


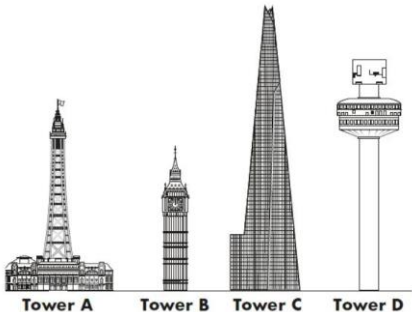
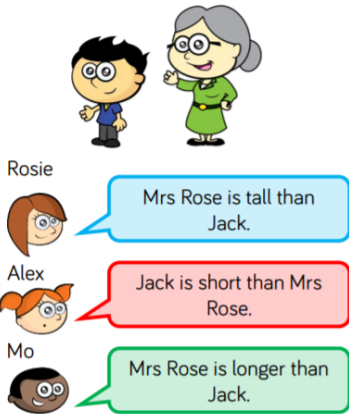

Area of Maths = Measurement







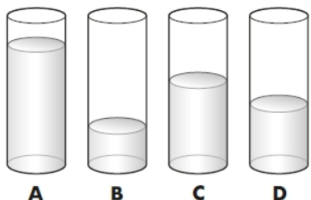


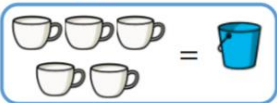

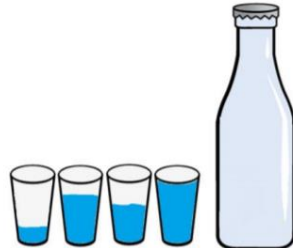
<p>Definition: "Use of standard units to determine size or quantity in regard to length, breadth, height, area, mass or weight, volume, fluid volume, capacity, temperature and time."</p> <p>From Jenny Eather's A Maths Dictionary for Kids</p> <p>http://www.amathsdictionaryforkids.com</p>	<p>Metric Vocabulary:</p> <p>Length / Height</p> <p>Millimetre (mm), Centimetre (cm), Metre (m), Kilometre (km)</p> <p>Area</p> <p>Square centimetre (cm²), Square metre (m²)</p> <p>Volume</p> <p>Cubic centimetre (cm³), Cubic metre (m³)</p> <p>Mass / Weight</p> <p>Milligram (mg), Gram (g), Kilogram (kg), Tonne (t)</p> <p>Capacity</p> <p>Millilitre (ml), Litre (l)</p> <p>Temperature</p> <p>Celsius (°C)</p> <p>Time</p> <p>Second, Minute, Hour, Day, Week, Month, Year, Decade, Century</p>	<p>Metric Conversions:</p> <p>Length / Height</p> <p>10 millimetres = 1 centimetre, cm 100 centimetres = 1 metre, m 1000 metres = 1 kilometre, km</p> <p>Mass / Weight</p> <p>1000 milligrams = 1 gram, g 1000 grams = 1 kilogram, kg 1000 kilograms = 1 tonne, t</p> <p>Capacity</p> <p>1000 millilitres = 1 litre, l or L</p> <p>Time</p> <p>1 minute = 60 seconds 60 minutes = 1 hour 1 day = 24 hours 7 days = 1 week 1 Year = 12 months ≈ 52 weeks 1 Year = 365 days (366 in a leap year) 1 Decade = 10 years 1 Century = 10 decades = 100 years.</p>	<p>Imperial Vocabulary:</p> <p>Length / Height</p> <p>Inch, Foot, Yard, Mile</p> <p>Mass / Weight</p> <p>Ounce, Pound, Stone</p> <p>Capacity</p> <p>Pint, Gallon</p>	<p>Imperial to metric approximations</p> <table><tr><th>Imperial unit</th><th>Metric unit</th></tr><tr><td>1 inch</td><td>≈ 2.5cm</td></tr><tr><td>1 foot</td><td>≈ 30cm</td></tr><tr><td>1 yard</td><td>≈ 91cm</td></tr><tr><td>1 mile</td><td>≈ 1.6 kilometres</td></tr><tr><td>1 ounce</td><td>≈ 28 grams</td></tr><tr><td>1 pound</td><td>≈ 454 grams</td></tr><tr><td>1 stone</td><td>≈ 6.4 kilograms</td></tr><tr><td>1 pint</td><td>≈ 568 ml</td></tr><tr><td>1 gallon</td><td>≈ 4.5 litres</td></tr></table>	Imperial unit	Metric unit	1 inch	≈ 2.5cm	1 foot	≈ 30cm	1 yard	≈ 91cm	1 mile	≈ 1.6 kilometres	1 ounce	≈ 28 grams	1 pound	≈ 454 grams	1 stone	≈ 6.4 kilograms	1 pint	≈ 568 ml	1 gallon	≈ 4.5 litres
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Declarative knowledge

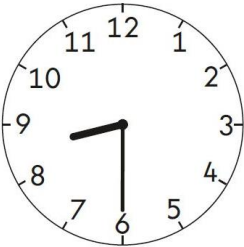

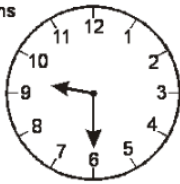
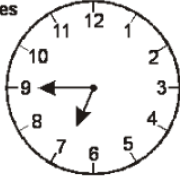



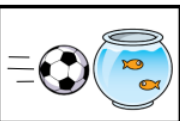
Measurements	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Automatically recall...</p> <p>Blue highlight = Roche's Specific Expectations</p> <p>Red font = Roche's Priorities for Revisiting</p>	<p>What the day is today, what it was yesterday and what it'll be tomorrow.</p>	<p>Value of monetary coins and notes on sight.</p> <p>Recall days of the week and months of the year.</p> <p>The time in o'clock and half-hour intervals.</p>	<p>Units of measure for length / height (cm/m), weight (g/Kg), capacity (ml/l) and temperature (°C).</p> <p>The symbols of pounds (£) and pence(p).</p> <p>Know the number of minutes in an hour and the number of hours in a day.</p> <p>The time in 5 minute intervals.</p>	<p>How to find the perimeter of simple 2D shapes.</p> <p>The number of seconds in a minute and the number of days in each month, year and leap year.</p> <p>Read time to the nearest minute.</p> <p>Roman Numerals to XII.</p>	<p>1cm = 10mm 1m = 100cm 1m = 1,000mm 1km = 1,000m</p> <p>1kg = 1,000g</p> <p>1l = 1,000ml</p> <p>24 hour equivalent of a 12 hour time.</p>	<p>Formula for finding the perimeter and area of squares and rectangles.</p>	<p>Formula for the area of a parallelogram.</p> <p>Formula for the area of a triangle.</p> <p>Formula for the volume of a cuboid (including cubes).</p>

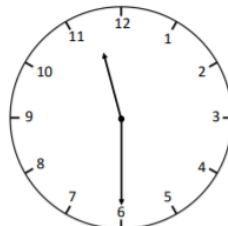
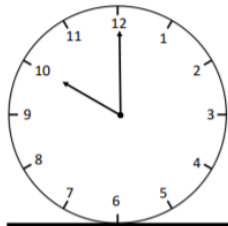
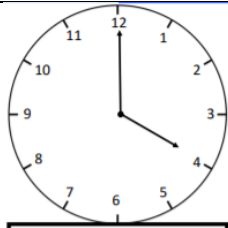
Year 1

Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning
		Make it! SAY IT	Show it/Draw it! SAY IT	Read/Write it! SAY IT		
1	<p>Measure and begin to record lengths and heights.</p> <p>Compare, describe and solve practical problems for lengths and heights [for example, long or short, longer or shorter, tall or short, double or half].</p>	<p>Measuring apparatus (Metre sticks, rulers)</p> <p>Multilink cubes to use as a standard unit of length</p>	<p>Questions that involve images for comparison, such as:</p> <p>Use the words taller and shorter in the sentence stems to compare the height of the man and the boy.</p> <p>The man is ____ than the boy.</p> <p>The boy is ____ than the man.</p> 	<p>Questions without images for comparison, such as:</p> <p>Draw a line in your book that is longer than your pencil. Then draw a line that is shorter than your pencil.</p> <p>List five things in the classroom that are taller than you. List five items that are shorter than you.</p>	 <p>Put the four towers in order from tallest to shortest.</p>	<p>Rosie, Alex and Mo are comparing the height of Mrs Rose and Jack.</p>  <p>Rosie: Mrs Rose is tall than Jack.</p> <p>Alex: Jack is short than Mrs Rose.</p> <p>Mo: Mrs Rose is longer than Jack.</p> <p>Can you improve their sentences to make them more accurate?</p>
1	<p>Measure and begin to record mass/weight.</p> <p>Compare, describe and solve practical problems for mass or weight [for example, heavy or light, heavier than, lighter than].</p>	<p>Scales</p>	<p>Questions that involve images for comparison, such as:</p>  <p>The _____ is heavier than the _____.</p> <p>The _____ is lighter than the _____.</p>	<p>Recording weights</p>	<p>Mrs Gardner has put four objects in order, starting with the lightest.</p> <ol style="list-style-type: none"> 1. A feather 2. A car 3. A book 4. A table <p>Can you spot Mrs Gardner's mistake?</p>	<p>"I'm thinking of an object. It is heavier than a pencil, but lighter than a dictionary."</p> <p>What object could Jack be thinking of? Prove it. How many objects can you think of?</p>

