


Class: Year 3	Year:	Term:	Weeks	Teacher:
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<p>Prior learning – check that children can already:</p> <ul style="list-style-type: none"> • collect and record the data needed to answer questions • begin to organise results and solutions, and present data as block graphs and pictograms • sort objects using lists, tables and diagrams • explain decisions, methods and results in words, pictures or written form • choose and use standard units (m, cm, kg, litre) to estimate and measure • choose and use suitable instruments and equipment to measure and collect data • recognise multiples of 10 and derive and recall the 10 times-table • read scales with numbered divisions and interpret the divisions shown • identify and use units of time and work out time intervals • begin to use ICT to organise and present data 	<p>Learning objectives:</p> <ul style="list-style-type: none"> • Follow a line of enquiry by deciding what information is important; make and use lists, tables and graphs to organise and interpret the information (covered in science) • Know the relationships between km and m, m and cm, kg and g, litres and ml; choose and use appropriate units to estimate, measure and record measurements • Read, to the nearest division and half-division, scales that are numbered or partially numbered; use the information to measure and draw to a suitable degree of accuracy • Read the time on a 12-hour digital clock and to the nearest 5 minutes on an analogue clock; calculate time intervals and find start or end times for a given time interval (covered in B2 because it fits better with other work) • Answer a question by collecting, organising and interpreting data (covered in science); use tally charts, frequency tables (all able to do tally charts and frequency tables), pictograms and bar charts to represent results and illustrate observations; use ICT to create a simple bar chart (bar charts hand drawn and ICT based covered in science) • Relate 2-D shapes and 3-D solids to drawings of them; describe, visualise, classify, draw and make the shapes (taken from B2) • Use Venn diagrams (Venn diagrams covered in science) or Carroll diagrams to sort data and objects using more than one criterion • Identify the presentational features used to communicate the main points • I can say what parts of a presentation helped me to understand 	<p>Vocabulary:</p> <p>problem, enquiry, solution, calculate, calculation, method, explain, reasoning, reason, predict, pattern, relationship, collect, organise, compare, sort, classify, represent, interpret, effect</p> <p>information, data, survey, questionnaire table, frequency table, block graph, bar chart, Carroll diagram, Venn diagram, axis/axes, horizontal axis, vertical axis, label, title, scale, interval, division</p> <p>frequency, how often?, how frequently? more/less, most/least, most/least popular, most/least frequent, greatest/least value, approximately, close, about the same as, ten times, hundred times</p> <p>metric unit, standard unit, millimetre (mm), centimetre (cm), metre (m), kilogram (kg), gram (g), litre (l), millilitre (ml), degree Celsius degree, ruler, tape measure, balance, scales, thermometer, capacity, weight, length, width, height, depth, temperature</p> <p>time, timer, clock, second, minute, hour, day, week, month, year, before, after, interval, start time, end time, how long ago?, how long will it take to ...?, how long will it be to ...</p>
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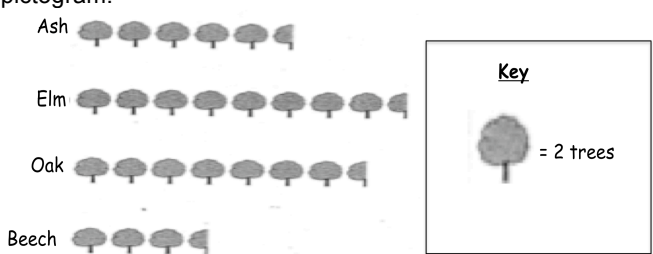
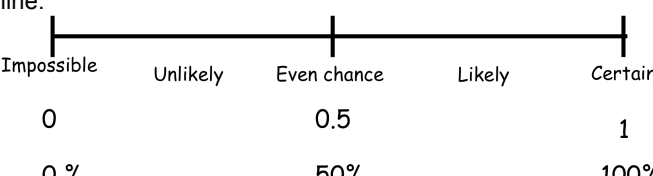
Weekly homework includes children learning their times-tables and number bonds (differentiated to the numbers they are up to), which they are then tested on once a week

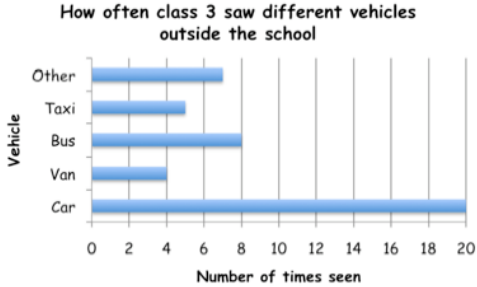
When HA are working on MA work without listening to my model a TA will check they understand it and are doing it correctly

