




National 5: Numeracy

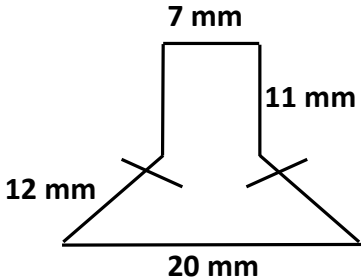
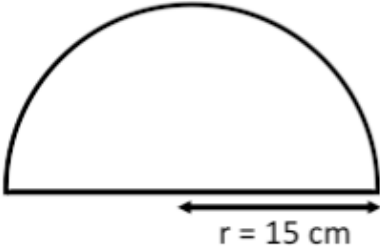
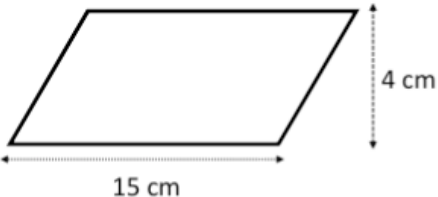
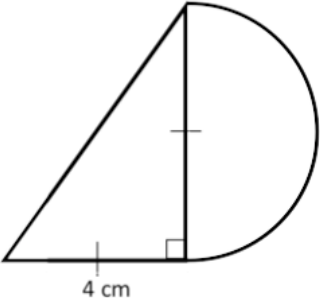
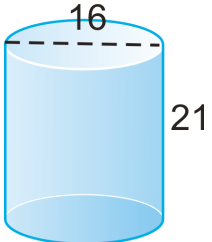
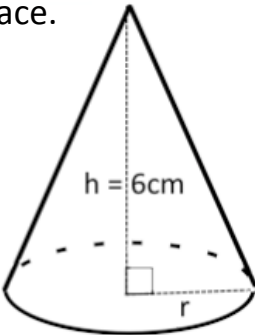
Learning Intention I can select and use appropriate numerical notation and units. (N1.1)			
Success Criteria	😊	😐	😞
<ul style="list-style-type: none"> When solving problems I can select the appropriate unit when dealing with money, time, length, weight, volume and temperature. 			
<ul style="list-style-type: none"> When dealing with money I know that £1 = 100p. 			
<ul style="list-style-type: none"> When dealing with time I know that : 1 year = 12 months, 1 year = 52 weeks, 1 year = 365 days (366 days in a leap year), Months: Jan 31, Feb 28(29), Mar 31, Apr 30, May 31, Jun 30, Jul 31, Aug 31, Sept 30, Oct 31, Nov 30, Dec 31 1 day = 24 hours, 1 hour = 60 minutes and 1 minute = 60 seconds. 			
<ul style="list-style-type: none"> When dealing with length I know that 1 cm = 10 mm, 1 m = 100 cm, 1 m = 1 000 mm and 1 km = 1000 m. 			
<ul style="list-style-type: none"> When dealing with weight I know that 1 kg = 1000 g and 1 tonne = 1000 kg. 			
<ul style="list-style-type: none"> When dealing with volume I know that 1 litre = 1000 ml, 1 litre = 1000 cm³ and 1 ml = 1 cm³. 			
<ul style="list-style-type: none"> I know that temperature can be measured in Celsius and Fahrenheit. 			





Learning Intention I can select and carry out calculations. (N1.2)			
Success Criteria	😊	😐	😞
<ul style="list-style-type: none"> I can add and subtract numbers given to two decimal places. <p>(a) $3.4 + 2.09$ (b) $1.52 - 0.78$ (c) $3.12 - 1.6 + 2.79$</p>			
<ul style="list-style-type: none"> I can multiply or divide a number given to two decimal places by a single-digit whole number. <p>(a) 12.94×7 (b) $9.15 \div 4$ (c) $(6.2 + 1.15) \div 7$</p>			
<ul style="list-style-type: none"> I can multiply and divide a number given to two decimal places by multiples of 10, 100 and 1000 <p>(a) 4.26×700 (b) $15.25 \div 50$ (c) 0.456×3000</p>			
<ul style="list-style-type: none"> I can round answers to the nearest three decimal places. <p>Round: (a) 0.278304 to 2 decimal places. (b) 129.3725 to 3 decimal places.</p>			
<ul style="list-style-type: none"> I can round answers to the nearest significant figure. <p>Round: (a) 253 kg to 2 significant figures. (b) 7.140 m to 3 significant figure.</p> <p>(c) 0.00486 to 1 significant figures.</p>			
<ul style="list-style-type: none"> I can find a percentage and fraction of shapes and quantities without a calculator. <p>(1) Each bag has 24 sweets in them. Joey eats $4\frac{3}{8}$ bags of sweets. How many sweets has Joey eaten?</p> <p>(2) In a sale there is a discount of 43.5%. What is the discount on a desk costing £450?</p>			