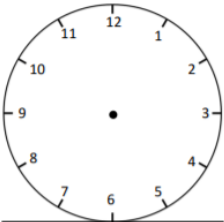
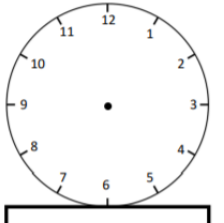

			<p>The _____ is equal to the _____.</p>		<p>Can you re-write the list correctly?</p>  <p>How many cubes does the teddy bear weigh? Explain how you know.</p>	   <p>Amir says,  The apple is heavier than the peach, because it weighs 4 cubes.</p> <p>Teddy says,  The apple and the peach weigh the same.</p> <p>Who do you agree with? Explain why.</p>
1	<p>Measure and begin to record capacity and volume.</p> <p>Compare, describe and solve practical problems for capacity and volume [for example, full or empty, more than, less than, half, half full, quarter].</p>	<p>Measuring jugs, beakers, cups</p> <p>Give children the opportunity to explore practically using water or sand.</p> <p>Show me full containers.</p> <p>Show me empty containers.</p> <p>Show me almost full.</p> <p>Show me almost</p>	<p>Images showing volume of liquids</p> 	<p>Recording volume</p>	<p>It takes 5  to fill 1 </p>  <p>How many  will it take to fill 2 buckets?</p> <p>What about three buckets?</p> <p>Four buckets?</p> <p>What do you notice? Can you continue the pattern?</p>	<p>Whitney pours her cups into the bottle and they fill it exactly.</p>  <p>She says the bottle has a capacity of four cups. Do you agree?</p>

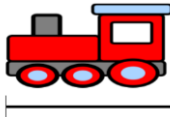
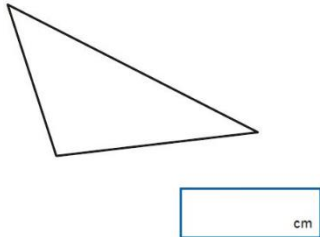
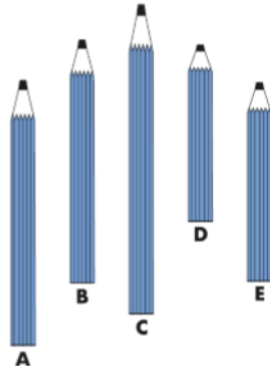
		empty.				
1	Recognise and know the value of different denominations of coins and notes.	Coins and bank notes.	Images of coins and notes	<p>What am I?</p> <p>I am silver. I have 7 edges. have the picture of Britannia next to a lion on me.</p>	<p>How many 1p coins would you need to make 20p?</p> <p>How many 2p coins would you need to make 20p?</p> <p>How many other ways can you make 20p using the same coins?</p> <p>Match each coin to the correct box.</p> <p>One has been done for you.</p> <div> <div> Less than  </div> <div> More than  </div> </div> <div>      </div>	<p>Sally says:</p> <p>The silver coin must be worth more because it is bigger than the gold coin.</p> <div>   </div> <p>Do you agree?</p>



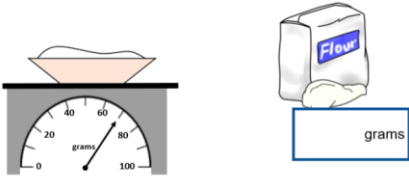
1	<p>Measure and begin to record time (hours, minutes, seconds).</p> <p>Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later].</p>	<p>Clocks</p> <p>Watches</p> <p>Stopwatches</p>	<p>Images of clockfaces:</p> 	<p>Match the times to the clocks.</p>  <p>9 o'clock</p> <p>Two o'clock</p> <p>5 o'clock</p>	<p>Swimming Pool</p> <p>Opens</p>  <p>Closes</p>  <p>At what time does the pool open?</p>	<p>When it is 11 o'clock both hands point at 11</p> <p>Alex</p> <p>Is Alex correct? Explain your reasoning.</p>  <p>The time is 3 o'clock.</p> <p>Amir</p> <p>Can you spot Amir's mistake?</p>
1	<p>Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening].</p> <p>Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</p>		<p>Write down the times shown on the clocks:</p>	<p>Sort the activities into before and after school.</p>  <p>Can you think of one more activity for each group? Can you sort the activities into three groups labelled morning, afternoon and evening?</p> <p>Tommy is drinking a bottle of orange juice. Match the words to the bottles to order them.</p>  <p>finally first next</p>	<p>Mia is describing her day.</p> <p>Mia</p> <p>First, I went to the park. After lunch, I went to the cinema. Before the cinema, I went to a café for lunch.</p> <p>Can you draw a picture and write key words, to order Mia's day?</p> <div> <div></div> <div></div> <div></div> </div> <p>First Next Then</p>	<p>Draw pictures to show what could have happened before and after.</p> <div> <div></div> <p>Before</p> </div> <div>  </div> <div> <div></div> <p>After</p> </div>

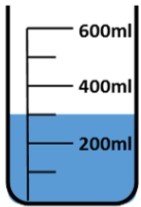
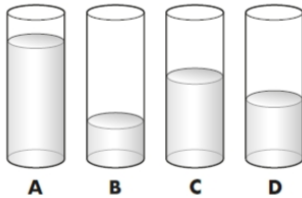





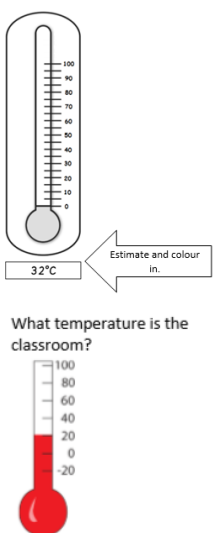
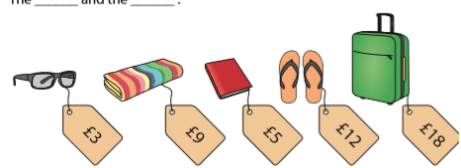
Draw the times shown on these clocks:





			 <div>9:00</div>  <div>10:30</div>			
1	Recognise and use language relating to dates, including days of the week, weeks, months and years.	Calendars Diaries		<p>Fill in the missing days of the week and complete the sentences.</p> <div><div>Sunday</div><div>Tuesday</div><div>Wednesday</div><div></div><div></div><div>Saturday</div></div> <ul style="list-style-type: none">• Today is Wednesday, yesterday was ____• Yesterday was Monday, today is ____• Today is Saturday, tomorrow is ____• Tomorrow is _____, today is Wednesday.	<p>Sort the days of the week into school days or non-school days.</p> <div><div>Sunday</div><div>Thursday</div><div>Saturday</div><div>Friday</div><div>Wednesday</div><div>Tuesday</div><div>Monday</div></div> <div><div>At school</div><div>Not at school</div></div>	<p>Eva is practising chanting the months of the year.</p> <p>She says,</p> <div><div>January, February, May, April, March, July, June, August, September, November, October, December.</div></div> <p>Eva is incorrect. Correct her mistakes.</p>









Year 2						
Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning
		Make it! SAY IT	Show it/Draw it! SAY IT	Read/Write it! SAY IT		
2	<p>[EXS] Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.</p> <p>Compare and order lengths, mass, volume/capacity and record the results using symbols for greater than, less than and =.</p>	<p>Rulers: 30cm, 1m, tape measures + trundle wheel</p>	<p>Pictorial Scales/Rulers</p> <p>Testbase Questions with pictures</p> <p>ITP</p> <div></div> <p>Use a ruler to measure the length of this train.</p>	<p>Testbase Questions with no pictures</p> <p>Greater than, less than, equals symbols</p> <div><p>True or False</p><p>Explain your reasoning.</p><div><p>18cm > 9cm</p><p>27cm < 17cm</p><p>100cm > 1m</p></div></div> <p>Measuring and drawing straight lines.</p>	<div><div><p>1</p><p>Measure the longest line.</p><p>Use a ruler.</p><div></div></div><div><p>2</p><div></div><p>Pencil C is the longest pencil.</p><p>Order the rest of the pencils.</p><p>You may use a ruler.</p><div><div>longest</div><div><div>C</div><div></div><div></div><div></div><div>D</div></div><div>shortest</div></div></div></div>	

2	<p>[EXS] Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.</p> <p>Compare and order lengths, mass, volume/capacity and record the results using symbols for greater than, less than and =.</p>	<p>Weighing scales</p> <p>Balancing scales</p>	<p>Pictorial Scales</p> <p>Testbase Questions with pictures</p> <p>ITP</p>  <p>What is the mass of this bear?</p>	<p>Testbase Questions with no pictures</p> <p>Greater than, less than, equals symbols</p>	<p>6 Jack measures the mass of some fruit.</p>  <p>Look at these signs.</p> <p>< = ></p> <p>Write the correct sign in each box</p> <p>mass of the banana <input type="text"/> mass of the pear</p> <p>mass of the apple <input type="text"/> mass of the banana</p> <p>mass of the apple <input type="text"/> mass of the pear</p> <p>5 Milly needs 100 grams of flour.</p> <p>How much more flour does she need to add to the bowl?</p> 	
2	<p>[EXS] Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales,</p>	<p>Measuring Vessels</p> <p>Liquids</p>	<p>Pictorial Scales</p> <p>Testbase Questions with pictures</p> <p>ITP</p>	<p>Testbase Questions with no pictures</p> <p>Greater than, less than, equals symbols</p>	<p>Sahil, Marta & John have 700ml of pop between them. Sahil and John drink the same amount. Marta has 100ml more than Sahil and John. How much do they all drink?</p>	