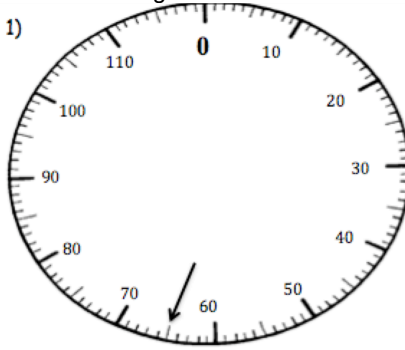
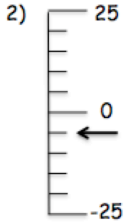

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	OBJECTIVES	TEACHING ACTIVITIES (20 mins)	INDEPENDENT WORK (20 mins)	Plenary / HOMEWORK (10 mins)	Success Criteria Must/should/could <i>I can:</i>	Evaluation
M	<p>Mental: Problem solving</p> <p>Main: Relate 2-D shapes to drawings of them; describe, visualise, classify, draw and make the shapes 2D</p> <p>C2001</p>	<p>Mental: In pairs work on activity from DFES document 'Puzzles and problems'. LA do one from those for years 1 + 2, HA do one from those for years 3 + 4.</p> <p>Main: Explain term polygon – a many sided closed shape. Show examples of shapes that are not polygons because they are not 'closed' e.g.</p>  <p>Revise the following terms:</p> <ul style="list-style-type: none"> • vertex / vertices (corner – where 2 edges / sides meet) • straight / curved • edge / side (line from one corner to another corner – except in a circle or oval) • angle (found where two straight edges meet at a corner) • right-angle (like the corner of a page) • regular (all sides same length and all angles the same) • irregular (all sides NOT same length or all angles NOT the same) • quadrilateral (four sided polygon) • parallel (pair of lines that no matter how much you extended – lengthened – them they would still never meet, like train tracks) <p>Display the above terms and their definitions on the IWB during independent work. Children given sheet with examples of all the shapes (except irregular polygons), labelled with their names. Children given clues to work out the shape from e.g. I have four sides all the same length with four right angles. What am I? Model how to draw shapes with a different orientation for extension.</p>	<p>Work out 2D shapes from clues on their properties:</p> <p>LA – triangle, square, rectangle, pentagon, hexagon, octagon, circle and semi-circle</p> <p>HA – as LA, but also irregular pentagon, hexagon, heptagon, octagon and equilateral, isosceles and scalene triangles, parallelogram, rhombus, trapezium and kite</p> <p>Ext – draw one of each shape on their sheet (not equilateral triangle, regular pentagon, hexagon, heptagon, octagon, circle, oval or semi-circle as these are complicated to draw and would need a protractor)</p>	<p>In partners children draw a shape without their partner seeing. Their partner asks them questions to try to work out what the shape is e.g. how many sides does it have?</p>	<p>M: name basic 2D shapes</p> <p>S: name more complicated 2D shapes</p> <p>C: draw their own example of each shape</p>	
Tu	<p>Mental: Problem solving</p> <p>Main: Relate 3-D solids to drawings of them; describe,</p>	<p>Mental: In pairs work on activity from DFES document 'Puzzles and problems'. LA do one from those for years 1 + 2, HA do one from those for years 3 + 4.</p> <p>Main: MA and HA start work straight away on LA work without having real 3D models of the shapes (this will see if they are able to visualise the shapes and know their properties without actually</p>	<p>LA - Work out 3D shapes (Hemisphere, Cylinder, Sphere, Pentagonal prism, Cube, Cone, Cuboid, Square-based pyramid, Triangular prism, Triangular pyramid, Hexagonal-based pyramid) from clues on their properties</p>	<p>In partners, children doing LA work choose a 3D shape, hide it behind their WB and their partner asks them questions to try to work out what the</p>	<p>M: know the properties and names of basic 3D shapes</p> <p>S: calculate area and perimeter of rectangles</p> <p>C: calculate area and</p>	

