and order FDP?	Convert them all to be written in the same representation.	20% or $\frac{2}{5}$ ? $20\% = \frac{2}{10} = \frac{1}{5}$ $\frac{2}{5} > 20\%$
10.24	How do you increase by a %?	1. Find the percentage 2. Add it on	Increase £50 by 20% $20\% = \text{£}10$ $\text{£}50 + \text{£}10 = \text{£}60$
10.25	How do you decrease by a %?	1. Find the percentage 2. Take it away	Decrease £50 by 20% $20\% = \text{£}10$ $\text{£}50 - \text{£}10 = \text{£}40$
10.26	How do you calculate % change?	$\frac{\text{new} - \text{original}}{\text{original}} \times 100$	Was £200, now £250. $\frac{250 - 200}{200} \times 100 = 25\%$
10.27	How do you calculate reverse %s?	1. Divide the new amount by its total % 2. Multiply by 100.  The original is always 100%.	After 20% increase, now costs £180. What was the original? $\frac{180}{120} \times 100 = 150$

Unit 11 - ratio			
No.	Question	Answer	Example
11.1	How do you represent a ratio?	1. Count how many of each part you're given 2. Write it as a ratio in the order specified.	Represent the following as a ratio Black : White 5 : 3
11.2	How do you represent a ratio as a fraction?	1. Add the total number of parts together 2. Each part of the ratio represents the numerator	2:3 as a fraction $2 + 3 = 5$ $\frac{2}{5}$ and $\frac{3}{5}$
11.3	How do you divide a quantity into a ratio?	1. Divide the quantity by the total number of parts 2. Multiply by the number of parts in each share of the ratio	20 shared into the ratio 2:3 $2 + 3 = 5$ $20 \div 5 = 4$ (1 share) $4 \times 2 = 8$ $4 \times 3 = 12$
11.4	Speed = ...	Speed = $\frac{\text{distance}}{\text{time}}$	Distance = 70m, time = 2 hours $S = \frac{70}{2}$ $S = 35\text{m/h}$

## Unit 12 – collecting data

No.	Question	Answer	Example																
12.1	What does qualitative mean?	Data that describes something	Hair colour																
12.2	What does quantitative mean?	Data that can be measured or counted	Number of dogs in the park																
12.3	What is discrete data?	Data that can only take set values	Shoe size Number of pets you have																
12.4	What is continuous data?	Data that can take any value (can be decimal)	Height Weight																
12.5	What is primary data?	Data that is collected first hand	Taking a survey																
12.6	What is secondary data?	Data that is collected by someone else	The internet																
12.7	What is a sample?	A smaller group taken from the total population you are testing	In year 8 there are 200 students, I took a sample of 40 to give my survey.																
12.8	What are four things that questionnaires should NOT be?	<ul style="list-style-type: none"> <li>Too personal</li> <li>Too complicated</li> <li>Leading</li> <li>Specific to only certain people</li> </ul>	On average how many books do you read per month? <input type="checkbox"/> none <input type="checkbox"/> 1 – 2 <input type="checkbox"/> 3 – 4 <input type="checkbox"/> 5 – 6 <input type="checkbox"/> 7 or more																
12.9	What are four things that response boxes should be?	<ul style="list-style-type: none"> <li>Be exhaustive</li> <li>Not overlap</li> <li>Have specific units and time frame</li> <li>Have specific quantitative answers</li> </ul>	<input type="checkbox"/> none <input type="checkbox"/> 1 – 2 <input type="checkbox"/> 3 – 4 <input type="checkbox"/> 5 – 6 <input type="checkbox"/> 7 or more																
12.10	What are three things that tally charts should include?	<ul style="list-style-type: none"> <li>The specific category</li> <li>Tally</li> <li>Frequency</li> </ul>	<table border="1"> <thead> <tr> <th>Colour</th> <th>Tally</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>III</td> <td>3</td> </tr> <tr> <td>Blue</td> <td>II</td> <td>2</td> </tr> <tr> <td>Green</td> <td>IIII</td> <td>4</td> </tr> </tbody> </table>	Colour	Tally	Frequency	Red	III	3	Blue	II	2	Green	IIII	4				
Colour	Tally	Frequency																	
Red	III	3																	
Blue	II	2																	
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12.11	What are three things that two way tables must include?	<ul style="list-style-type: none"> <li>One data set along the top row</li> <li>One data set along the left column</li> <li>2 total headings</li> </ul>	<table border="1"> <thead> <tr> <th></th> <th>Girls</th> <th>Boys</th> <th>Total</th> </tr> </thead> <tbody> <tr> <th>Yr 7</th> <td>4</td> <td>3</td> <td>7</td> </tr> <tr> <th>Yr 8</th> <td>6</td> <td>2</td> <td>8</td> </tr> <tr> <th>Total</th> <td>10</td> <td>5</td> <td>15</td> </tr> </tbody> </table>		Girls	Boys	Total	Yr 7	4	3	7	Yr 8	6	2	8	Total	10	5	15
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## Unit 13 – presenting data

