





































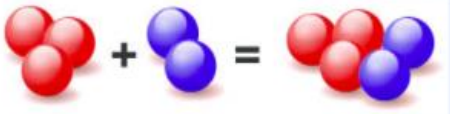
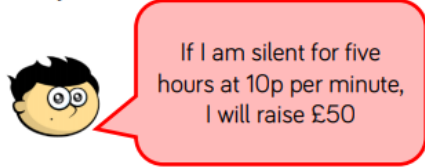


Power Maths Key Vocabulary
Year 4 – Block C

Key Vocabulary	Explanation of Terms	Example Question(s)																										
<p>pounds (£) pence (p)</p>	<p>Pounds and pence (pennies) are forms of the British currency. There are 100 pennies (100p) in 1 pound (£1).</p> <table border="1"> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Pence</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1p</td> <td>2p</td> <td>5p</td> <td>10p</td> <td>20p</td> <td>50p</td> </tr> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Pounds</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>£1</td> <td>£2</td> <td>£5</td> <td>£10</td> <td>£20</td> <td>£50</td> </tr> </table>	Pence							1p	2p	5p	10p	20p	50p	Pounds							£1	£2	£5	£10	£20	£50	<p>Convert these amounts to pounds and pence:</p> <p>357 p 307 p 57 p 370 p</p> <p>(£3 and 57p, £3 and 7p, £0 and 57p, £3 and 70p)</p> <p>Eva has these coins:</p>  <p>She picks three coins at a time. Decide whether the statements will be always, sometimes or never true.</p> <ul style="list-style-type: none"> • She can make a total which ends in 2 • She can make an odd amount. • She can make an amount greater than £6 • She can make a total which is a multiple of 5 pence <p>Can you think of your own always, sometimes, never statements?</p> <p>(•Never • Sometimes e.g. £3.05 • Never – she can only choose three coins so the largest amount she can make is £5 • Always, because every coin is a multiple of 5 pence)</p>
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		<p>Amir has these digits cards.</p>  <p>He uses them to fill the frame below:</p> <p>£ <input type="text"/> . <input type="text"/> <input type="text"/></p> <p>He makes a total that is more than three pounds but less than six pounds.</p> <p>How many amounts can he make?</p> <p>Order your amounts in ascending order.</p> <p>(£3.24, £3.26 £3.42, £3.46 £3.62, £3.64 £4.23, £4.26 £4.32, £4.36 £4.62, £4.63)</p>
<p>estimate</p>	<p>To find a value that is close enough to the right answer, usually without the need of a written calculation.</p>	<p>Which of these calculations give an answer of about 100?</p> <p>314 - 238</p> <p>654 - 425</p> <p>237 - 132</p> <p>928 - 727</p> <p>(237 - 132)</p> <p>Which of these calculations give an answer of about 900?</p> <p>2334 - 1429</p> <p>4294 - 3213</p> <p>3061 - 1042</p> <p>2471 - 1353</p> <p>(2334 - 1429)</p>
<p>total</p>	<p>Total is the whole amount, the result of adding smaller amounts together.</p> 	<p>6,321 + 3,284 = (9,605)</p> <p>James plays a video game twice. He scores 345 points on his first go, and 277 points on his second. What was his total score?</p> <p>(622)</p>

		<p>Which of these totals are correct? Mark with a tick (✓) or a cross (✗).</p> <p>a) $3 + 5 + 8 + 7 = 22$</p> <p>b) $20 + 60 + 30 + 50 = 180$</p> <p>c) $400 + 300 + 600 + 800 = 2000$</p> <p>d) $90 + 70 + 80 + 60 = 300$</p>
second	<p>The basic unit of time.</p> <p>There are 60 seconds in 1 minute and 3,600 seconds in an hour.</p> <p>In this clock the hand that moves the fastest shows the seconds. It is called the "Second Hand".</p> <p>One second is approximately the time of one heartbeat when you are resting. You can get a rough count of seconds by saying "one cat-and-dog, two cat-and-dog, three cat-and-dog, ..." etc., or you may prefer "a-thousand-and one, a-thousand-and two, a-thousand-and three, ..."</p>	<p>A car started a rally at 8:15 am. It completed the rally in 4 hours 24 minutes. At what time did the car finish the rally? (12:39)</p> <p>One hour = ____ minutes One minute = ____ seconds. Two hours = ____ minutes Three minutes = ____ seconds.</p> <p>Josh reads a chapter of his book in 5 minutes and 28 seconds. Tom reads a chapter of his book in 300 seconds. Who reads their chapter the quickest? (Tom)</p>
minute	A minute is a period of time equal to sixty seconds or a sixtieth of an hour.	Jack takes part in a sponsored silence.
hour	<p>An hour is a period of time equal to 60 minutes.</p> <p>There are 24 hours in a day.</p>	<p>He says,</p>  <p>If I am silent for five hours at 10p per minute, I will raise £50</p> <p>Do you agree with Jack? Explain why you agree or disagree.</p> <p>(Jack is incorrect. There are 60 minutes in an hour so $60 \times 10p = 600p$ or $\pounds 6$ $\pounds 6 \times 5 = \pounds 30$)</p>
day	A day is approximately the period of time during which the Earth completes one rotation around its axis.	Use a calendar to help you complete the sentences.
week	A week is a period of 7 days.	<p>There are ____ months in a year. There are ____ days in February. ____ months have 30 days, and ____ months have 31 days. There</p>