	<p>thermometers and measuring vessels.</p> <p>Compare and order lengths, mass, volume/capacity and record the results using symbols for greater than, less than and =.</p>		 <p>How much water is in this container?</p>		 <p>Sort the glasses from least full to most full.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 5px;"></div> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 5px;"></div> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 5px;"></div> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 5px;"></div> </div> <p style="text-align: center;">least full most full</p> <p>These 3 bottles each have more than 20ml of water in but less than 50ml. The green bottle has 5ml more than the red bottle. The blue bottle has 10ml more than the green bottle. How much could each bottle have in?</p> 	
2	<p>[EXS] [KEY] Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.</p>	<p>Thermometers</p> <p>Different temperature items/liquids</p> <p>Containers</p>	<p>Pictorial Scales</p> <p>Testbase Questions with pictures</p>	<p>Testbase Questions with no pictures</p> <p>Greater than, less than, equals symbols</p>	<p>Look at the thermometers to answer the questions below.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>A.</p>  </div> <div style="text-align: center;"> <p>B.</p>  </div> <div style="text-align: center;"> <p>C.</p> </div> </div> <p>Which of these thermometers shows the coldest temperature?</p>	

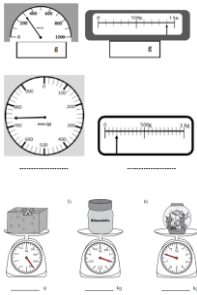


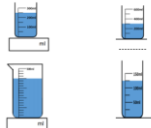
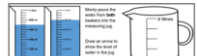

			<p>ITP</p>  <p>What temperature is the classroom?</p>		<p>What is the difference between temperature A + C?</p> <p>How much warmer is thermometer C than B?</p>	
2	<p>[EXS] [KEY] Find different combinations of coins that equal the same amounts of money.</p> <p>Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.</p>	<p>Coins</p> <p>Purses</p> <p>Price Tags</p>	<p>Coins</p> <p>Price Tags</p> <p>BINGO cards</p>	<p>Simple number sentences using + and £ and p symbols.</p>	<p>Mastery</p> <p>Sid says, 'I have bought 2 items for my holiday. One item cost £9 more than the other.' What might Sid have bought? The _____ and the _____.</p> 	

















































					<p>Look at these coins. How could you make up the same total amount using one type of coin?</p>  <p>Holly uses a £1 coin to buy a pack of stickers. Here is the change she was given.</p>  <p>How much did the pack of stickers cost?</p> <p>8 Tick (✓) three coins that make 50p</p>  <p>Tick (✓) four coins that make 50p</p> 	
2	Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	Coins Purses Price Tags	N/A	N/A	<p>A good activity we do here is role play shops linking to our topic e.g. Garden Centre. The children have to set it up, create prices within a particular unit and then role play customers and shop keepers. The customers have £2 to spend until they need to swap over. Change is a key aspect of this. Doing this more than once is beneficial.</p>	


2	<p>[EXS] [KEY] Tell and write the time to fifteen minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.</p> <p>(Drip feed all year!)</p> <p>Know the number of minutes in an hour and the number of hours in a day.</p>	Clocks (mini and large)	<p>Clock faces</p> <p>Timetable of events to order</p> <p>Draw the hands on these clock faces.</p> <div><div>Draw the hands to show the time.</div><div><div><div>6:25</div></div><div><div>quarter to nine</div></div></div></div> <td><p>Word problems with no images.</p><div><div>14</div><div>How many minutes in one hour?</div><div>Circle the correct answer.</div><div>24 12 60 16 360</div></div><div><div>How many hours in one day?</div><div>Circle the correct answer.</div><div>24 12 60 16 360</div></div></td> <td><p>Which of these clock faces shows a time between 5 o'clock and 7</p><div></div><p>Write the time...</p><div><div>1 hour before</div><div><div>_____</div></div><div>1 hour after</div><div><div>_____</div></div></div></td> <td></td>	<p>Word problems with no images.</p> <div><div>14</div><div>How many minutes in one hour?</div><div>Circle the correct answer.</div><div>24 12 60 16 360</div></div> <div><div>How many hours in one day?</div><div>Circle the correct answer.</div><div>24 12 60 16 360</div></div>	<p>Which of these clock faces shows a time between 5 o'clock and 7</p> <div></div> <p>Write the time...</p> <div><div>1 hour before</div><div><div>_____</div></div><div>1 hour after</div><div><div>_____</div></div></div>	
2	<p>Compare and sequence intervals of time.</p> <p>Know the number of minutes in an hour and the number of hours in a day.</p>	Clocks (mini and large)		<div><div>13</div><div>Put these times in order, starting with the shortest.</div></div> <div>1 hour 1 minute 30 seconds half an hour</div> <div><div><div></div><div>shortest</div></div><div><div></div></div><div><div></div></div><div><div></div><div>longest</div></div></div>		


Year 3

Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning																								
		Make it! SAY IT	Show it/Draw it! SAY IT	Read/Write it! SAY IT																										
3	<p>[KEY] Measure, compare, add and subtract: lengths (m,cm,mm); mass (kg,g); volume, capacity (l,ml).</p> <p>Metres first, then centimetres and the millimetres.</p> <p>Measure the perimeter of simple 2-D shapes.</p>	<p>Measure meters outside in the playground. How wide are the goal posts? How tall is the climbing wall? What is the perimeter of the playground? Of the greenhouse? Of the Huff and puff shed?</p>	<div><div>More than a metre</div><div>Less than a metre</div></div> <div></div>	<div><div>1) Compare these measurements using <, > or =.</div><table><tr><td>12cm</td><td></td><td>15cm</td></tr><tr><td>9cm</td><td></td><td>4cm</td></tr><tr><td>1cm</td><td></td><td>10mm</td></tr><tr><td>35mm</td><td></td><td>4cm</td></tr><tr><td>8m</td><td></td><td>4m</td></tr><tr><td>4m</td><td></td><td>12m</td></tr><tr><td>3m</td><td></td><td>350cm</td></tr><tr><td>4m</td><td></td><td>400cm</td></tr></table><div>Useful facts: 1m = 100mm 2cm = 20mm</div><div>2) Order these measurements from shortest to longest.</div><div>a) 10cm 25mm 3m</div><div>b) 45mm 1m 20cm</div><div>c) 3m 5m 50mm</div></div>	12cm		15cm	9cm		4cm	1cm		10mm	35mm		4cm	8m		4m	4m		12m	3m		350cm	4m		400cm	<p>Jay is measuring the perimeter of his maths book. The width is 21cm and the length is 30cm. What will the other sides measure? What will the total perimeter be?</p>	<div><p>Ameer measures the length of 3 different cars.</p><p>The smallest car measures 3m in length and the largest measures 5m in length.</p><p>What could the length of the middle sized car be in centimetres?</p><div></div></div> <div><p>Mrs Welch is measuring the length of her car. She has decided to measure in metres. Is this the most suitable unit of measure to use? Explain how you know.</p><div><div></div><div></div><div></div></div></div>
12cm		15cm																												
9cm		4cm																												
1cm		10mm																												
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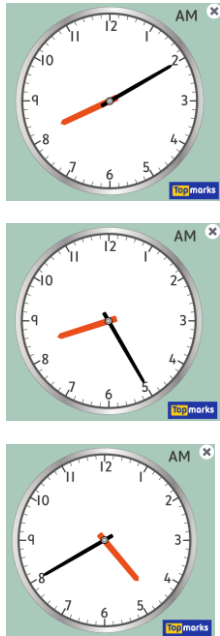
3	<p>[KEY] Measure, compare, add and subtract: lengths (m,cm,mm); mass (kg,g); volume, capacity (l,ml).</p>	<p>Scales and various objects to weigh.</p> <p>Can pupils estimate weights of objects? Can they say whether one object is lighter or heavier than another?</p>	<p>Read the scales carefully and write the mass shown on the scales. Remember to include the correct unit of measure.</p> 	<p>Compare, Add and Subtract Mass</p> <p>1.) $1\text{ kg} - \frac{1}{2}\text{ kg} =$</p> <p>2.) $110\text{g} + 120\text{g} =$</p> <p>3.) $400\text{g} - 150\text{g} =$</p> <p>There are 1000g in 1Kg</p> <p>How many grams would there be in 5 Kg</p> <p>Mrs Welch needs $\frac{1}{2}$ kg of sugar. How many grams will this be?</p>	<p>Compare, Add and Subtract Mass</p> <p>Mary 3 friends' pencil cases:</p> <p>Mary 240g</p> <p>Ali 300g</p> <p>David 410g</p>  <p>1.) How much heavier is Ali's pencil case compared with Mary's case?</p> <p>2.) What is the total mass of all 3 pencil cases?</p>	<p>Compare, Add and Subtract Mass</p> <p>Craig and Billie are both baking some cup cakes.</p> <p>Craig's bag of flour has a mass of: 400g</p> <p>Billie's bag of flour has a mass of: 900g</p> <p>Craig says that his bag of flour has half of the mass of Billie's bag.</p> <p>Is Craig correct?</p> <p>Explain your answer.</p> 
3	<p>[KEY] Measure, compare, add and subtract: lengths (m,cm,mm); mass (kg,g); volume, capacity (l,ml).</p>	<p>Measure the amount of water in your water bottle, in a small container, in a cup, etc.</p> <p>Compare measuring equipment of different sizes. Is the tallest one always going to have the most capacity? Why / why not?</p>	<p>Carefully read the measure of volume in the following containers.</p>  <p>Order the measure above from the least volume to the most volume.</p> 		<p>Compare, Add & Subtract Units of Capacity</p> <p>Georgina is washing her bike.</p>  <p>She starts with 900 millilitres of soapy water in a bucket.</p> <p>She uses 145 millilitres to wash both wheels.</p> <p>She uses another 380 millilitres to wash the rest of the bike.</p> <p>How many millilitres are left in Georgina's bucket?</p>	