Success Criteria	😊	😐	😞
<ul style="list-style-type: none"> I can recognise and use mixed fractions. I can find the number of fractional parts in a mixed number. <p>(1) Write: (a) 7.25 as a fraction. (b) $\frac{45}{6}$ as a mixed number. (c) $3\frac{4}{9}$ as an improper fraction.</p> <p>(2) Compare $\frac{127}{9}$ and $4\frac{11}{10}$. Show your workings.</p>			
<ul style="list-style-type: none"> I can add, subtract and multiply simple fractions <p>(a) $\frac{4}{5} - \frac{3}{7}$ (b) $1\frac{1}{8} + \frac{4}{5}$ (c) $\frac{8}{12} \times \frac{3}{6}$ (d) $\frac{1}{2}$ of $\left(\frac{3}{9} + \frac{1}{4}\right)$</p>			
<ul style="list-style-type: none"> I can calculate compound percentage increase and decrease. <p>(1) Aly buys a flat for £90,000 it appreciates by 4.5% and 3.18% in the first two years respectively. In the third year the value of the flat depreciates by 6.8%. Calculate the value of Aly's flat after 3 years.</p> <p>(2) Brian buys a designer collar for £150. It depreciates in value by 2.84% each year. Calculate the value of the collar after 6 years.</p>			

Success Criteria			
<ul style="list-style-type: none"> I can express a quantity as a percentage of another quantity. <ol style="list-style-type: none"> A book was bought for £12 and sold for £16. Calculate the percentage profit based on the cost price. A flat was bought for £145,000 and sold for £138,000. Calculate the percentage loss based on the cost price. 			
<ul style="list-style-type: none"> I can convert equivalences between fractions, decimals and percentages. <ol style="list-style-type: none"> Convert: (a) 13% to a decimal (b) $\frac{7}{12}$ to a percentage (c) 0.001 to a fraction Starting with the biggest write the following in order of size: 0.404, $\frac{1}{4}$, 41%, 0.04, $\frac{4}{10}$ Write 102.5% as a decimal. 			
<ul style="list-style-type: none"> I can calculate speed, distance and time. <ol style="list-style-type: none"> The distance from Inverness to Edinburgh by rail is 124 miles. At what average speed must a train travel to cover this distance in 3 hours 20 minutes? A blue whale swims 94 km at a speed of 18.5 km/hr. How long does it take in hours and minutes. A bike travels at a constant speed of 17.4 mph for 20 minutes. How far does the bike go? 			

Success Criteria	😊	😐	😞
<ul style="list-style-type: none"> I can calculate the perimeter of a composite shape. <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>(1) Find the perimeter of this shape.</p>  </div> <div style="width: 45%;"> <p>(2) Calculate the perimeter of this shape.</p>  </div> </div>			
<ul style="list-style-type: none"> I can calculate the area of a composite shape (including quadrilaterals, triangles and circles). <p>Calculate the area of these shapes.</p> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>(1)</p>  </div> <div style="width: 45%;"> <p>(2)</p>  </div> </div>			
<ul style="list-style-type: none"> I can calculate the volume of different solids. <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>(1) Calculate the volume of the cylinder with a diameter of 16 mm and height of 21 mm.</p>  </div> <div style="width: 45%;"> <p>(2) A cone has a height of 6 cm and holds of 2.7 litres. Calculate the radius to 1 decimal place.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 10px;"> $V_{\text{cone}} = \frac{1}{3} \pi r^2 h$ </div>  </div> </div> </div>			