	<p>visualise, classify, draw and make the shapes</p> <p>C2002</p>	<p>handling the shapes). For LA: Give them a couple of real 3D shapes Revise following terms:</p> <ul style="list-style-type: none"> • 3-D • solid • straight • curved • edge • vertices • face (flat surface) • apex (point above the middle of the base of a 3D shape) <p>Call out answers for LA work so MA and HA can mark it. If they got the LA work right, they come and sit on the carpet and I will explain perimeter and area. If not, then a TA will sit with them and go over the LA work again trying to get them to visualise the shapes, and, if they can't do this, giving them the actual 3D shapes to use with the work. For those who got the LA work right, Explain how:</p> <ul style="list-style-type: none"> • area is the amount of space inside a flat (2D) shape • perimeter is the total length of the edges of a flat (2D) shape <p>Explain perimeter as units of fencing. It can be found by counting the number of units of fencing. Explain that perimeter can also be calculated by totalling the length of all the sides. Explain area as the size of the field inside the fencing. It can be found by counting the number of squares inside a shape. Explain how perimeter is given in cm and area is given in cm². This reads as x square centimetres, not x centimetres squared. Model how to find the area of a rectangle by multiplying the width by the length. Emphasise this does not work for all shapes.</p>	<p>MA – calculate area of rectangles (by multiplying their length and height) and perimeter of rectangles (by adding up the length of their sides)</p> <p>HA – calculate area and perimeter of irregular shapes by counting the squares inside the shape</p>	<p>shape is e.g. how many sides does it have?</p> <p>In partners children doing MA / HA work compare their answers and discuss any differences, <i>without changing their answers so that I can see what they understood</i></p>	<p>perimeter of irregular shapes</p>
W	<p>Mental: Problem solving</p> <p>Main: Relate 2-D shapes and 3-D solids to drawings of them; describe, visualise, classify, draw and make the shapes 2D</p> <p>C2003</p>	<p>Mental: In pairs work on activity from DFES document 'Puzzles and problems'. LA do one from those for years 1 + 2, HA do one from those for years 3 + 4.</p> <p>Main: Ask children to name and classify some basic 2D and 3D shapes under the headings of '2D' or '3D'. Children who place the shapes under the wrong heading e.g. circle in 3D, go with TA and work on classifying shapes as 2D or 3D and learning their names. Children who got the names wrong can go off in pairs and learn the names of the shapes, after I have explained about nets. Ask children to classify 4 possible nets of cubes as actually being nets of cubes or not. Children who get these 4 nets right go and start task of drying to draw as many nets of cubes as they can. Explain for children who did not get these 4 right how to cut out possible nets of cubes and fold them to check if they actually make cubes or not.</p>	<p>LA – classify pictures of 2D and 3D shapes in a Venn diagram with 2 separate circles</p> <p>MA – cut out possible nets of a cube and see which ones can be folded into a cube</p> <p>HA – draw as many different nets of a cube as they can</p>	<p>In partners children doing compare their answers / work and discuss any differences, <i>without changing their answers so that I can see what they understood</i></p>	<p>M: classify shapes as 2D or 3D</p> <p>S: recognise nets of a cube</p> <p>C: draw their own nets of a cube</p>

		Emphasise importance of folding on fold lines.				
Th	Mental: Problem solving Main: Interpret pictograms Probability C2004	Mental: In pairs work on activity from DFES document 'Puzzles and problems'. LA do one from those for years 1 + 2, HA do one from those for years 3 + 4. Main: Ask children to answer the following questions using this pictogram:  <p>How many beech trees are there? How many more Elm trees were there than Ash trees? How many fewer Beech trees were there than Oak trees? How many trees were there in total? Children who don't get the answers right go with a TA to work on interpreting pictograms with 1 icon representing 2 items. For children still on carpet talk through PowerPoint on probability, which explains what probability is (a measure of how likely something is to happen) and explain the probability line:</p>  <p>Children place 6 events e.g. having meat for dinner on the probability line. Explain that for the statements we are 'estimating' probability. Explain how we can accurately 'calculate' probability when it comes to things like rolling dice, tossing a coin and numbers on a spinner. Model how to calculate probability of spinning a number on a 'fair' spinner, divided up into 10 sections. Draw an example of an unfair spinner, where each section is not the same size. Revise how to create a fraction for the probability and revise how to convert fractions to percentages and decimals.</p>	LA – interpret pictograms where 1 icon represents 2 items MA – judge the probability of events happening in words HA – give the probability of events happening as a percentage and a decimal	In pairs children make up questions for each other using the sheet they had for the independent work	M: interpret a pictogram S: in words describe the probability of an event happening C: calculate probability as a fraction, percentage and decimal	