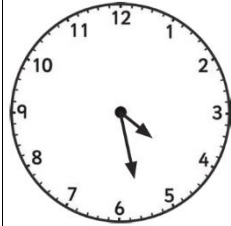
					<div><div>Compare, Add & Subtract Units of Capacity</div><div><p>Billy, Kenny and Donna each have a bottle of water.</p><p>Billy - 200ml Kenny - 600ml Donna - 300ml</p><p>1.) How much water do Billy, Kenny and Donna have altogether?</p><p>2.) How much more water is needed to make 2 litres (2000 ml) of water?</p></div></div>	
3	[KEY] Add and subtract amounts of money to give change, using both £ and p in practical contexts.	Turn classroom into shop and have a buyer and seller	<div><div><div><div></div><div>=</div><div></div><div>=</div><div></div><div>=</div><div></div></div><div><div></div><div>=</div><div></div><div>=</div><div></div></div><div><div></div><div>=</div><div></div><div>=</div><div></div></div><div><div></div><div>=</div><div></div><div>=</div><div></div></div><div><div></div><div>=</div><div></div><div>=</div><div></div></div><div><div></div><div>=</div><div></div><div>=</div><div></div></div><div><div></div><div>=</div><div></div><div>=</div><div></div></div></div><div><div>Using the coins make the prices shown. (15 mins)</div><div></div></div></div>			

<p>morning, afternoon, noon and midnight.</p> <p>Compare durations of events [for example to calculate the time taken by particular events or tasks].</p> <p>[KEY] Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.</p> <p>Drip feed this all year</p>	<p>times? Will it take Caitlyn less or more time than Sam?</p>	<div><div><p>Revised Clocks-fit</p><p>Can you help me write these times on a digital clock?</p><p>6:05</p></div><div><p>12:00</p><p>1:00</p><p>2:00</p></div></div> <div><p>Holly takes half an hour to walk home from school. She arrives at school at 8:25 am. At what time did she leave home?</p><p>William wants to travel to Paris by train.</p><p>He needs to arrive in Paris by 5:30 pm.</p><p>Circle the latest time that William can leave London.</p><table><thead><tr><th>Leaves London</th><th>Arrives Paris</th></tr></thead><tbody><tr><td>12:01</td><td>15:22</td></tr><tr><td>12:25</td><td>15:56</td></tr><tr><td>13:31</td><td>16:53</td></tr><tr><td>14:01</td><td>17:26</td></tr><tr><td>14:31</td><td>17:53</td></tr><tr><td>15:31</td><td>18:53</td></tr><tr><td>16:01</td><td>19:20</td></tr></tbody></table></div>	Leaves London	Arrives Paris	12:01	15:22	12:25	15:56	13:31	16:53	14:01	17:26	14:31	17:53	15:31	18:53	16:01	19:20	<div><p>Sue has completed this table for her homework. Her writing is in black. Has she made any mistakes? Correct any you find.</p><table><thead><tr><th>Roman numeral</th><th>Digits</th></tr></thead><tbody><tr><td>VI</td><td>4</td></tr><tr><td>IX</td><td>11</td></tr><tr><td>V</td><td>5</td></tr><tr><td>x</td><td>10</td></tr></tbody></table></div> <div><p>Jen says the time is around 43 minutes past 5.</p><div><p>True or false?</p><p>Explain your answer.</p></div></div> <div><p>Always, sometimes or never true?</p><p>February has 29 days.</p><p><input type="checkbox"/> Always true <input type="checkbox"/> Sometimes true <input type="checkbox"/> Never true</p><p>Prove it.</p></div>	Roman numeral	Digits	VI	4	IX	11	V	5	x	10
Leaves London	Arrives Paris																												
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V	5																												
x	10																												

<p>3</p>	<p>Know the number of seconds in a minute and the number of days in each month, year and leap year.</p> <p>Drip feed this all year</p>	<p>Calendars</p> <p>Timers</p> <p>Analogue and digital clocks</p> <p>Diaries</p>	<p>Here is part of a calendar:</p> <table border="1"> <thead> <tr> <th colspan="7">December</th> </tr> <tr> <th>Mon</th> <th>Tues</th> <th>Wed</th> <th>Thur</th> <th>Fri</th> <th>Sat</th> <th>Sun</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td></td> </tr> <tr> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td></td> <td></td> </tr> <tr> <td>13</td> <td>14</td> <td>15</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>20</td> <td>21</td> <td>22</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>27</td> <td>28</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>How many days are missing from the calendar?</p>	December							Mon	Tues	Wed	Thur	Fri	Sat	Sun			1	2	3	4		6	7	8	9	10			13	14	15					20	21	22					27	28						<p>Write the missing numbers:</p> <p>60 months = <input type="text"/> years</p> <p>72 hours = <input type="text"/> days</p> <p>84 days = <input type="text"/> week</p>	<p>Joe goes skating every Saturday. He went skating on Saturday 1st January. Altogether, how many times did he go skating in January?</p> <div data-bbox="1485 600 1724 681"></div> 	<p>Jaden says:</p> <p>"Every month has either 30 or 31 days."</p> <p>Explain why Jaden is not correct.</p>
December																																																							
Mon	Tues	Wed	Thur	Fri	Sat	Sun																																																	
		1	2	3	4																																																		
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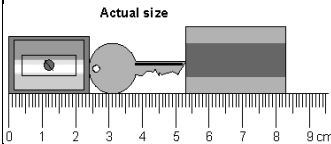

Year 4

Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning
		Make it! SAY IT	Show it/Draw it! SAY IT	Read/Write it! SAY IT		
4	Read, write and convert time between analogue and digital 12- and 24-hour clocks. (Teach first then drip feed all year!)	Clocks (teaching clocks and online clocks)	Write the time shown on the clock in digits and words: 	Grace says, 'On my clock face, the big hand is on the 4 and the little hand is between the 8 and the 9' What is the time on Grace's clock face?	These are the radio programmes one morning. 7.00 Music show 7.55 Weather report 8.00 News 8.15 Travel news 8.25 Sport 8.45 Holiday programme Josh turns the radio on at 8:05 How many minutes does he have to wait for the Travel news? Sanaa says, 'On my Roman Numeral clock face, the big hand is on the VI and the little hand is between the IX and the X' What is the time on Sanaa's clock face?	Do these events happen in the a.m. , p.m. or both? Write your answer next to each event: <ul style="list-style-type: none">Coming home from schoolEating your breakfastHaving a showerGoing to bedBrushing your teethGoing shoppingThe sun coming upThe sun going down Mr Moore is trying to complete the boxes for the time shown on the analogue clock.

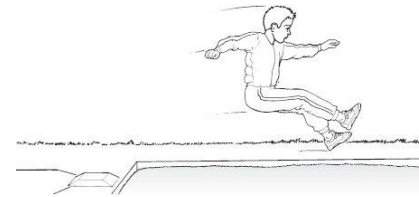


Time in words	12 hour clock	Analogue clock

Explain why Mr Moore **cannot** do this.

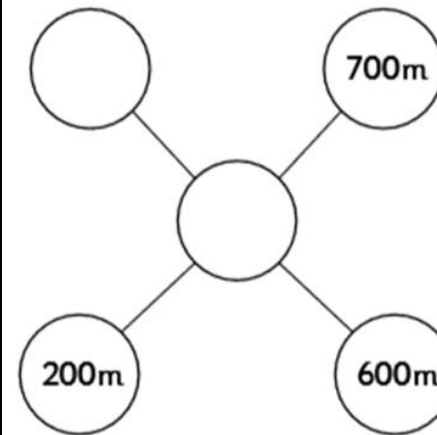
						
4	<p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</p> <p>Drip feed this all year</p>			<p>Complete the sentences:</p> <p>There are _____ seconds in a minute.</p> <p>There are _____ minutes in an hour.</p> <p>There are _____ hours in a day.</p> <p>There are _____ months in a year.</p>	<p>Write the missing numbers.</p> <p>60 months = _____ years</p> <p>72 hours = _____ days</p> <p>84 days = _____ weeks</p>	
4	<p>[KEY] Convert between different units of measure [for example, kilometre to metre; hour to minute].</p> <p>Order:</p> <p>Length, Perimeter, Mass, Volume, Complete time conversions when doing the time objectives.</p>	<p>Rulers</p> <p>Metre sticks</p> <p>Trundle wheels</p> <p>Measuring jugs</p> <p>Scales</p> <p>Clocks (analogue and digital)</p> <p>Cutting objects to specific sizes.</p>	<p>Here are a pencil sharpener, a key and a rubber.</p>  <p>Actual size</p> <p>What is the length of all three objects, rounded to the nearest centimetre?</p>	<p>$\frac{1}{2}$ a metre = ? cm</p> <p>0.3 metres = ? cm</p> <p>0.45 metres = ? cm</p> <p>$\frac{1}{4}$ of a metre = ? cm</p> <p>0.05 metres = ? cm</p> <p>$\frac{3}{100}$ of a metre = ? cm</p>	<p>Kate has a piece of ribbon one metre long.</p> <p>She cuts off 30 centimetres.</p> <p>How many centimetres of ribbon are left?</p>  <p>Mr Tyler is 1m 97 cm tall. His young daughter is 83 cm tall. What is the difference in their heights?</p> <p>Max jumped $2\frac{1}{4}$ metres on his second try at the long jump.</p>	

