#### Whole Numbers

### (NMM)

Heading	Description	Completed	I Can Do this © 🕮 🛞
Rounding	Rounding to the nearest 10, 100 and 1000. e.g. 128 rounded to the nearest hundred is 100		
Rounding to decimal places	Rounding to 1 or 2 decimal places e.g. 12.86 rounded to 1 dp is 12.9		
Estimating - Working with whole numbers	Finding approximate answers. e.g. 78 x 8 estimate 80 x 8 = 640		
Multiplying by multiples of 10	e.g. 74 x 20 = 74 x 2 x 10 = 148 x 10 = 1480		
Dividing by multiples of 10	e.g. $0.27 \div 600 = 0.27 \div 6 \div 100$ = 0.045÷100 = 0.00045		
Multiplying by two digit numbers	e.g. $36 \times 24 = 36$ $\times \frac{24}{144}$ (4 x 36 = 144) $\frac{720}{864}$ (2 x 36 = 720)		
Using a calculator	Using a calculator to find answers to sums.		
BODMAS – Order of operations	e.g 16 – 3 x 5 = 16 – 15 =1		
Mental maths	Mental methods for adding and subtracting		



### Sequences, Multiples and Factors

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Heading	Description	Completed	Do this © © 8
Sequences	Continuing sequences and finding rules e.g. 3,7,1115,19 rule is add 4		
Multiples and LCM ( Lowest common multiple )	e.g. multiples of 5 are 5, 10, 15, 20,25 ,30,35,40,45, multiples of 8 are 8, 16, 24, 32,40, 48, 56 LCM of 5 and 8 is 40		
Factors and HCF (Highest Common Factor)	Finding factors of a number. e.g. factors of 12 are 1,2,3,4,6,12 factors of 48 are 1,2,3,4,6,8,12,16,24,48 The HCF of 48 and 12 is 12		
Prime Numbers and Prime Factors	Prime numbers have exactly two factors e.g. 2,3,5,7 The prime factors of 30 are 2, 3,5 Since $30 = 5 \times 6 = 5 \times 3 \times 2$		
Squares and Cubes	E.g. 25 is a square number since $5 \times 5 = 25$ 125 is a cubic number since $5 \times 5 \times 5 = 125$		



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### (NMM)

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### **Symmetry**

### S1 C (Harder)

### (SPM)

Heading	Description	Completed	l Can Do this © ආ හි
Lines or axes of symmetry	Line of symmetry		
Reflection Bilateral symmetry	Reflection is used to complete the missing side of a symmetrical shape.		
Image	The reflection of a point or shape is called its image. The image of P is written P' The image of QRS is Q'R'S'		
Rotational Symmetry	e.g. $ \begin{array}{c}                                     $		
	it has rotational symmetry of order 2	The shape has been rotatated 180° about the fixed point	



### **Fractions**

#### (NMM)

Heading	Description	Completed	I Can Do this © © ®
Equivalent fractions	Multiply numerator and denominator by the same number. e.g. $\frac{1}{3} = \frac{4}{12}$ $\frac{9}{10} = \frac{63}{70}$ $\frac{3}{4} = \frac{15}{20} = \frac{21}{28}$		
Simplifying fractions	Divide numerator and denominator by the same number e.g. $\frac{12}{30} = \frac{6}{15} = \frac{2}{5}$ $\frac{28}{49} = \frac{4}{7}$		
Adding and Subtracting fractions	Fractions can only be added or subtracted if they have the same denominator e.g $\frac{1}{2} + \frac{1}{4} = \frac{2}{4} + \frac{1}{4} = \frac{3}{4}$ $\frac{3}{5} + \frac{1}{3} = \frac{9}{15} + \frac{5}{15} = \frac{14}{15}$ $\frac{1}{2} - \frac{1}{4} = \frac{2}{4} - \frac{1}{4} = \frac{1}{4}$ $\frac{3}{5} - \frac{1}{3} = \frac{9}{15} - \frac{5}{15} = \frac{4}{15}$		
Calculating a fraction of a quantity	To find a fraction of a quantity, divide by the denominator then multiply by the numerator. To find $\frac{5}{9}$ of 72, first divide 72 by 9 then multiple by 5 $\frac{1}{9}$ of $72 = 72 \div 9 = 8$ so $\frac{5}{9}$ of $72 = 8 \times 5 = 40$		
Multiplying fractions Dividing by a fraction	e.g $\frac{2}{5} \times 15 = \frac{30}{5} = 6$ $\frac{3}{4} \times \frac{2}{3} = \frac{3 \times 2}{4 \times 3} = \frac{6}{12} = \frac{1}{2}$ or $\frac{\frac{1}{3}}{\frac{2}{3}} \times \frac{\frac{3}{3}}{\frac{3}{1}} = \frac{1 \times 1}{2 \times 1} = \frac{1}{2}$ To divide by a fraction, multiple by the reciprocal e.g $60 \div \frac{5}{12} = 60 \times \frac{12}{5} = 12 \times 12 = 144$		



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### **Angles**

#### (SPM)

Heading	Description	Completed	I Can Do this © © ®
Naming angles	An angle is named by its letters. e.g. Angle ABC is written $\angle$ ABC or $ABC$ $A^{*}Arm$ B Vertex C		
Types of angles	Acute Right (perpendicular) Obtuse		
Related Angles	Complementary angles add up to 90° Supplementary angles add up to 180° Vertically opposite angles are equal. Corresponding angles are equal Alternate angles are equal Angles in a triangle add up to 180°		
Angles in a polygon	Interior angles are inside the polygon. Exterior angles are outside the polygon.		



