

## Unit 1 – numbers and numerals

No.	Question	Answer
1.1	What is analogue display?	Like a clock face
1.2	What is digital display?	Using digits
1.3	How many digits do 24 hour clocks always have?	2
1.4	What does am mean?	Morning
1.5	What does pm mean?	Afternoon
1.6	With which clock do you use am and pm?	12 hour clock
1.7	How many seconds in a minute?	60
1.8	How many minutes in an hour?	60
1.9	How many hours in a day?	24
1.10	Write the following in order from biggest to smallest? Minutes, days, seconds, hours	Days, hours, minutes, seconds
1.11	What does > mean?	Greater than e.g. $3 > 2$
1.12	What does < mean?	Smaller than e.g. $2 < 3$
1.13	What does = mean?	Equal to
1.14	What is place value?	The value of where the digit is in the number
1.15	How do you write one?	1
1.16	How do you write ten?	10
1.17	How do you write one hundred?	100
1.18	How do you write one thousand?	1000
1.19	How do you write ten thousand?	10,000
1.20	How do you write one hundred thousand?	100,000
1.21	How do you write one million?	1,000,000

## Unit 2 – axioms and arrays

No.	Question	Answer
2.1	What is multiplication?	Equal groups, parts of measures
2.2	What is division?	Splitting into equal parts
2.3	What is commutativity?	The operation can be applied to two numbers in any order
2.4	What two operations are commutative?	Multiplication and addition
2.5	What is associativity?	Grouping numbers to make the calculation easier
2.6	What is distributivity?	Multiplying a number by a group of numbers added together
2.7	What is a conjecture?	An educated guess

## Unit 3 – factors and multiples

No.	Question	Answer
3.1	What is a factor?	A factor of a number divides that number exactly leaving no remainder
3.2	What is a prime number?	A prime number has 2 factors, itself and 1
3.3	What is an abundant number?	The sum of an abundant number's factors is larger than itself
3.4	What is a square number	A square number is the result of multiplying an integer by itself
3.5	What is a multiple?	Multiples of a number are found in the number's times-table
3.6	What is co-prime?	Two numbers are co-prime if they have no common factors others than 1
3.7	What is a counter example?	An example which contradicts the original statement
3.8	What are twin primes?	We call two numbers twin primes if they are prime numbers which have a difference of 2
3.9	Perfect number	A perfect number can be written as the sum as all of its factor

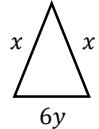
## Unit 4 – order of operations

No.	Question	Answer
4.1	Which operation has equal priority with addition?	Subtraction
4.2	Which operation has equal addition with multiplication?	Division
4.3	What do brackets mean?	Do this part first!
4.4	How do you find the area of a rectangle?	Base x perpendicular height
4.5	What does the vinculum mean?	Divide the numerator by the denominator
4.6	What is a variable?	A letter which represents an unknown number

## Unit 5 – positive and negative numbers

No.	Question	Answer	Example
5.1	What is an integer?	A whole number	7, 10, (-5), 123
5.2	What is a positive number?	Any number greater than zero	2, 10, 150
5.3	What is a negative number?	Any number smaller than zero	(-4), (-5), -123
5.4	What is absolute value of a number	The distance it is from zero	The absolute value of -3 is 3. The absolute value of 2 is 2.
5.5	What does > mean?	Greater than.	$3 > 2$
5.6	What does < mean?	Smaller than	$2 < 3$
5.7	What does = mean?	Equal to	$3 = 3$
5.8	How can we think of adding?	Translating a point on a number line	$(-3) + 5$ is translating (-3) by 5 spaces to the right
5.9	What does sum mean?	Add	The sum of 4 and 5 is 9
5.10	What does subtract mean?	Take away	10 subtract 4 is 6
5.11	What is a scale factor?	How much the number has been scaled by	$3 \times (-10) = -30$ . This is stretching (-10) by a scale factor of 3.
5.12	What is a negative scale factor?	How much the number has been scaled by in the opposite direction	$(-3) \times (8) = (-24)$ . This is stretching (8) by a scale factor of (-3).
5.13	What is commutativity?	The operation can be applied to two numbers in any order	$(2) \times (7) = (14)$ $(7) \times (2) = (14)$
5.14	What is associativity?	Grouping numbers to make the calculation easier	$5 \times (18)$ is the same as $5 \times 2 \times (9)$ $= 10 \times (9)$ $= 90$