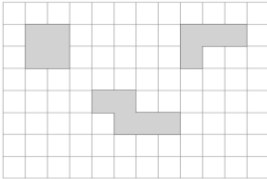

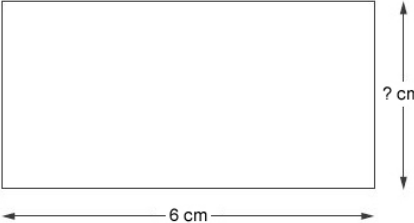
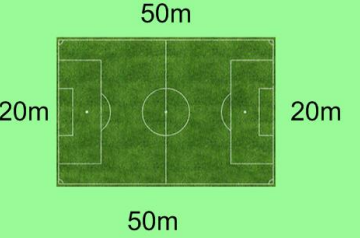
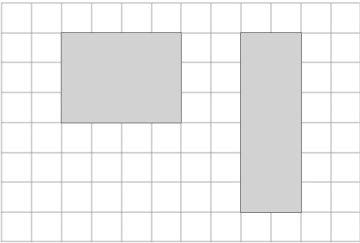
This was **75 centimetres** longer than on his **first** try.

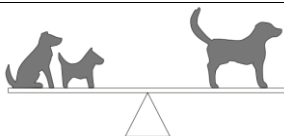



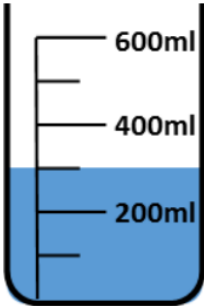
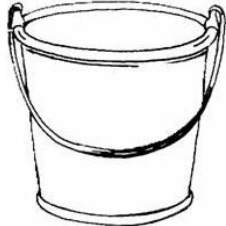
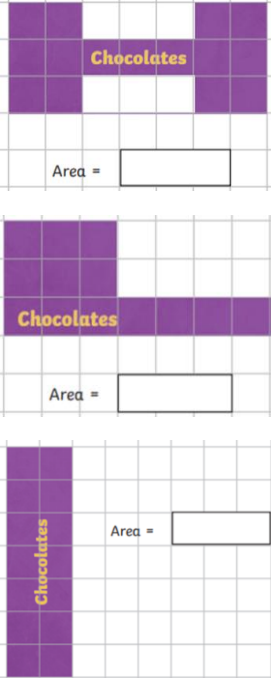
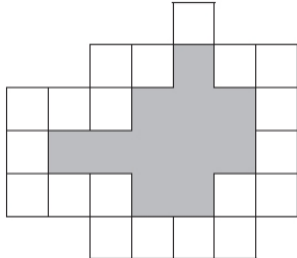
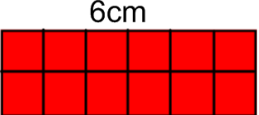
How far **in metres** did he jump on his **first** try?

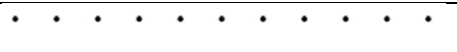
Complete this diagram so both of the diagonal lines have a sum of 1 kilometre.





<p>4</p>	<p>Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.</p>			<p>Rose made shapes using four squares on centimetre square paper</p> <p>She calculated the perimeter of each shape.</p>  <p>What is the length of the shortest perimeter?</p> <p>What is the length of the longest perimeter?</p> <p>Not to scale</p>  <p>What is the perimeter of this square?</p>	<p>The perimeter of this rectangle is 20 cm.</p> <p>The length is 6 cm.</p> <p>Not to scale</p>  <p>How long is the width of the rectangle?</p>	 <p>Mrs Gardner thinks the perimeter of the rectangle above is 140 metres.</p> <p>Mr Moore thinks the perimeter of the shape above is 1000 metres.</p> <p>Who is correct?</p> <p>Prove it!</p> <p>What mistake might've been made?</p> <p>Look at the shaded rectangles drawn on a</p>  <p>centimetre square grid.</p> <p>Sam says,</p> <p>"The two rectangles have the same area as each</p>
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						<p>other and the same perimeter as each other"</p> <p>Is Sam correct? Explain how you know.</p>																		
4	<p>[KEY] Convert between different units of measure [Grams to Kilograms].</p> <p>Order:</p> <p>Length, Perimeter, Mass, Volume, Complete time conversions when doing the time objectives.</p>	<p>Scales</p> <p>Weights</p>	 <p>The large dog weighs 9kg</p> <p>One of the smaller dogs weighs 4800g</p> <p>What is the weight, in grams, of the other small dog?</p>	<p>Complete this table, the first two have been done for you.</p> <table><thead><tr><th>Kilometres and grams</th><th>Grams</th></tr></thead><tbody><tr><td>3kg and 0 g</td><td>3,000 g</td></tr><tr><td>8kg and 200 g</td><td>8,200 g</td></tr><tr><td>4kg and 300g</td><td></td></tr><tr><td></td><td>5,400g</td></tr><tr><td>6kg and 570g</td><td></td></tr><tr><td></td><td>7,308g</td></tr><tr><td>6kg and 85g</td><td></td></tr><tr><td></td><td>2,009g</td></tr></tbody></table>	Kilometres and grams	Grams	3kg and 0 g	3,000 g	8kg and 200 g	8,200 g	4kg and 300g			5,400g	6kg and 570g			7,308g	6kg and 85g			2,009g	<p>Half a kilogram of flour makes 4 cakes.</p> <p>How many grams of flour are there in one cake?</p> <p>Senna and Roanna each have a parcel.</p> <p>Senna's parcel weighs 1 $\frac{1}{4}$ kg.</p> <p>Roanna's parcel weighs 1,800 g</p> <p>How many more grams does Roanna's parcel weigh than Senna's parcel?</p>	<p>Max has a magical gold bar.</p> <p>Every day the gold bar trebles in weight.</p> <p>On day one the bar weighs 8 grams.</p> <p>What will be the weight of the bar on day two?</p> <p>What will be the weight of the bar on day four?</p> <p>How many days will it take for the bar to weigh more than two kilograms?</p>
Kilometres and grams	Grams																							
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4	<p>[KEY] Convert between different units of measure [Litres and Millilitres].</p> <p>Order:</p> <p>Length, Perimeter, Mass, Volume, Complete time conversions when</p>	<p>Measuring jugs</p> <p>Scientific syringes</p> <p>Liquid containers</p>	<p>Measuring images:</p>	<p>Complete this conversion table, the first two have been done for you.</p> <table><thead><tr><th>Litres and millilitres</th><th>Millilitres</th></tr></thead><tbody><tr><td>1l and 0ml</td><td>1,000ml</td></tr><tr><td>2l and 600ml</td><td>2,600ml</td></tr><tr><td></td><td>9,000ml</td></tr><tr><td>3l and 490ml</td><td></td></tr><tr><td></td><td>4,365ml</td></tr></tbody></table>	Litres and millilitres	Millilitres	1l and 0ml	1,000ml	2l and 600ml	2,600ml		9,000ml	3l and 490ml			4,365ml	<p>This jug holds $\frac{1}{2}$ a litre.</p> 	<p>Miss Tonkin's water butt is leaking.</p> <p>Every day the water butt leaks half the water in it.</p> <p>On day one there's 32 litres in the water butt.</p> <p>How many litres are there on day two?</p> <p>How many litres are there on day three?</p>						
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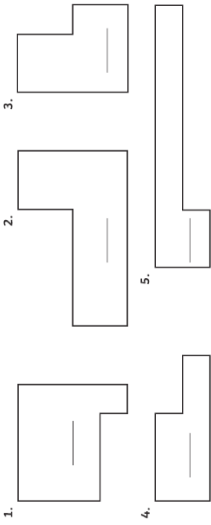
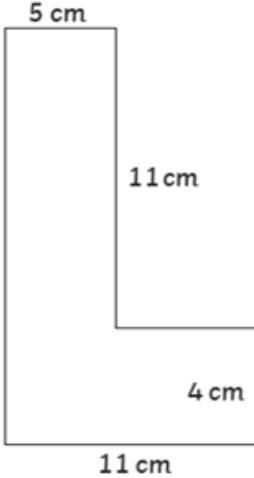

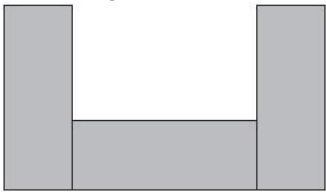
	doing the time objectives.			8l and 78ml 7,050ml 5l and 7ml 3,003ml	This bucket holds 4 litres  How many full jugs of water are needed to fill the bucket?	After how many days will there only be 250ml left in the water butt?
4	Find the area of rectilinear shapes by counting squares.	Dienes and multilink cubes to demonstrate area on a surface Pegboards or Geoboard app.	Most questions will be pictorial due to the "Counting squares" element of the objective.		Here are 20 squares around the outside of a shaded shape.  What is the area of the shaded space? Grace has a rectangle that has sides of 4 cm and 5 cm. Draw a different rectangle that has the same area. Join the dots to draw a rectangle that has an area of 20 cm ² and a perimeter of 18 cm.	 6cm 2cm 2cm 6cm Mrs Gardner thinks the area of the rectangle above is 16cm ² . Mrs Tibbles thinks the area of the shape above is 12cm ² . Who is correct? Prove it! Mrs Gardner says "You don't need to be told every measurement to find the area of a rectangle or square." Do you agree? Can you explain why / why not






