

## St Thomas of Aquin's RC High School



## Helping your child achieve Level 4

Estimation and Rounding		
I can round answers to specified Significant	254.125874	
	1 Significant Figure: <b>300</b>	
	2 Significant Figures: <b>250</b>	
	3 Significant Figures: <b>254</b>	
	4 Significant Figures: <b>254.1</b>	
I take into consideration the context of a question before rounding.	A coach can carry 62 passengers.	
	How many coaches are required to	
	transport 200 pupils and 10 staff	
	members?	
	210 ÷ 62 = 3.387	
	Therefore, 4 coaches are required.	
I can use a given tolerance to decide if there is an allowable amount of variation of a specified	Dimensions of a machine part are	
quantity.	235 mm ± 1 mm	
	Maximum length = 236mm	
	Minimum length = 234mm	

Numbe	er al	nd number proce	esses	
I can apply the correct order of operations including those with	B	Brackets	10 × (4 + 2) = 10 × 6 = 60	
brackets	Ι	Indices	$5 + 2^2 = 5 + 4 = 9$	
	D	Division	10 + 6 ÷ 2 = 10 + 3 = 13	
	Μ	Multiplication	10 - 4 × 2 = 10 - 8 = 2	
	Α	Addition	10 × 4 + 7 = 40 + 7 = <b>47</b>	
	S	Subtraction	10 ÷ 2 - 3 = 5 - 3 = 2	

Powers and roots	
I can show that square roots of whole numbers can have	$\sqrt{9} = \pm 3$
positive and negative values.	Since $3^2 = 9$ and $(-3)^2 = 9$

I can evaluate whole number	$\sqrt[3]{8} = 2$
roots of any appropriate number	$\sqrt[3]{27} = 3$
I can express numbers in	$3400 = 3.4 \times 10^3$
Scientific Notation.	$0.000034 = 3.4 \times 10^{-5}$

Fractions, o	lecimal frac	tions and	percent	ages		
Convert fractions, decimal	1	1	3	2		1
fractions and percentages to	10	5	10	-		2
equivalent fractions, decimal	0.1	0.2	0.3	0.4	0	0.5
fractions or percentages to	10%	20%	30%	40%	5 5	0%
make comparisons.						
		3	7	4	9	1
		5	10	5	10	ै
		0.6	0.7	0.8	0.9	1.0
		60%	70%	80%	90%	100%
			0.6 >	3 10		
I can calculate percentage	A	ppreciatio	on - perc	entage i	increase	2
increase or decrease of a value.	De	, , epreciatio	n - perce	entage d	lecrease	2
I can add, subtract and multiply	Example A car was depreciate What is th the origina	originally es in value ne value of 10 0.95 al 1	purchase at a rate f the car 0% - 5% 5 × 6500	ed for £ e of 4% after 1 = 95% = <u>£617</u> !	26500. ] per anr year? 5	 1um.
fractions.	fractions with a com denomina	$\frac{1}{1000} = \frac{1}{1000}$	$+\frac{3}{6}$			
	result:	<u>-</u> 6	5			

	Multiply the $\frac{2}{5} \times \frac{3}{4} = \frac{6}{5}$
	Multiply the $\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$
	Reduce the fraction if $\frac{6}{20} = \frac{3}{10}$
I can solve problems in which related quantities are increased	Value Added Tax (VAT) = 20% (from 4 <sup>th</sup> January 2010)
or decreased proportionally.	<b>Example</b> Calculate the total price of a computer
	which costs £650 excluding VAT
	20% of £650
	$=\frac{1}{5}$ of 650
	= 650 ÷ 5
	= 130
	Total price = 650 + 130
	= £780

Money		
I can describe credit and debit in relation to earning and deductions.	<b>Debit card:</b> draws money directly from your account when you make a purchase.	
	<b>Credit card:</b> borrows pre-approved funds when you make a purchase. Money is paid back with interest.	
	APR: annual percentage rate	
	<b>pa:</b> per annum	
	<b>Interest rate</b> : the percentage charged by a lender when borrowing money.	

I can budget effectively.	Income: Money received/earned.
	Expenditure: Money spent.
	<b>Surplus:</b> Money left over. Occurs when income is greater than expenditure.
I can calculate net income.	Net Income = Gross Income - Deductions.
	Examples of deductions:
	Tax
	National Insurance contribution
	Student Loan
	Private Pension
I can compare a range of personal finance products and communicate the impact of	When opening a savings account - seek a high interest rate.
financial decisions.	When borrowing money (loans, credit cards,
	mortgages) – seek a low interest rate.
I can apply knowledge of	£ $\rightarrow$ \$ multiply by the exchange rate.
determine the best value.	$\Rightarrow \pounds$ divide by the exchange rate.



I can calculate speed,	$\wedge$	
distance and time		$D = S \times T$
involving decimal		S =D ÷ T
fraction hours.		
	/ S   T \	$T = D \div S$
	To change hours to n	ninutes -> ×60
	To change minutes to	o hours -> ÷60

Measurement		
I can calculate the area of kites, parallelograms, and trapeziums.	$A_{kite} = \frac{1}{2}(d_1 \times d_2)$ $A_{parallelogram} = B \times H$ $A_{trapezium} = \frac{1}{2}(a+b)h$	
I can calculate the surface area of cylinders, cuboids and triangular prisms,	$SA_{cylinder} = 2\pi rh + 2\pi r^{2}$ $SA_{cuboid} = 2lw + 2lh + 2wh$ $SA_{triangularprism} = 3lw + bh$	
I can calculate the volume of triangular prisms and cylinders.	$V_{prism} = A \times h$ $V_{cylinder} = A \times h = \pi r^{2}h$	

Patterns and relationships		
I can determine a general	Number Sequence: 10, 14, 18, 22 4n + 6	
formula for the nth term to		
describe a sequence	Number Sequence: 1, 3, 5, 7, 9 2n - 1	
I can calculate the gradient of a	$(x_1, y_1)$ and $(x_2, y_2)$	
line given two points on a		
coordinate diagram.	$m = \frac{y_2 - y_1}{y_2 - y_1}$	
	$x_2 - x_1$	
I can communicate the gradient	Horizontal line -> m = 0	
of a vertical and horizonal line.		
	Vertical line -> m is undefined.	



Expressions and equations		
I can expand brackets	4(x + 3) = 4x + 12 5(2x + 4) = 10x + 20	
	Example	
I can solve a range of linear equations.	5x + 2 = 2x - 1	
	-2× -2×	
	3x + 2 = -1	
	-2 -2	
	3x = -3	
	× = -1	
I can solve linear inequations	Follow the above method	
	a > b a is greater than b	
	a < b a is less than b	
	$a \ge b$ a is greater than or equal to b	
	$a \le b$ a is less than or equal to b	

I can factorise expressions	ab + ac = a(b + c)
using a common factor	







Data and analysis	
I can interpret raw and graphical data.	Reading from a variety or charts, tables and graphs.



Ideas of chance and uncertainty	
I can calculate probability and predict how	The probability of rolling a 3 on a regular dice is $\frac{1}{6}$
many times I can expect an event to occur.	Therefore, if I rolled a dice 60 times. I would expect a 3 on ten occasions.
	$(\frac{1}{6} \times 60 = 10)$