## Unit 6 – expressions, equations and inequalities

No.	Question	Answer	Example
6.1	What does $7y$ mean?	$7 \times y$	
6.2	What does $ab$ mean?	$a \times b$	
6.3	What does $3uv$ mean?	$3 \times u \times v$	
6.4	What does $\frac{x}{4}$ mean?	$x \div 4$	
6.5	What is a term?	The separate parts of an expression	7, a, 2a, $a^2$
6.6	What is a variable?	An unknown number represented by a letter	a, b, x, y
6.7	What is an expression?	A mixture of numbers and letters (no equals sign)	$7a + b - 3c$
6.8	What does substitute mean?	Replace the letters with the numbers	$a = 3, b = 5, c = 2$ so... $a + b + c$ is... $3 + 5 + 2 = 10$
6.9	What are algebraic constants?	Like terms that have the same letter and same index	$3p, 9p, -5p$ $4x^2, 12x^2, -x^2$
6.10	What does simplify mean?	Collect the like terms	$2 + b + 3 + 2b = 5 + 3b$
6.11	What does expand mean?	Multiply the coefficient outside the brackets with each term inside the brackets	$4(3 + x) = 12 + 4x$
6.12	What does factorise mean?	Find the common factor of all the terms and divide so that it is outside the bracket	$12 + 4x = 4(3 + x)$
6.13	What is an equation?	Two things are equal to one another (equal sign and two 'sides')	$7a + 1 = 8$
6.14	What is a coefficient?	The number in front of the variable	$3x$ (3 is the coefficient of x)
6.15	What is an inequality?	A symbol to compare two expressions	$2x < 5x$ $5 > 3$
6.16	What is the perimeter?	The total length of all the sides of a shape	 Perimeter = $x + x + 6y$ $= 2x + 6y$
6.17	What does strategic mean?	Working in a logical way	Counting rows of dots instead of randomly

## Unit 7 – angles

No.	Question	Answer	Example
7.1	What is an angle less than 90°?	Acute Angle	
7.2	What is an angle between 90° and 180°?	Obtuse Angle	
7.3	What is an angle greater than 180°?	Reflex	
7.4	What is a right angle	90°	
7.5	What do adjacent angles on a straight line add to?	180°	 $a + b = 180^\circ$
7.6	What do angles around a point sum to?	360°	 $a + b + c = 360^\circ$
7.7	What does parallel mean?	2 lines at an equal distance apart that never meet	
7.8	What does perpendicular mean?	2 lines that meet at a 90° angle	
7.9	What is special about vertically opposite angles?	Equal	
7.10	What is special about alternate angles?	Are equal	
7.11	What is special about corresponding angles?	Are equal	
7.12	What is special about allied (or co-interior) angles?	Add up to 180°	

Date (week commencing)	Numbers to learn
6 <sup>th</sup> Jan	7.1 – 7.6
13 <sup>th</sup> Jan	7.6 – 7.12
20 <sup>th</sup> Jan	8.1 – 8.8
27 <sup>th</sup> Jan	8.9 – 8.16
3 <sup>rd</sup> Feb	9.1 – 9.4
10 <sup>th</sup> Feb	Random