F	<p>Mental: Problem solving</p> <p>Interpret:</p> <ul style="list-style-type: none"> • bar charts • pie charts • averages <p>C2005</p>	<p>Mental: In pairs work on activity from DFES document 'Puzzles and problems'. LA do one from those for years 1 + 2, HA do one from those for years 3 + 4.</p> <p>Main: Ask children to answer the following questions on the bar graph:</p>  <p>How many taxis were seen? How many more buses than 'Other' were seen? How many vehicles were seen altogether? If children answer Children who don't get the answers right go with a TA to work on interpreting bar graphs. For children still on carpet explain how to interpret pie charts by:</p> <ol style="list-style-type: none"> 1) checking how many people in total the pie chart represents 2) estimating what fraction of the pie chart is a given colour 3) using this fraction to calculate what number of people out of the total the section of the pie chart represents <p>For children who complete work on pie charts, explain how to find:</p> <p>Range – difference between highest and lowest scores Mode – the most frequently occurring score Median – the middle score when the score are ranked from highest to lowest Mean – the total of the scores divided by the number of scores Model how to find the mean, median, mode and range for 2 groups of children's test scores.</p>	<p>LA – interpret bar graph with labelled intervals going up in 2s</p> <p>MA – interpret pie charts</p> <p>HA – calculate mean, mode, median and range</p>	<p>In pairs children make up questions for each other using the sheet they had for the independent work</p>	<p>M: interpret a bar graph</p> <p>S: interpret a pie chart</p> <p>C: calculate mean, median, mode and range</p>	
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M	<p>Mental: Adding by partitioning</p> <p>Main: Use ICT to create a simple bar chart</p> <p>C2006</p>	<p>Mental: Revise how to add horizontally by partitioning e.g. to calculate $45 + 72$, do $45 + 70 = 115 + 2 = 117$. In ability pairs children come up with questions for each other and discuss their answers + working out</p> <p>Main: Covered in ICT topic on databases</p>	<p>LA – create a bar graph</p> <p>MA – create a pie chart</p> <p>HA – create a line graph</p>	<p>In partners children share their work and check each others e.g. making sure graphs include titles</p>	<p>M: create a bar graph</p> <p>S: create a pie chart</p> <p>C: create a line graph and calculate averages</p>	
Tu	<p>Mental: Subtraction by partitioning</p> <p>Main: Reading scales Measuring angles</p> <p>Read, to the nearest division and half-division, scales that are numbered or partially numbered</p> <p>C2007</p>	<p>Mental: Revise how to subtract horizontally by partitioning e.g. to calculate $45 - 32$, do $45 - 30 = 15 - 2 = 13$. In ability pairs children come up with questions for each other and discuss their answers + working out</p> <p>Main: Ask children to give the values for each of the following on their WBs:</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>1)</p>  </div> <div style="text-align: center;"> <p>2)</p>  </div> </div> <div style="text-align: center; margin-top: 20px;"> <p>3)</p>  </div> <p>Children who get all three right go with TA and work on measuring angles up to 360° with a protractor. Children who got 1st question wrong do LA work. Children who got 2nd question wrong do MA work. Children who got 3rd question wrong do HA work. Model how to read scales by trial and error. For HA revise place value with decimal places. When children doing HA work finish, they can work on measuring angles with a protractor.</p>	<p>Read values unlabelled intervals on scales, with each interval worth:</p> <p>LA – 1, 2 or 10</p> <p>MA – 5, 100, 20, 1 decimal place and negative numbers</p> <p>HA – 200, 250, 2 decimal places and negative numbers with decimal places</p> <p>G + T – measure angles with a protractor (up to 360°)</p>	<p>Children draw their own scale for a partner to label the intervals on or their own angle for a partner to measure.</p>	<p>M: read unlabelled intervals on a scale in positive integers</p> <p>S: read unlabelled intervals on a scale with decimal places and negative numbers</p> <p>C: measure angles with a protractor</p>	

