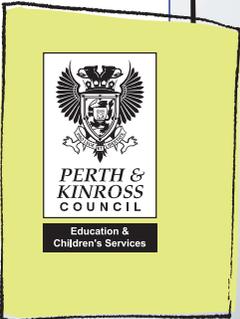


Creating a  
Standard  
Together

Indicators	Exemplars
<p><b>Estimation and Rounding</b></p> <p>Can use a range of rounding techniques to estimate, calculate and check.</p> <p>Is able to analyse problems to determine the level of accuracy appropriate to the context drawing on ability to round any decimal number to at least one or two decimal places/three significant figures.</p>	<p><b>Estimation and Rounding</b></p> <p>Rounding to one figure of significance for estimations, ie <math>3.41 \times 123 = 3 \times 100</math> etc.</p> <p>Real-life examples: football crowds, ie If there were 49373 spectators at a football match, what would the headline in a newspaper state? Use significant figures to check calculations are 'sensible', ie to check electricity bills 2400 units at 5.6p per unit etc.</p>
<p><b>Number and Number Processes</b></p> <p>Building on the skills and knowledge and understanding of second level numeracy, demonstrates confidence using the four operations in a variety of ways with whole numbers to six digits with calculator and mentally.</p> <p>Is able to select appropriate strategies (from the above) using relevant information in real-life scenarios to work with others - sharing approaches, discussing solutions etc.</p> <p>Is able to solve simple problems in a range of contexts by working with negative numbers - by adding, subtracting multiplying and dividing integers.</p> <p>Has explored the rules for the order of operations <math>\times, \div, +, -</math> and can apply KU to problems.</p>	<p><b>Number and Number Processes</b></p> <p><b>Without a calculator can:</b></p> <p>Add and subtract up to 6 digits including decimals, ie <math>347 + 123876</math> etc.</p> <p>Multiply and divide by 2 digits including decimals, ie <math>123 \times 45, 169 \div 13</math></p> <p>Problems in context, ie populations, sales of newspapers etc.</p> <p><math>-3 + 7, -4 - (-5), -5 \times 7, 24 \div (-4)</math> etc.</p> <p>Problems in context, ie If the temperature is <math>-4^{\circ}\text{C}</math> and drops by <math>12^{\circ}</math>, what is the new temperature?</p> <p>Use of BOMDAS (also known as BODMAS or BIDMAS), ie <math>7 + 3 \times 4 = 7 + 12 = 19</math> etc. <i>(NB: BIDMAS/BODMAS - the order of operations is Brackets, Order (power), Division or Multiplication then Addition or Subtraction and is outcome MTH 4-03b when it involves brackets and powers)</i></p>
<p><b>Fractions and Decimals</b></p> <p>Can convert between whole numbers, mixed numbers and fractions and use ratios when solving problems in context.</p> <p>Is able to find what percentage one quantity is of another and can apply knowledge of direct proportionality to solve a range of problems</p>	<p><b>Fractions and Decimals</b></p> <p><b>Non-calculator:</b></p> <p>Knows percentages and decimals and their equivalent fractions, ie <math>10\% = \frac{1}{10}, 5\% = \frac{1}{2}</math> of <math>10\%</math>, <math>2\frac{1}{2}\% = \frac{1}{2}</math> of <math>5\%</math> etc and can use in problems in context, ie the cost of a jacket is £86. If the price is reduced by <math>37\frac{1}{2}\%</math>, what does it cost now?</p> <p>Can convert from <math>\frac{13}{4} = 3\frac{1}{4}</math> etc.</p> <p>Can convert simple fractions to a percentage, ie <math>\frac{17}{20} = \frac{17 \times 5}{20 \times 5} = \frac{85}{100} = 85\%</math>.</p> <p>Can work with ratio including problems in context - staffing ratios for school trips, mixing paint, scaling recipes etc, ie To make purple paint, blue and red paint is mixed in the ratio 2:3. If the Art teacher has 12 litres of blue paint, how much red paint is required?</p> <p><b>Calculator:</b></p> <p>Can change from a fraction to a percentage by dividing denominator and multiplying answer by 100, ie Anne got 48 out of 60 in a test, what percentage is this?</p> <p>Calculate a percentage of a quantity - including discount percentage increase in cost, ie If the local bank pays simple interest at a rate of 3.8% pa. How much interest would I earn if I had £346 in the bank for a year?</p> <p>Can work with ratio including problems in context - John and Gary split their £35000 lottery win in the ratio of 3:4. How much will Gary get?</p>



