

Numeracy Outcomes by Organiser and Level

Sig Aspect of Learning	Organiser	Second Level	Third Level	Fourth Level
<p>(1) Use Knowledge and understanding of the number system, patterns and relationships</p> <p>Apply Numeracy & Mathematical Skills</p>	(a) Estimation & Rounding	Round to nearest 10, 100, 1000, Estimate answers using rounding	Rounding to no. of decimal places Significant figures	Tolerance
	(b) Number & Number Processes	Write no. up to 10m in words. Put no. in order Place values Add/subtract whole no. Multiply/divide by whole no. < 10 Multiply/divide decimals by 10, 100, ... Multiply/divide decimals by a single digit Multiply by 20, 50, 70, ... Divide by 20, 50, 70, ... Simple BODMAS problems Intro. negative numbers Order negative numbers Reading thermometers, sea depths, debts,	Long Multiplication Dividing by values > 10 Problem solve with +, -, x, ÷. Further BODMAS +, -, x, ÷ negative numbers	Multiplying decimals Dividing decimals Problem solve with +, -, x, ÷ to include above BODMAS with multiple brackets & powers
	(c) Fractions, Decimal Fractions & Percentages (incl ratio and proportion)	Identifying fractions Simplifying fractions Fractions of a quantity Find simple percentages e.g. 10%, 25%, 50%, 75%. Equate simple F/D/P e.g. $0.5 = \frac{1}{2} = 50\%$ Intro proportion using money, sweets etc If 10 items cost £s, find the cost of one	Mixed to improper fractions & vice versa Add & subtract fractions Find a variety of %'s with & without a calculator Equate F/D/P e.g. $0.125 = 1/8 = 12.5\%$ Compare & order F/D/P If 3 items cost £s, find the cost of 5 Intro ratio notation Simplifying ratios Simple ratio calculations	Multiplying & dividing fractions +, -, x, ÷ fractions with mixed numbers Mixed word questions using F/D/P Simple interest Express A as a percentage of B Sharing a quantity of a ratio Graph of direct proportion Inverse basic proportion
	(d) Money	Intro of money management, comparison of costs. Intro to costs, benefits, risks etc of bank cards & loans Intro to budgeting Understand simple profit and loss	Source, compare & contrast	

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<p>(2) Use knowledge and understanding of measurement and its application</p> <p>Apply Numeracy & Mathematical Skills</p>	(a)Time	<p>Using am/pm time</p> <p>Converting between 12 hour & 24 hour clock</p> <p>Interpreting simple timetables</p> <p>Calculating small time intervals</p> <p>Intro. speed concept & meaning of mph, ...</p> <p>Explain meaning of average speed</p>	<p>Problems involving time</p> <p>Interpreting bus/train/ plane timetables</p> <p>Converting simple times into decimal fractions</p> $D = S \times T; S = D / T; T = D / S$ <p>Interpreting answers</p> <p>Mixed examples using simple fractions of an hour</p> <p>Interpreting simple distance-time graphs</p>	<p>Working with TDS formula & fractions of an hour</p> <p>Finding any rate e.g. texts per month</p> <p>Interpreting more complex distance-time graphs</p> <p>Creating distance-time graphs</p>
	(b)Measurement	<p>Measuring & drawing lengths</p> <p>Converting units of length</p> <p>Problems involving lengths</p> <p>Perimeters</p> <p>Area of squares & rectangles</p> <p>Area of a right-angled triangle</p> <p>Intro. volume: Converting litres & millilitres</p> <p>Volumes by counting 1cm^3 cubes</p> <p>Calc. the volume of a cube & cuboid</p>	<p>Calculate the area of:</p> <ul style="list-style-type: none"> • All triangles • Kite • Rhombus • Trapezium • Parallelogram • Circle • Simple composite shapes <p>Liquid volumes: $1 \text{ litre} = 1000\text{ml} = 1000\text{cm}^3$</p> <p>Calculate the volume of a triangular prism</p>	<p>Calculate the area of:</p> <ul style="list-style-type: none"> • All triangles • Kite • Rhombus • Trapezium • Parallelogram • Circle • Composite shapes <p>Circumference of a circle</p> <p>Calc. surface areas of a cuboid & triangular prism</p> <p>Calc. the volume of a cylinder</p>
<p>(3) Research and Evaluate Data to assess risk and make informed choices</p> <p>Apply Numeracy & Mathematical Skills</p>	(a)Data Analysis	<p>Organising & Interpreting information:</p> <ul style="list-style-type: none"> • Frequency Tables • Pictographs • Bar Graphs • Line Graphs • Fraction Pie Charts <p>from tables e.g. tariffs</p> <p>Simple project possibly using ICT</p>	<p>Intro. meaning of discrete & continuous data</p> <p>Discuss bias & sample size</p> <p>Simple calc. involving mean, median, mode & range</p> <p>Organising & Interpreting information:</p> <ul style="list-style-type: none"> • Scatter Graphs • Stem & Leaf • Dot plots 	<p>Interpreting mean, median, mode & range</p> <p>Interpret most appropriate average & misleading data</p> <p>Construct from raw data:</p> <ul style="list-style-type: none"> • B-to-B Stem & Leaf • Frequency tables with class intervals • Scatter Graphs with a line of best fit <p>Calculating sector angles given categories</p> <p>Constructing pie charts using degrees</p>
	(b)Ideas of Chance & Uncertainty	<p>Intro. probability using impossible, likely, certain..</p> <p>Make simple predictions from experiments</p> <p>Probability as a fraction</p> <p>Carry out simple calculations</p>	<p>Probability of an event occurring</p> <p>Given a probability, det. the likelihood of an event</p>	<p>Making & explaining decisions based on prob.</p> <p>Calculate expectation</p>