						
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4	<p>Estimate, compare and calculate different measures, including money in pounds and pence.</p> <p>Teach money part only, the rest of these will be covered with the length / mass / volume objectives.</p>	<p>Rulers</p> <p>Metre sticks</p> <p>Trundle wheels</p> <p>Measuring jugs</p> <p>Scales</p> <p>Coins</p> <p>Bank notes</p>	<p>How much money is in each jar?</p> <p>A B</p> <p>Which coins would complete this bar model?</p> <p>£1.60</p> <p>You can use coins more than once.</p>	<p>Calculate the missing numbers:</p> <p>$6 \times ? = \text{£}1.80$</p> <p>$? \times 7 = \text{£}1.40$</p> <p>Two of these sentences could be true.</p> <p>Tick (✓) the two sentences that could be true.</p> <ul style="list-style-type: none">Adam's pencil is 12 centimetres long.Leah is 12 metres tall.Jake's glass holds 12 litres of milk.Kate's younger sister weighs 12 kilograms.	<p>Complete the bar model for the problem.</p> <p>Bobby goes to the shopping centre. He spends £10.80 on a new pair of shorts and £12.50 on a sweatshirt. How much money does he spend altogether?</p> <table><tr><th></th><th>Afternoon</th><th>Evening</th></tr><tr><td>Adult</td><td>£16.25</td><td>£20.50</td></tr><tr><td>Child</td><td>£8.75</td><td>£9.50</td></tr></table> <p>Arnold and Esther do a sponsored run for charity. They run 6,000km altogether. Esther runs double the distance that Arnold runs. How many kilometres does each person run?</p> <p>Comparing measures</p> <p>What sign would you use? Explain your answer? Create your own using < > =</p> <p> <input type="checkbox"/></p> <p> <input type="checkbox"/></p>		Afternoon	Evening	Adult	£16.25	£20.50	Child	£8.75	£9.50
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Adult	£16.25	£20.50												
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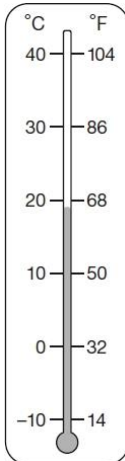
Year 5

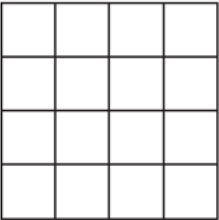

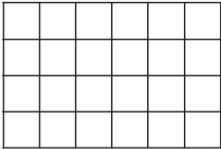

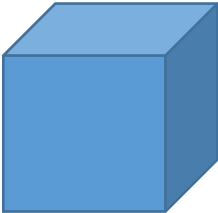
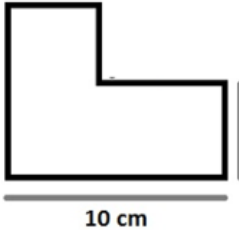
Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning																					
Objectives running through the unit		Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.																									
		Make it! SAY IT	Show it/Draw it! SAY IT	Read/Write it! SAY IT																							
5	<p>[KEY] Convert between different units of metric measure (kilometre and metre; centimetre and metre; centimetre and millimetre).</p> <p>Order:</p> <p>Length, Perimeter, Mass, Volume, Complete time conversions when doing the time objectives.</p>	<p>Rulers</p> <p>Metre sticks</p> <p>Trundle wheels</p> <p>Weighing scales / balances</p> <p>Measuring cups / jugs</p>	<p>Pictorial images of :</p> <p>Rulers</p> <p>Metre sticks</p> <p>Trundle wheels</p> <p>Weighing scales / balances</p> <p>Measuring cups / jugs</p> <p>Map scales</p>	<p>Conversion tables</p> <p>PV charts for $\times \div$ by powers of 10</p> <p>Complete these conversions:</p> <table><tr><th>Metres</th><th>Centimetres</th><th>Millimetres</th></tr><tr><td>4</td><td></td><td></td></tr><tr><td></td><td>250</td><td></td></tr><tr><td></td><td></td><td>4000</td></tr><tr><td></td><td>45</td><td></td></tr><tr><td>28</td><td></td><td></td></tr><tr><td></td><td></td><td>3500</td></tr></table>	Metres	Centimetres	Millimetres	4				250				4000		45		28					3500	<div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>Activity 3:</div></div><div><p>I am cooking some rice. The recipe says I need 120g for two people.</p><p>How many kilograms would I need if I am cooking for 8 people?</p><div><div></div><div></div></div></div></div>	<p>True or false:</p> <p>1 metre = 1000 centimetres.</p>
Metres	Centimetres	Millimetres																									
4																											
	250																										
		4000																									
	45																										
28																											
		3500																									


5	[KEY] Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	Objects that can be measured and combined to make rectilinear shapes e.g. tables, the quad.	Images of rectangles, squares and composite rectilinear shapes.	<p>Measure the length of each side of the shapes to the nearest centimetre, writing the length next to each side. Then add the lengths together to find the perimeter.</p> 	<p>What is the perimeter of this composite rectilinear shape?</p> 	<p>Alfie has some rectangles.</p>  <p>He makes this shape using three of the rectangles.</p>  <p>Alfie says: The perimeter of the new shape will be 3 times as big as the single rectangle.</p> <p>Explain why Alfie is incorrect.</p>
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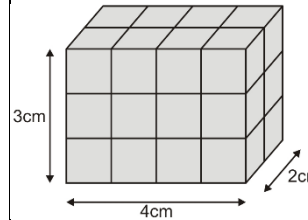
					<p>Here is a square inside another square.</p> <div></div> <p>The perimeter of the inner square is 16cm. The outer square's perimeter is four times the size of the inner square. What is the length of one sides of the outer square? How do you know? What do you notice?</p>														
	<p>[KEY] Convert between different units of metric measure (gram and kilogram).</p>		<p>Conversion tables.</p> <table><thead><tr><th>Kilograms</th><th>Grams</th></tr></thead><tbody><tr><td>7</td><td></td></tr><tr><td></td><td>8000</td></tr><tr><td>12</td><td></td></tr><tr><td></td><td>3580</td></tr><tr><td>4.2</td><td></td></tr><tr><td></td><td>500</td></tr></tbody></table>	Kilograms	Grams	7			8000	12			3580	4.2			500	<div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>Activity 3:</div><div>★</div></div><p>I am cooking some rice. The recipe says I need 120g for two people.</p><p>How many kilograms would I need if I am cooking for 8 people?</p><div><div></div><div></div></div><p>Here is a scale with some large and small bricks on:</p></div> <td><p>Captain conjecture says:</p><p>I think that 5Kg is equal to 500g.</p><div></div><p>Do you agree?</p></td>	<p>Captain conjecture says:</p> <p>I think that 5Kg is equal to 500g.</p> <div></div> <p>Do you agree?</p>
Kilograms	Grams																		
7																			
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	[KEY] Convert between different units of metric measure (litre and millilitre).	<div><div><div><div>500 ml</div><div>400 ml</div><div>300 ml</div><div>200 ml</div><div>100 ml</div></div><div><div></div><div></div><div></div><div></div><div></div></div></div><div><div><div>500 ml</div><div>400 ml</div><div>300 ml</div><div>200 ml</div><div>100 ml</div></div><div><div></div><div></div><div></div><div></div><div></div></div></div></div> <div>All the water in these two containers is to be poured into the empty container below.</div> <div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>1 litre</div><div></div><div></div><div></div><div></div></div><div><div>1/2 litre</div><div></div><div></div><div></div><div></div></div></div>	Conversion tables. <table><tr><th>Litres</th><th>Millilitres</th></tr><tr><td>3</td><td></td></tr><tr><td></td><td>5500</td></tr><tr><td>3.2</td><td></td></tr><tr><td></td><td>4320</td></tr><tr><td>0.8</td><td></td></tr><tr><td></td><td>20 000</td></tr></table>	Litres	Millilitres	3			5500	3.2			4320	0.8			20 000	<div>A bottle holds 1 litre of lemonade.</div> <div>Rachel fills five glasses with lemonade.</div> <div>She puts 150ml of lemonade in each glass.</div> <div>How many millilitres of lemonade is left in the bottle?</div> <div></div> <div>Cola is sold in bottles and cans.</div>	
Litres	Millilitres																		
3																			
	5500																		
3.2																			
	4320																		
0.8																			
	20 000																		

			Draw where the water level will be in the container.		 <p>Alex buys 5 cans and 3 bottles.</p> <p>She sells the cola in 100 ml glasses.</p> <p>She sells all the cola.</p> <p>a) How many glasses does she sell?</p> <p>Alex charges 50 p per glass.</p> <p>b) How much profit does she make?</p>	
5	Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	Measuring implements with metric and imperial measurements. Inch-cm rulers Litre-pints measuring cups / jugs g/kg – lbs/ozs weighing scales. Conversion graphs	Images of measuring implements with metric and imperial measurements. Inch-cm rulers Litre-pints measuring cups / jugs g/kg – lbs/ozs weighing scales. Conversion graphs	Conversion tables	Victoria buys 4 pints of milk. Give the volume of milk Victoria bought in millilitres and litres . This thermometer shows temperatures in both °C and °F. Work out what 25°C is in °F 	Mr Moore has 2 pounds of jam and Miss Goatman has 1kg of jam. Who has more jam? Prove your answer. Isaac has 9 feet of rope. He is constructing a wall border that is 3 metres in length. Isaac says: "I need at least another metre of rope." Do you agree with Isaac? Explain your reasoning.
5	[KEY] Calculate and compare the area of rectangles (including squares), and including using standard units,	Objects that can be measured and combined to	Images of rectangles, squares and composite rectilinear shapes.	Calculate the area of these shapes:	Can you draw (not to scale) the following shapes with an area of 64cm ² . a. A square.	Sarah wants to paint a wall that is 12 metres long and 5 metres high. She has two tins of paint that will each cover 24m ² .