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<p><b>Money</b></p> <p>Has had opportunities to manage a budget (real or within a learning context/part of a financial enterprise) in order to demonstrate K&amp;U of financial competence in planning, spending and budgeting.</p> <p>Demonstrates ability to make informed choices showing financial responsibility and is able to handle some foreign exchange calculations.</p> <p>Is able to source, compare and contrast different contracts and services (including interest and % rates) and explain best value.</p>	<p><b>Money</b></p> <p>Can add, subtract, multiply and divide money in context. In context: Budgets - income and expenditure, comparison of phone contracts, savings rates.</p> <p>Example:</p> <p>At Bank A their rate of exchange is £1 = \$1.56 and they charge no commission. At Bank B the rate of exchange is £1 = \$1.49 and they charge £10 commission. Ann wants to change £200 into dollars, which bank gives the better rate?</p>
<p><b>Time</b></p> <p>Is able to convert hours and minutes into hours in decimal form for ¼ and ½ hours.</p> <p>Can calculate or measure time intervals and can use this in a speed or distance calculation and can display and interpret solutions using graphs, timelines etc.</p>	<p><b>Time</b></p> <p>Knows, understands and can use 4.25h = 4 hours 15 min, 4.5h = 4h 30 min, ie John travels 126 miles at a speed of 56 km/h. How long will the journey take?</p> <p>Can work with distance/time graphs - knowing 'steeper' line means car travelling faster, horizontal line means car stationary etc.</p>
<p><b>Measure</b></p> <p>Measures accurately using a wider range of more complex/unfamiliar tools.</p> <p>Demonstrates ability to detect unrealistic estimates/measurements and is able to suggest alternatives.</p> <p>Is able to find the perimeter, area and volume of compound shapes to solve practical problems.</p> <p>Relevant to context/information given, can choose an appropriate degree of accuracy drawing on K&amp;U of decimal places, significant numbers (ref to estimation).</p>	<p><b>Measure</b></p> <p>Can work with more sophisticated scales - in science and technology ie callipers, micrometer etc.</p> <p>Can realistically estimate heights, lengths and weights etc:</p> <p>ie how far to the local shop, what is the height of the building, etc.</p> <p>Can use formulae for perimeter, area and volume including simple composite shapes. Formulae: <math>A=lb</math>, <math>V=lbh</math>, <math>V = Ah</math> etc.</p> <p>Composite shapes:</p> 
<p><b>Data and Analysis</b></p> <p>Is able to select, create and use the most appropriate graphical representation for data - using IT skills.</p> <p>Is able to discuss whether information is robust, vague or misleading and understands that bias may arise when analysing information/collecting data and that sample size may affect precision of conclusions drawn.</p> <p>Uses knowledge of discrete and continuous data when choosing a selection process and graphical representation.</p>	<p><b>Data and Analysis</b></p> <p>Work with simple percentages (5%, 10%, 25% etc) or fractions (½, ¼, 1/10 etc) in pie charts, ie can state most popular, least popular etc.</p> <p>Understand and use bias including sample size - ie adverts on TV for shampoo etc where 96% of users felt their hair was better but in small print the sample size was 23 etc.</p> <p><i>PLEASE NOTE: In numeracy the emphasis is on the interpretation of graphs and pie charts, looking at bias, sample size, misleading graphs and statistics. The drawing of Pie Charts and the calculation of Mean, Median &amp; Mode are MATHS outcomes and will be taught in maths.</i></p>
<p><b>Ideas of Chance and Uncertainty</b></p> <p>Solves probability problems in context and is able to discuss implications.</p> <p>Is developing an understanding of the concept of 'randomness'</p>	<p><b>Ideas of Chance and Uncertainty</b></p> <p>Can work out probability of event not happening, ie <math>1 - P(\text{event})</math>.</p> <p>Can work expected number, ie If <math>P(6) = 1/6</math>, how many sixes would you expect if you role a dice 300 times? etc.</p> <p>Can work out probability of events involving more than one item, ie dice plus coin.</p>