## Unit 8 – classifying 2D shapes

No.	Question	Answer	Example
8.1	What is the order of rotational symmetry?	The number of times the shape fits exactly on itself in one full turn	Rotational symmetry = 3 
8.2	What is a vertex?	Where two lines meet to form an angle	
8.3	What is reflective symmetry?	If the shape can be divided into two identical halves by drawing a straight line	
8.4	What are the properties of an equilateral triangle?	All angles are the same size and all sides are the same length.	
8.5	What are the properties of a scalene triangle?	All angles are different sizes and all sides are different lengths.	
8.6	What are the properties of a right-angled triangle?	Contains one angle of 90°	
8.7	What are the properties of an isosceles triangle?	Has 2 sides of equal length and 2 angles of equal size	
8.8	Interior angles in a triangle...	sum to 180°	 $a + b + c = 180^\circ$
8.9	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>	
8.10	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>	
8.11	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>	

## Unit 8 – classifying 2D shapes

8.12	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>	
8.13	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>	
8.14	What are the properties of a trapezium?	<ol style="list-style-type: none"> <li>It has 1 pairs 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>	
8.15	What do interior angles of a quadrilateral sum to?	360°	 $a + b + c + d = 360^\circ$

## Unit 9 – Constructing Triangles and Quadrilaterals

9.1	What is the radius	The distance from the centre to the circumference of the circle	
9.2	What is the diameter?	A straight line going through the centre connecting 2 points on the circumference.	
9.3	What is the arc?	Part of the circumference	
9.4	What is the circumference?	The distance round the outside of a circle	

## Unit 10 - coordinates

No.	Question	Answer
10.1	What does the x coordinate describe?	The horizontal location
10.2	What does the y coordinate describe?	The vertical location
10.3	What coordinate is the origin?	(0, 0)
10.4	What does equidistant mean?	At equal distances from a point
10.5	What is a line segment?	A portion of a line that connects two points
10.6	What is a midpoint?	A point that divides a line segment into two equal parts
10.7	What is a vertex?	The point where two edges meet
10.8	What is the name of this shape? 	Rectangle
10.9	What is the name of this shape? 	Rhombus
10.10	What is the name of this shape? 	Parallelogram
10.11	What is the name of this shape? 	Kite
10.12	What is the name of this shape? 	Square
10.12	What is the name of this shape? 	Triangle
10.13	What is a horizontal line?	A line that is parallel to the x axis
10.14	What is a vertical line?	A line that is parallel to the y axis
10.15	What is a line of symmetry?	A line of reflection where there is equal distance on either side of the line between the original and the image

## Unit 11 – area of 2D shapes

No.	Question	Answer
11.1	What is perimeter?	The total distance around the outside of a shape
11.2	What is area?	the space inside the boundary of a shape
11.3	What is a compound shape?	Combining two or more 2D shapes to form a new shape
11.4	What is a rectilinear shape?	Combining two or more rectangles to form a new shape. All sides meet at a right angle
11.5	How do you find the area of a compound shape?	The sum of the areas of the original shapes
11.6	How do you calculate the area of a rectangle?	Width x height
11.7	How do you calculate the area of a parallelogram?	Width x perpendicular height
11.8	How do you calculate the area of a triangle?	$\frac{1}{2}$ x base x height
11.9	What does congruent mean?	Identical and shape and size

## Unit 12 – transformations

No.	Question	Answer
12.1	What is translation?	When every point in the shape moves by the same distance in the same direction
12.2	What is a column vector?	Used to describe translations
12.3	What is rotation?	When a shape moves about a point of rotation
12.4	What three pieces of information do you need to rotate a shape?	<ol style="list-style-type: none"> <li>1. Point of rotation</li> <li>2. Degrees</li> <li>3. Direction (clockwise or anticlockwise)</li> </ol>
12.5	What is reflection?	When a point and it's reflection are equidistant from a line of reflection (as it would be seen in a mirror)
12.6	What is an isometry?	Transformations that do not affect the size or shape of an object
12.7	What is a single transformation?	A combination of more than one transformation
12.8	What is enlargement?	Changes the size of the shape by a scale factor from a centre point
12.9	What is the scale factor?	What all the sides are multiplied by to get the enlargement

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