

Applications of Maths

National 5 - Unit 3 - Numeracy

Rounding

Rounding to the nearest 10, 100 or 1000

Rounding the decimal points Rounding to 1dp, 2dp

Rounding to Significant Figures Rounding to 1 sf, 2sf

Percentages

% of a quantity Non calculator - 5%, 10%, 25% etc
 Calculator - Divide by 100 multiply by percentage

% profit and loss % Increase/decrease = $\frac{\text{difference}}{\text{original}} \times 100$

Working out a percentage Divide amounts and multiply by 100

Compound Interest Calculate multiplier from percentage:
 e.g. 5% increase
100% + 5% = 105% = 1.05

Appreciation and Depreciation Use multiplier to calculate compound interest / depreciation.
 e.g. £500 with 5% interest for 3 years $1.05^3 \times 500$

Finding original quantity Find initial amount.
 e.g. Watch reduced by 30% to £42.
70% = £42, 1% = £0.60, 100% = £60 or $42 \div 0.7 = £60$

Fractions

Fractions of a quantity Divide by denominator, multiply by numerator

Converting Fractions to Decimals and Percentages F to D - Divide top by bottom
 D to P - Multiply by 100
 P to D - Divide by 100
 D to F - Put over 10, 100 or 100 and simplify

Perimeter and Area

Compound Shapes - Square and Rectangles Split into shapes and add areas

Circles $C = \pi D$ and $A = \pi r^2$

Compound Shapes with circles Split into shapes and add areas

Proportion and Ratio

Direct Proportion Each amount increases or decreases at the same rate

Sharing in a given ratio Divide amount by total number of shares
 Then multiply into the ratio

Probability

Probability of an event $P(\text{event}) = \frac{\text{required events}}{\text{Total Possible events}}$

 Compare probabilities in decimal or fractional form.
 Largest most likely.

Statistics

<p>Mean, mode and median</p>	<p>Mean - Add and divide by amount of data Mode - Most often Median - ordered and middle number</p>
<p>Single Stem & Leaf Diagrams</p>	<p style="text-align: center;">KEY: 2 5 means 25</p> <pre style="font-family: monospace;"> 0 6 7 8 1 0 2 3 4 7 7 7 8 9 2 1 3 4 4 5 7 3 1 1 2 6 6 9 4 1 5 5 6 9 5 0 </pre>
<p>Back to back diagrams</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Boys</p> <pre style="font-family: monospace;"> 9 7 2 8 4 2 7 6 4 4 1 8 6 5 3 2 2 1 7 5 2 1 </pre> </div> <div style="text-align: center;"> <p>Girls</p> <pre style="font-family: monospace;"> 3 4 5 5 1 3 7 8 6 0 2 3 3 6 6 8 9 9 7 0 1 1 2 2 4 6 8 9 8 1 1 3 6 9 </pre> </div> </div> <p style="text-align: center;">Key: 4 5 = 45%</p>
<p>Drawing pie charts</p>	<p>$\text{Angle} = \frac{\text{Category Amount}}{\text{Total}} \times 360$ Draw to 1° accuracy</p>
<p>Interpreting pie charts</p>	<p>$\text{Category Amount} = \frac{\text{Angle}}{360} \times \text{Total}$</p>
<p>Bar charts</p>	<p>Interpreting and drawing bar charts</p>
<p>Line Graphs</p>	<p>Interpreting and drawing line graphs</p>
<p>Scatter Graphs</p>	<p>Interpreting and drawing scatter graphs. Positive, negative and no correlation. Line of best fit should follow trend and have roughly half the points above the line.</p>