Success Criteria	😊	😐	😞
<ul style="list-style-type: none"> I can calculate ratio including dimensions from scale drawings. <p>(1) Purple paint is made by mixing red and blue paint in the ratio 3 : 4.</p> <p>If the painter has 12 tins of red paint, how many tins of blue paint will he require?</p> <p>(2) Three friends, Abigail, Bailey and Connie, share the cost of concert tickets in the ratio 2:3:1. If the tickets cost of the tickets is £199.20, how much would each of them have to pay the same ratio.</p> 			
<ul style="list-style-type: none"> I can calculate direct and inverse proportion. <p>(1) It takes 4 farmers 2 hours to gather in the hay. How long would it take 5 farmers?</p> <p>(2) How much will it cost for one bottle of water if a pack of 8 bottles costs £2.56?</p> <p>(3) Fiona is going to Florida. The exchange rate is \$1.55 to a pound.</p> <p>How many dollars will she get for £450?</p> 			
Learning Intention I can record measurements using a scale on an instrument. (N1.3)			
<ul style="list-style-type: none"> I can measure length, weight, volume and temperature to the nearest marked, minor unnumbered division on a suitable instrument. <p>Measure: (a) The bearing and length from A to B.</p> <p>(b) The bearing from B to A.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>North</p>  <p>A</p> </div> <div style="text-align: center;"> <p>North</p>  <p>B</p> </div> </div>			

Learning Intention

I can explain decisions using numerical results.

(N1.5)

Success Criteria

- When solving problems I can justify an answer by making comparisons related to the results.

(1) Three lenders, Mortgages First, Top Mortgage and Better Mortgage, offer mortgages at different rates on a loan of £120 000. Which mortgage would be better value over a period of 3 years and by how much?









Mortgages First
Monthly payment £372.50
Plus
One-off set-up fee £850


Top Mortgage
Monthly payment £395.65
And
No other fees to pay

Better Mortgage
Monthly payment £372.69
And
Deposit of £840

(2) In a trial, Jim's scores have a standard deviation of 4.6 and Rosie's scores have a standard deviation of 4.33. Who's results are the most consistent? **Justify your answer.**

Learning Intention I can extract and interpret data. (N2.1)			
Success Criteria			
<ul style="list-style-type: none"> I can extract and interpret data from different graphical forms including <ul style="list-style-type: none"> a table with at least five categories of information; a chart where all the values are not given or where a scale is not obvious (comparative/compound bar graph); a graph where part of the axis is missing or the scale is not obvious (conversion line graph); a diagram (stem-and-leaf diagram, scatter graph and a map). 			

Learning Intention I can make and explain decisions using results from the interpretation of data. (N2.2)			
Success Criteria			
<ul style="list-style-type: none"> I know the meaning of patterns, trends and relationships. 			
<ul style="list-style-type: none"> I can make decisions based on patterns and trends, results of calculations and reading scales. 			
<ul style="list-style-type: none"> When solving problems I can give reasons for the decisions made. 			
<ul style="list-style-type: none"> I understand the effects of bias and sample size on an outcome. 			

Learning Intention I can make and explain decisions using probability results. (N2.2)			
Success Criteria	😊	😐	😞
<ul style="list-style-type: none"> I know that a probability value lies between 0 and 1 inclusive. 			
<ul style="list-style-type: none"> I can calculate the probability of an event occurring. <p>The National Lottery has balls numbered 1 to 49.</p> <p>What is the probability that a ball selected at random, is a number greater than 40?</p> 			
<ul style="list-style-type: none"> I can use probability to make comparisons. 			
<ul style="list-style-type: none"> I can recognise patterns, trends and relationships and use these to state the probability of an event (relative frequency). 			
<ul style="list-style-type: none"> When solving probability problems I can give reasons for the decisions made. 			
<ul style="list-style-type: none"> I can use tree diagrams to list all the possible outcome and use this to calculate the probability 			
<ul style="list-style-type: none"> I can analyse the probability of combined events, identifying the effects of bias and describing probability through the use of percentages, decimals, fractions and ratio to make and justify decisions. <p>(1) There are 4 blue, 5 red and 9 green sweets in a bag. What is the probability that you pull out a green and then a blue, without returning the sweets to the bag?</p> <p>(2) In a box of fruit the ratio of mangos, pears and apples is 5:2:3 respectively.</p> <p>(i) What is the probability that you pull out a pear?</p> <p>(ii) If there are 45 mangos, how much fruit is there altogether?</p>			