	<p>square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes.</p>	<p>make rectilinear shapes e.g. tables, the quad.</p>	<div><div><div>4cm</div><div></div><div>4cm</div></div><div><div></div></div><div><div><div>6cm</div><div></div><div>4cm</div></div><div><div></div></div></div><p>Use the words in bold below to complete the sentences</p><div><div>two</div><div>area</div><div>arrays</div></div><div><div>factors</div><div>prime number</div><div>commutative</div></div><div>perimeter</div><p>The _____ of a shape is the space taken up within its perimeter</p></div>	<p>b. A rectangle with a length different to its width.</p> <p>c. A compound shape made up of two rectangles.</p> <p>The surface area of a 3D shape can be found by adding up the area of all its faces.</p> <p>Find the area of one of this cube's faces, then find the surface area of the whole cube.</p> <div><div></div><div>5cm</div></div>	<p>Does Sarah have enough paint?</p> <p>Prove your answer.</p> <p>Cristiano is trying to calculate the area of this compound shape:</p> <div><div></div></div> <p>Explain why he cannot find the area of this shape.</p>
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				<p>The _____ of a shape is the sum length of all its sides.</p> <p>There can only be _____ possible ways of constructing a rectangle with an area of 13 squares because 13 is a _____.</p> <p>The number of different rectangles that can be constructed for a given area is dependent on the number of _____ that number has.</p> <p>When constructing rectangular areas some rectangles will look the same. This is because rectangles are like multiplication_____ and multiplication is _____.</p>		
5	Estimate volume [for example, using 1 cm ³ blocks to build cuboids (including cubes)] and capacity [for example, using water].	Dienes Empty containers Empty jugs / cups	Images of cubes and cuboids Images of containers partially filled.	<p>This cuboid is made from centimetre cubes.</p>	<p>Circle the correct amount A tea cup is likely to hold about</p> 	



It is 4 centimetres by 3 centimetres by 2 centimetres.

What is the **volume** of the cuboid?

About how much milk does a baby's bottle



hold?
Tick (✓) the correct answer.

15 ml

150 ml

1500 ml

☐

3 millilitres

☐

300 millilitres

☐

3 litres

☐



300 litres

Jon has **20** centimetre cubes.



He wants to make a cube with edges that are **3** cm long.

How many **more** centimetre cubes does he need?

5	Solve problems involving converting between units of time.	Digital and analogue clocks (Link Roman Numerals in where possible) Calendars Timetables	Images of clocks, calendars and timetables.	<p>60 months = ? years</p> <p>72 hours = ? days</p> <p>? weeks = 84 days</p> <p>Complete each sentence using a number from the list below.</p> <p>120 240 600 1,440</p> <p>3,600 6,000</p> <p>There are _____ seconds in an hour.</p> <p>There are _____ minutes in a day.</p>	<p>Isabella swims 4 lengths of a swimming pool. Her target is to swim the lengths in under 5 minutes. It takes her 319 seconds.</p> <p>Explain why Isabella did not achieve her target.</p>  <p>Cody runs for 25 minutes on Monday, 1:10 on Tuesday and three-quarters of an hour on Wednesday.</p> <p>How much time did he spend running over the three days?</p>	<p>At Roche CP School a school year has 38 weeks of 5 days.</p> <p>Mr</p>  <p>Moore thinks that in a non-leap year a child will have over 200 days off.</p> <p>Is he correct? Prove your answer.</p>
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Year 6



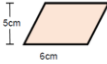
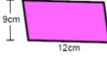
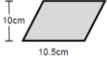
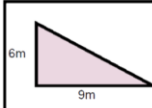
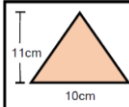
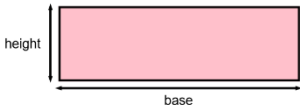
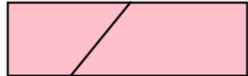
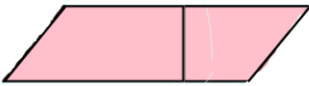
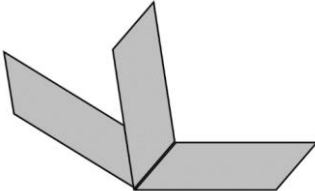
Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning
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Objectives running through the unit

6	<p>[EXS] [KEY] Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.</p>	<p>Rulers</p> <p>Metre sticks</p> <p>Trundle wheels</p> <p>Weighing scales / balances</p> <p>Measuring cups / jugs</p> <p>Analogue and digital clocks / watches.</p>	<p>Pictorial images of :</p> <p>Rulers</p> <p>Metre sticks</p> <p>Trundle wheels</p> <p>Weighing scales / balances</p> <p>Measuring cups / jugs</p> <p>Map scales</p> <p>Analogue and digital clocks / watches.</p>	<p>Complete the table below:</p> <table><tr><th>Kilometres</th><th>Metres</th><th>Centimetres</th><th>Millimetres</th></tr><tr><td></td><td>1</td><td></td><td></td></tr><tr><td></td><td></td><td>252</td><td></td></tr><tr><td>5.2</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td>1346</td></tr></table> <p>What is 444 minutes in hours and minutes?</p>	Kilometres	Metres	Centimetres	Millimetres		1					252		5.2							1346	<p>Mr Moore enters a 2km race but only manages to run $\frac{1}{4}$ of the distance. How many metres does he run?</p> <table><tr><td colspan="4">2km</td></tr><tr><td></td><td></td><td></td><td></td></tr></table> <p>Miss Goatman ran 5km on Saturday and 2,400m on Sunday. Mr Moore ran 6.3km on Saturday and 730m on Sunday.</p> <p>How far did Mr Moore and Miss Goatman run this weekend in total? Give your answer in kilometres.</p> <p>Tom is cooking some pasta.</p> <p>The recipe says he needs three hundred and fifty grams of pasta for 4 people.</p> <p>How many kilograms of pasta does he need for 20 people?</p>	2km								<p>Faye measures the length of the classroom to be 13,128mm. Is this the most appropriate unit of measure for that length? How would you write that length? Explain your choice and convert Faye's measurement.</p> <p>Imagine we talked about time using decimals. Would 2:3 hours be:</p> <p>2 hours and 3 minutes 2 hours and 20 minutes 2 and a half hours, or 2 hours and 18 minutes?</p> <p>Explain your decision.</p>
Kilometres	Metres	Centimetres	Millimetres																															
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6	<p>[EXS] [KEY] Solve problems involving the calculation and conversion of units of measure, using decimal notation up to</p>	See above.				
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	three decimal places where appropriate.					
6	Convert between miles and kilometres.	Car speedometer Maps with scales in miles and km	Conversion graphs Car speedometers Map scales	Write the correct whole number in the box. 5 miles is approximately <div style="border: 1px solid black; width: 60px; height: 20px; margin: 5px auto;"></div> kilometres.	<div style="text-align: center;"> Conversion graph: Kilometres-Miles </div> <p>Use the graph to work out how many miles are equal to 20 km.</p> <p>Use the graph to work out how many kilometres are equal to 40 miles.</p>	
6	Recognise that shapes with the same areas can have different perimeters and vice versa.	Objects that can be measured and their areas and perimeters found e.g. maths shapes, tables, the quad.	Images of rectangles, squares and other shapes that can have their area and perimeter calculated.	In your books draw 3 rectangles that have a perimeter of 18 lengths, where one length is the length of one square in your book. Label the area of each rectangle.	<p>The fence problem</p> <p>I have 20 fence panels, each 1 metre in length. I want to create a quadrilateral space that gives me the largest area to grow crops. If I can't cut the fence panels what is largest area I can make?</p> <p>The diagram shows some shapes on a centimetre square grid.</p> <div style="text-align: center;"> </div>	<p>The fence problem - Extension</p> <p>What shape gave you the largest area to grow crops?</p> <p>Would this shape always give you the largest area?</p> <p>Prove your theory by finding the largest area for a fence with a perimeter of 36 metres.</p> <div style="text-align: center;"> Tetris%203%20Star.docx </div>