### Negative numbers

#### (NMM)

S1 C (Harder)

Heading	Description	Completed	I Can Do this © 🕮 🖄
Integers	Integers are positive and negative whole numbers		
Adding positive integers	(-6) + 2 = - 4		
Subtracting	3 - 5 = -2		
positive integers			
Adding negative	5 +( -7) = 5 - 7 = -2		
integers			
Subtracting	1 - (-3) = 4		
negative integers			



#### **Measurement**

#### (NMM)

Heading	Description	Completed	l Can Do this © 😐 🖄
Length Perimeter	100 centimetres = 1 metre 10 mm = 1 cm e.g. 254 cm = 2.54 m 3m $495$ $495$ $15m$ $150$ $1750$ mm 4.5 m Perimeter = Distance all the way around. Make sure units are the same !!		
Weight	1000 kilogrammes = 1 tonne 1000 grams = 1 kilogramme 1000 milligrammes = 1 gramme e.g. 560 g = 0.560 Kg		
Capacity (Volume)	1 cubic centimetre ( $cm^3$ ) = 1 millilitre (ml) 1000 $cm^3$ = 1000 ml = 1 litre 1 cubic metre ( $m^3$ ) = 1000 litres e.g. 250 ml = 0.25 l		



### **Coordinates**

## S1 C (Harder)

### (SPM)

Heading	Description	Completed	I Can Do this © @ Ø
Cartesian axes	The horizontal line is called the $x - axis$ . It is labelled x. The vertical line is called the $y - axis$ . It is labelled y. The point where the $x - axis$ and $y - axis$ cross is called the origin. It is labelled Q.		
<b>Reading</b> <b>Coordinates</b> Read along the x – axis, then up the y - axis	$A = \begin{bmatrix} 5 & y \\ 4 & 4 \\ - & -3 \\ - & -3 \\ - & -2$		
Plotting Coordinates	To Plot E( 4,2) , count 4 units to the right of the origin, then go 2 units up. To Plot F( -4,2) , count 4 units to the left of the origin, then go 2 units up.		
Reflection in a line	B B x x 1 2 3 B B B B B B B B B B B B B		



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### (SPM)

Heading	Description	Completed	l Can Do this ☺ ☺ ፡፡
True Measurements	The scale is 1 cm to 80 cm The length of the picture is 4.5 cm The true length of the bike is 4.5 x 80 = 360 cm or 3.6 m		
Representative Fractions	1:25 000 means 1 unit represents 25 000 units e.g using this scale 30 cm represents $30 \times 25 000 = 750000 \text{ cm}$ = 7500  m = 7.5  km		
Plans and scales	A photograph is taken of a painting. The true width of the painting is 90 cm, the width of the phot is 5 cm. Find the scale. Photo Painting 5 cm 90 cm ÷ 5 ÷ 5 1 cm 18 cm Scale is 1 : 18		
Angles of elevation and Depression	angle of elevation angle of depression		
Bearings	<ul> <li>Bearings are always</li> <li>Measured from north</li> <li>Measured clockwise</li> <li>Given as 3 digit figures</li> </ul>		



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#### 2D Shape

### (SPM)

Heading	Description	Completed	l Can Do this © ප හි
2 D Shapes			
Triangles	Isosceles right angled equilateral scalene Acute-angled Right -angled Obtuse-angled		
Area of a triangle	Area = $\frac{1}{2}x$ base x vertical height		
Quadrilaterals	Squares Rectangles The Rhombus Kites Parallelograms The Trapezium		



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### Time, distance & speed

#### (NMM)

Heading	Description	Completed	I Can Do this © 😐 🕫
24 hour	Using 12 hour and 24 hour clock notation e g $9.30 \text{ am} = 0930$		
notation	9.30 pm = 21:30		
Time intervals	A film starts at 3.15pm and finishes at 4.05pm. How long does it last ? 3.15 pm to 4.00pm is 45 mins 4.00 pm to 4.05pm is 5 min Total length of time is 50 mins		
Converting units of time	e.g. 70 seconds = 1 minute 10 seconds		
	Change 5.2 hrs to hours and minutes		
Converting	$0.2hrs = 0.2 \times 60$ mins = 12mins so 5.2hrs = 5hours 12mins		
fractional units of time	Change 3 hours 15 minutes to hours 15 minutes = $\frac{15}{60}$ hrs = 0.25 hrs so 3 hours 15 minutes = 3.25 hrs		
Distance, Speed and Time	$D = ST \qquad S = \frac{D}{T} \qquad T = \frac{D}{S}$		



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S1 C (Harder)

Heading	Description	Completed	I Can Do this © 😐 🖄
Tables	Model       Frequency         Avensis       50         Celica       50         Corrolla       100         Landcruiser       150         Yaris       50         Total       400		
Charts and graphs	Reading and drawing bar and line graphs $I = \frac{Maths Test Score}{0}$		
Pie charts	Reading, drawing And interpreting pie charts		
Frequency Tables	Model       Frequency         Avensis       50         Celica       50         Corrolla       100         Landcruiser       150         Yaris       50		
Mean and Range	Find the mean and range of a set of data. Find the mean and range from a frequency table.		