No.	Question	Answer	Example												
13.1	What three things must a pictogram include?	<ul style="list-style-type: none"> <li>A heading column</li> <li>A sensible picture</li> <li>A key</li> </ul>													
13.2	What four things must a bar chart have?	<ul style="list-style-type: none"> <li>An x-axis representing frequency</li> <li>A y-axis representing the groups</li> <li>The bars must be the same width</li> <li>The axis must go up in equal increments</li> </ul>													
13.3	What are grouped frequency tables?	A way of recording large data sets The categories are a set of data values represented using inequalities	<table border="1"> <thead> <tr> <th>Weight of box (w kg)</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>0 &lt; w ≤ 4</td> <td>11</td> </tr> <tr> <td>4 &lt; w ≤ 8</td> <td>16</td> </tr> <tr> <td>8 &lt; w ≤ 12</td> <td>29</td> </tr> <tr> <td>12 &lt; w ≤ 16</td> <td>26</td> </tr> <tr> <td>16 &lt; w ≤ 20</td> <td>20</td> </tr> </tbody> </table>	Weight of box (w kg)	Frequency	0 < w ≤ 4	11	4 < w ≤ 8	16	8 < w ≤ 12	29	12 < w ≤ 16	26	16 < w ≤ 20	20
Weight of box (w kg)	Frequency														
0 < w ≤ 4	11														
4 < w ≤ 8	16														
8 < w ≤ 12	29														
12 < w ≤ 16	26														
16 < w ≤ 20	20														
13.3	What must grouped frequency tables include?	<ul style="list-style-type: none"> <li>A heading column</li> <li>A frequency column</li> <li>Sometimes a tally column</li> </ul>													
13.4	How many degrees in a pie chart?	360°													
13.5	How do you calculate each angle in a pie chart?	Divide by the total frequency and multiply by 360													

## Unit 14 – interpreting data

No.	Question	Answer	Example
14.1	How do you calculate the mean?	Add up all the data sets Divide by how many pieces of data there are	6, 3, 4, 7 $\frac{6 + 3 + 4 + 7}{4} = 5$
14.2	How do you calculate the median?	Put all the data in ascending order and find the middle value.	7, 2, 4, 8, 3, 9, 1 1, 2, 3, <b>4</b> , 7, 8, 9 4 is the median as it is in the middle
14.3	How do you calculate the mode?	Find the value that occurs the most	7, 2, 4, 8, 3, 9, 1, 9, 9 9 is the mode as it appears the most
14.4	How do you calculate the range?	Subtract the smallest value from the largest	7, 2, 4, 8, 3, 9, 1, 9, 9 9 – 1 = 8 therefore 8 is the range

Unit 15/16 – accuracy/circles

No.	Question	Answer	Example	
15.1	What are significant figures?	All digits of a number that express a degree of accuracy, starting with the first non-zero digit	358.06 rounded to 2.s.f. is 360 0.0971 rounded to 2.s.f is 0.097	
16.1	What is the radius?	The distance from the centre to the circumference of the circle		
16.2	What is the diameter?	A straight line going through the centre connecting 2 points on the circumference.		
16.3	What is the arc?	Part of the circumference		
16.4	What is a sector?	A 'pie slice' part of a circle formed by 2 radii		
16.5	What is a segment?	Part of a circle contained by the circumference and a chord		
16.6	What is a tangent?	A straight line that touches the circumference only once		
16.7	What is a chord?	A straight line that touches 2 points on the circumference		
16.8	What is the circumference of a circle?	The distance round the outside of a circle		
16.9	What is the area of a circle?	The amount of space inside the circle		
16.10	What is the formula for the circumference?	$\pi \times D$		A circle has diameter 3cm, what is the circumference? $\pi \times 3 = 9.42\text{cm}$
16.11	What is the formula for the area?	$\pi \times r^2$		A circle has radius 4cm, what is the area? $\pi \times 4^2 = 50.27\text{cm}^2$
16.12	What is a semi-circle?	Half a circle		

Unit 17 – 3D shapes

No.	Question	Answer	Example
17.1	What are 3D shapes?		
17.2	What is a prism?	A solid 3D shape with the same 2D shape running all the way through it	
17.3	What is an edge?	The lines when 2 faces meet on a 3D shape	
17.4	What is a face?	An individual 2D surface of a 3D shape	
17.5	What is a vertex?	A corner of a 3D shape (where 3 edges meet)	
17.6	What is the plan view?	The 2D view of a 3D shape from above	
17.7	What is the front elevation?	The 2D view of a 3D shape from the front	
17.8	What is the side elevation?	The 2D view of a 3D shape from the side	
17.9	What is the net?	A pattern you can fold to make a 3D solid shape	

Unit 18 – volume

No.	Question	Answer
18.1	How do you find the volume of a cuboid?	Length x width x height
18.2	How do you find the volume of cylinder?	Area of the cross section x depth <i>The formula is <math>\pi r^2 \times \text{height}</math></i>
18.3	How do you find the volume of a prism?	Area of the cross section x depth
18.4	How do you convert from m <sup>2</sup> to cm <sup>2</sup> ?	Multiply by 100 <sup>2</sup>
18.5	How do you convert from cm <sup>2</sup> to m <sup>2</sup> ?	Divide by 100 <sup>2</sup>
18.6	How do you convert from cm <sup>2</sup> to mm <sup>2</sup> ?	Multiply by 10 <sup>2</sup>
18.7	How do you convert from mm <sup>2</sup> to cm <sup>2</sup> ?	Divide by 10 <sup>2</sup>
18.9	How do you convert from km <sup>2</sup> to m <sup>2</sup> ?	Multiply by 1000 <sup>2</sup>
18.10	How do you convert from m <sup>2</sup> to km <sup>2</sup> ?	Divide by 1000 <sup>2</sup>
18.11	How do you find the surface area of a cuboid?	To find the surface area of a cuboid you sum the area of each face.