		unit and vice versa e.g. 1ft = 0.3048m, so we can say that there are roughly 3 ft in 1m.			
Th	<p>Mental: Rounding to nearest ...</p> <p>Main: SU of measurement – actually measuring to the nearest</p> <p>C2009</p>	<p>Mental: Revise how to round numbers to the nearest 10, 100, 1,000 or decimal places. In ability pairs children give each other some numbers to round and discuss their answers and reasoning.</p> <p>Main: Have different tables with equipment to measure capacity, weight and length. Ask children what would they measure the following in: 1)The weight of a person 2)The capacity of a swimming pool 3)The length of a pencil 4)The capacity of a spoon 5)The weight of a feather 6)The length of the classroom For children who get this wrong go with TA to start measuring and work on understanding how different measures relate to each other e.g. m being bigger than cm Ask children to complete the following: 7.4Kg = _____ g 86.56 litres = _____ ml 3,902m = _____ Km 4.71m = _____ cm 826cm = _____ m For children who get these right they can go and get started measuring weight, capacity and length. For children still on carpet revise how to convert g-Kg, litres-ml and cm-m, and vice versa:</p> <p>Children who were on carpet go and start measuring. Children who understood conversion and had already started measuring come back to carpet. Explain how both metric and imperial units are used in this country. Explain for them how to use a conversion graph to convert metric units to imperial units. Go through conversion graphs for cm-inches, metres-feet, ml-fluid oz, pints-litres, kg-lbs and grams-ounces. Range of scales on each table.</p>	<p>LA – estimate and measure length, capacity and weight in cm or m, g or Kg and ml or litres with adult support</p> <p>MA – estimate and measure length, capacity and weight in cm or m, g or Kg and ml or litres without adult support</p> <p>HA – estimate and measure length, capacity and weight in cm and m, g and Kg and ml and litres</p> <p>Ext – use conversion graphs to convert metric units to imperial units</p>	<p>Complete tables from independent work on IWB. Revise idea that different objects can be measured on different scales to increase accuracy</p>	<p>M: estimate and measure each object in cm or m, g or Kg and ml or litres</p> <p>S: estimate and measure each object in cm and m, g and Kg, ml and litres,</p> <p>C: use conversion graphs to convert metric units to imperial units</p>
F	<p>Mental: Ordering numbers</p> <p>Main: Know the relationships between km and m, m and cm, kg and g, litres and ml; choose and use appropriate units to estimate, measure and record</p>	<p>Mental: In ability pairs children give each other a series of 5 numbers to order from smallest to largest. Children check each other's answers and discuss any differences of opinion, explaining their reasoning</p> <p>Main: Ask children to answer these questions on their WBs: I would measure the weight of a grizzly bear in _____. I would measure the _____ of a river in metres. Which of these is a reasonable estimate for the length of a coach? a) 8m (b) 200cm (c) 2Km Which of these is a reasonable estimate for the capacity of a small lake? a) 100 litres (b) 10,000ml (c) 10,000</p>	<p>LA – complete missing words in sentences on which unit we use to measure capacity, length, weight and temperature</p> <p>MA - select an appropriate estimate from a choice of 3 estimates for capacity, length, weight and temperature of different things</p> <p>HA – answer interpretation questions on a conversion</p>	<p>Go through correct answers to LA and MA work, explaining each question.</p> <p>TA to take children doing higher ability work to check answers and go through errors.</p>	<p>M: know what each unit of measurement measures e.g. ml - capacity</p> <p>S: select a reasonable estimate for a given thing</p> <p>C: interpret a conversion graph</p>

	<p>measurements</p> <p>C2010</p>	<p>litres</p> <p>Children who get these questions right complete LA and MA work without listening anymore.</p> <p>For children still on carpet revise when we use the various units of measurement:</p> <ul style="list-style-type: none"> • length – show with fingers (tiny gap for a mm, slightly bigger for a cm, hands wide apart for a m and arms outstretched as far as possible for a Km) • capacity – show a 1 litre bottle with 1ml water in • weight – children hold a 1Kg weight and a 1 gram weight <p>Leave examples of these on tables during independent work.</p> <p>Explain independent work:</p> <p>1st task - Complete sentences with missing words, using each of the following words once only: length, weight, capacity, kilometres (km), milliliters (ml), litres, degrees centigrade (°C), temperature, centimetres (cm), metres (m), grams (g) and kilograms (Kg)</p> <p>e.g. I would measure the _____ of an oven in degrees Celsius (°C).</p> <p>2nd task – Choose the best estimate from 3 for a thing (see above for example)</p> <p>Check those who started without listening to me got on, and if OK, explain to HA how there are two types of measurement for temperature: degrees centigrade (°C) and degrees Fahrenheit (°F), and how one can be converted to the other.</p> <p>Explain that we can use the conversion graph to do this.</p> <p>Model how to do this, emphasising the importance of reading from the right axis.</p>	<p>graph between °C and Fahrenheit</p>			
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