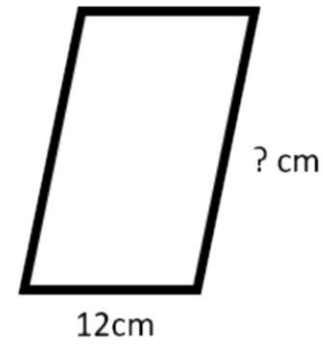
					<p>Which two shapes have the same perimeter as shape A?</p> <p> The%20Tetris%20paving%20conundrum</p> <p> The%20Tetris%20paving%20extension.d</p>	
6	<p>Calculate the area of parallelograms and triangles.</p>	<p>Large, plastic Meccano (In DM's room)</p> <p>Maths shapes</p>	<p>Images of triangles and parallelograms, including all types of triangle.</p>	<p>*Find the area of these parallelogram</p> <p>A.  <input type="text"/> cm²</p> <p>B.  <input type="text"/></p> <p>C.  <input type="text"/></p> <p>Find the area of these triangles:</p> <p> <input type="text"/></p> <p> <input type="text"/></p>	<p>*On your desk there are some Post-it</p> <ul style="list-style-type: none"> • Stick one in your book. • Measure the base and height. • Round these measurements to the centimetre. • Use the rounded measurements to calculate an estimated area of the note. <p></p> <p>*Now do the following:</p> <ul style="list-style-type: none"> • Cut a straight line at an angle across Post-it note. <p></p> <ul style="list-style-type: none"> • Put the two straight ends together to make a parallelogram. <p></p> <p>*Has your shape changed?</p>	 <p>Here is a company logo consisting of three identical parallelograms. The total area of the logo is 108cm² and the base and height of each parallelogram is a whole number.</p> <p>List all possible values for the base and height of one parallelogram.</p> <p>Look at all the possible combinations for the length and base of one parallelogram in the previous question.</p> <p>Which combination do you think would fit best for the parallelograms in the logo?</p> <p>Explain your answer.</p>

*Has the perimeter changed?

*Has the area changed?

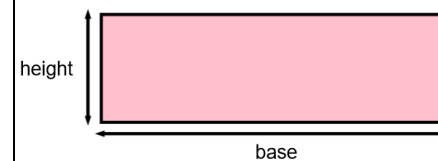
*What is the area of your parallelogram?

The area of this parallelogram is 180cm^2 .
Calculate its height.



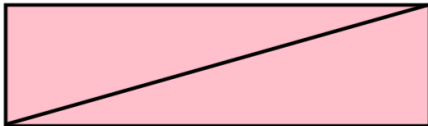
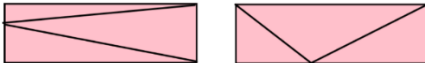
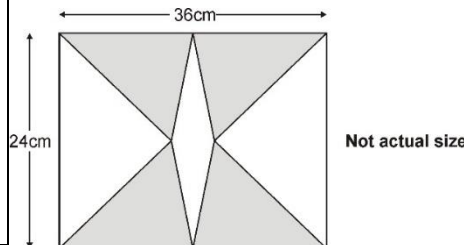
*On your desk there are some Post-it notes.
They're the same size as yesterday.
Pick up one Post-it and stick it in your book.
Write the area on the Post-it

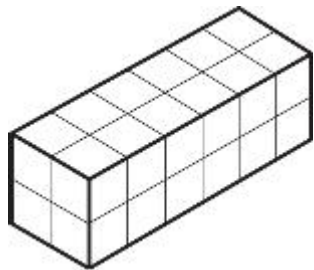
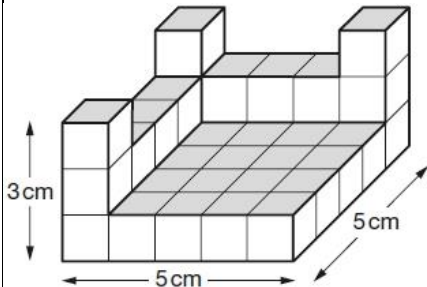




*Take another Post-it and cut a straight line
from one corner to the other.

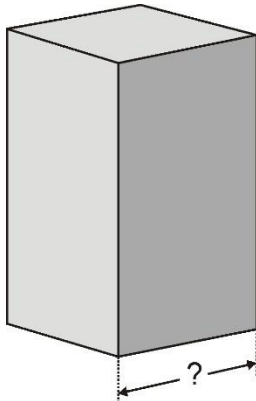
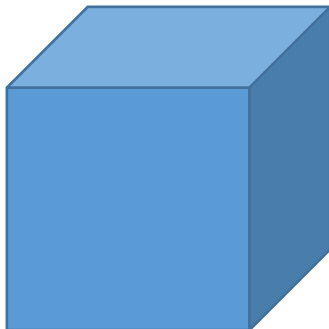
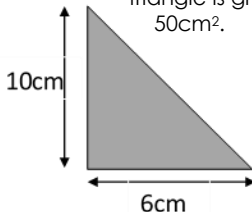
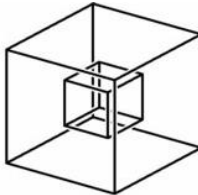


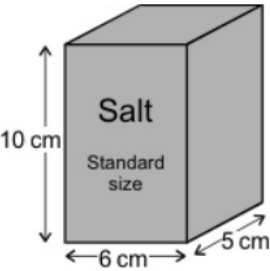
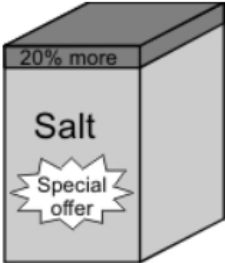
What shapes do you have now?
Can you calculate the area of one of the
shapes?

triangle.

					<div></div> <div><p>*Take another Post-it and make two cuts from adjacent corners to an opposite length What shapes do you have now? Can you calculate the area of the larger shape? Combine the two smaller shapes. Do you notice anything?</p><div></div></div> <div><p>**The diagram shows 4 identical shaded triangles in a rectangle. The rectangle measures 36 centimetres by 24 centimetres. Calculate the area of one shaded</p><div></div></div>																	
6	Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm ³) and cubic metres (m ³), and	Dienes Multi-link cubes	Images of cubes and cuboids, including composite 3D shapes.	<div><p>Calculate the Volume of Cuboids</p><p>Complete this table:</p><table><tr><th>Length (cm)</th><th>Width (cm)</th><th>Height (cm)</th><th>Volume (cm³)</th></tr><tr><td>5</td><td>20</td><td>3</td><td></td></tr><tr><td>11</td><td>6</td><td>6</td><td></td></tr><tr><td>4</td><td></td><td>9</td><td>432</td></tr></table></div>	Length (cm)	Width (cm)	Height (cm)	Volume (cm ³)	5	20	3		11	6	6		4		9	432	<p>Cleo has 24 centimetre cubes.</p> <p>She uses all 24 cubes to make a cuboid</p>	<p>Can you find two or more different cuboids each with a volume of 64 cm³?</p> <p>What's the same and what's different about your cuboids?</p>
Length (cm)	Width (cm)	Height (cm)	Volume (cm ³)																			
5	20	3																				
11	6	6																				
4		9	432																			

	<p>extending to other units [for example, mm³ and km³].</p>	<p>Cubes and cuboids</p>		<p>with dimensions 6 cm, 2 cm and 2 cm.</p>  <p>Write the dimensions of a different cuboid she can make using all 24 cubes.</p> <p>_____ cm, _____ cm and _____ cm</p> <p>This shape is made of wooden centimetre cubes.</p>  <p>How many more centimetre cubes are needed to make it into a solid cuboid 3 cm tall, 5 cm long and 5 cm wide?</p> <p>A cuboid has a square base. It is twice as tall as it is wide. Its volume is 250 cubic centimetres.</p>	<div>  <p>Lesson%202%20NRI CH.docx</p> </div> <div>  <p>Cubes%20within%20 0Cubes%20QA-E%20</p> </div> <div>  <p>Cubes%20within%20 0Cubes%20QF-G%20</p> </div> <div>  <p>Cubes%20within%20 0Cubes%20QH%20L</p> </div>
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					<div></div> <div>Not actual</div> <div>Calculate the width of the cuboid.</div>	
6	Recognise when it is possible to use formulae for area and volume of shapes.	Dienes Multi-link cubes Cubes and cuboids Large, plastic Meccano (In DM's room) Maths shapes	Images of 2D and 3D shapes.	<div><div><div>*Match the formula to the corresponding area / volume. The same formula may be used more than once.</div><div><div>Base x Height</div><div>Base²</div><div>Base x Height x Width</div><div>Base³</div><div>(Base x Height) ÷ 2</div></div><div><div>Volume of a cuboid</div><div>Area of a rectangle</div><div>Area of a triangle</div><div>Area of a parallelogram</div><div>Volume of a cube</div><div>Area of a square</div></div></div></div> <div><div>Write the dimensions of a cuboid that has the same volume as the cube below:</div><div></div><div>8cm</div><div>Not to scale</div><div>Salt boxes come in two sizes:</div></div> <div><div>Kieran says that the area of this triangle is greater than 50cm².</div><div></div><div>Do you agree?</div><div>Prove your answer</div><div><div>This diagram shows a smaller cube inside a larger cube. The volume of the larger cube is 1000cm³.</div><div></div></div></div>		

					<div data-bbox="1339 183 1608 454"></div> <div data-bbox="1314 502 1756 558"><p>What is the volume of this special offer box of salt, which is 20% bigger?</p></div> <div data-bbox="1422 598 1646 861"></div>	<div data-bbox="1785 170 2170 252"><p>The volume of the smaller cube is between 30% and $\frac{3}{4}$ of the volume of the larger cube.</p></div> <div data-bbox="1785 276 2170 331"><p>List all the possible lengths of the smaller cube.</p></div>
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