#### Algebra 1

### S1 C (Harder)

(NMM	)
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Heading	Description	Completed	I Can Do this ☺ ≌ ⊗
Simplifying Expressions Collecting like	An expression uses letters for numbers. Each part of an expression is called a term. 5x + 4y has two terms. 3a is the same as $3 \times a$ a is the same as $1 \times a$ To simplify an expression, collect like terms. x + x + 6 = 2x + 6 121n - n - 96n = 24n		
terms	5r +9a –2r + 6a = 3r +15a		
Evaluating expressions	Evaluate 5a – 2b when a =3 and b=5 5a -2b =5 x 3 - 2 x 5 =15 -10		
Evaluating formulae	A rectangle has length 5cm and breadth 2 cm. Find the area of the rectangle. A=lb l=5cm , b=2cm $A = 5 \times 2$ $A = 10 \text{ cm}^2$		



#### Ratio

### (NMM)

Heading	Description	Completed	I Can Do this © © ⊗
Ratio	The ratio of sunny days to rainy days is 2 : 3		
Simplifying ratios	Divide each side by the same number e.g. 15 : 5 = 3 : 1		
Ratio and Proportion	e.g The ratio of girls to boys is 3 : 2 How many girls are there when there are 10 boys ? <u>Girls : Boys</u> 3 : 2 15 : 10 There are 15 girls.		
Sharing a given quantity	e.g. Share £20 in the ratio 2:3 $\frac{1^{\text{St}} \text{ share } 2^{\text{nd}} \text{ share } Total}{2 3 5}$ 8 12 20		



#### 3 D Shape

### (SPM)

Heading	Description	Completed	l Can Do this ⓒ 딸 왕
Vertices, Edges & Faces	Vertex Edge		
	Plane AEGC Plane AEGC is shown shown.		
Angles and Diagonals	EG is a face diagonal AG is a space diagonal		
Nets	A net can be folded to make a 3D shape		
Volume	For a cuboid Volume = length x breadth x height		
Compound shapes	To find the volume of a compound shape, split it into regular shapes and add each individual volume.		



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### **Formulae**

### (NMM)

Heading	Description	Completed	I Can Do this ☺ ☺ ⊗
Formulae in words	1 sun 2 suns 3 suns = 6 rays = 12 rays = 18 rays Number of rays = 6 times number of suns r = 6s		
Formulae from graphs	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		
Solving problems using formulae	Use a formula to find the solution of a problem.		



#### **Percentages**

### (NMM)

Heading	Description	Completed	I Can Do this ☺ ☺ ⊗
Changing percentages to fractions and decimals	$83\% = \frac{83}{100} = 0.83$		
Changing percentages to simplest form fractions	$85\% = \frac{85}{100} = \frac{17}{20}$		
Common percentages	$10\% = \frac{1}{10}$ $25\% = \frac{1}{4}$ etc.		
Percentages of quantities	<i>use</i> $1\% = \frac{1}{100}$ $10\% = \frac{1}{10}$ <i>e.g.</i> Find 7% of £60 $1\%$ of £60 = $\frac{1}{100} \times 60 = 0.6$ <i>so</i> 7% of £60 = $0.6 \times 7 = £4.20$		
Percentage increase And decrease	A shop has increased all prices by 20%. Kitkats were 35p. How much are they now ? $10\% \times 35p = 3.5p$ $20\% \times 35p = 2 \times 3.5p = 7p$ New price is $35p + 7p = 42p$		
Percentages using the calculator	Using the calculator to find percentages		



#### Algebra 2

### (NMM)

Heading	Description	Completed	I Can Do this ☺ ≌ ⊗
	2x+3=9 12 - $p = 3$		
	e.g. $2x = 6$ $12 = 3 + p$		
	x=3 $p=9$		
Solving Equations	10p-1=4 $5r = 25$		
	$10p = 5$ $r = \frac{25}{5}$		
	$p = \frac{5}{10} = \frac{1}{2}$ $r = 5$		
	e.g. When 32 is subtracted from <i>w</i> this leaves		
Using			
equations	w - 32 = 21		
	w = 53		
	< means is smaller than		
	> means is greater than		
Inequations	$\leq$ means is smaller than or equal to		
•	$\geq$ means is greater than or equal to		
	ea		
	$z+11 \ge 15$		
	<i>z</i> ≥4		
	Solve the equation $3m+1>32$		
	on the set of numbers $\{0,1,2,3,4,5,6,7,8,9\}$		
Inequations	3 <i>m</i> +11>32		
on a set	3 <i>m</i> >21		
	<i>m</i> >7		
	Solution set $\{8,9\}$		