month
A month is a unit of time, used with calendars. It can also be defined as period of 4 weeks or 30 days.

year
A year is a period of 12 months or 365 or 366 days. It is the time taken by the earth to make one revolution around the sun.

are ____ days in a year and ____ days in a leap year.

Complete the table.

Number of days	Number of weeks
	5
49	
	12

Sally is 7 years and 2 months old. Macey is 85 months old. Who is the oldest? Explain your answer. (Macey as she is 7 years and 1 month old)

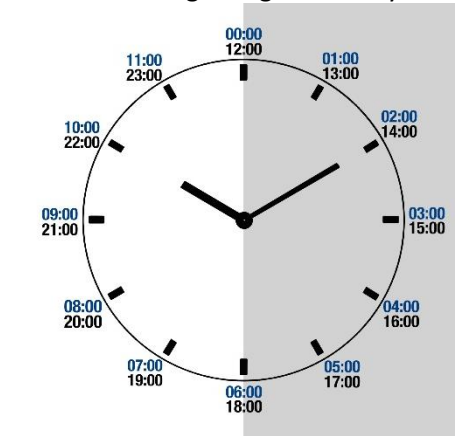
12-hour
The 12-hour clock is a time convention in which the 24 hours of the day are divided into two periods: a.m. (before midday) and p.m. (after midday).



Annie converts the analogue time to digital format. Here is her answer.



24-hour
The 24-hour clock is a way of telling the time in which the day runs from midnight to midnight and is divided into 24 hours. 00:00 is used to mean the beginning of the day.



Explain what Annie has done wrong. What should the digital time be? (Annie has recorded the minutes past the hour first instead of the hour. The time should be 02 : 22)

Write in the missing numbers of the times on the clocks, and in the boxes below give the digital times for each.

a)

10 minutes past

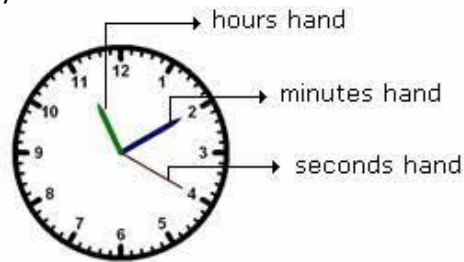
(10 minutes past 3, 03:10 or 15:10)

digital
A digital clock is a type of clock that displays the time digitally, i.e. in numerals or other symbols.



analogue
An analogue clock is a clock or watch that has moving hands and (usually)

hours marked from 1 to 12 to show you the time.



Some have Roman Numerals (I, II, III, etc) instead, or no numbers at all, instead only relying on the positioning of the hands and what angle they are at to indicate the time.



(26 minutes to 11, 10:34 or 22:34)
Three children are meeting in the park.

Rosie says, We are meeting at 14:10.

Teddy says, We are meeting at 02:10 p.m.

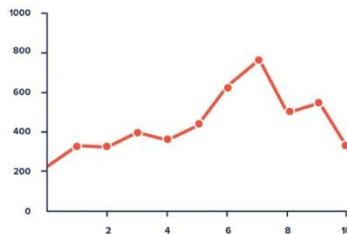
Eva says, We are meeting at ten to two.

Will all the children meet at the same time?
Explain your answer.

(No Eva will turn up at 13:50)

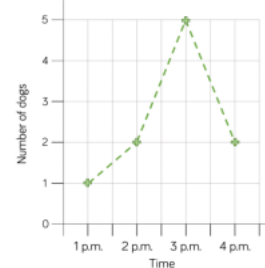
line graph

A line graph is a graph which uses lines to connect individual data points that display quantitative values over a specified time interval.



Used across many fields, this type of graph can be quite helpful in depicting the changes in values over time.

Tommy created a line graph to show the number of dogs walking in the park one afternoon.



Tommy says, At half past one there are 1.5 dogs in the park.

continuous data

Continuous data is data that can take any value. Height, weight, temperature and length are all examples of continuous data. Some continuous

Why is Tommy incorrect?

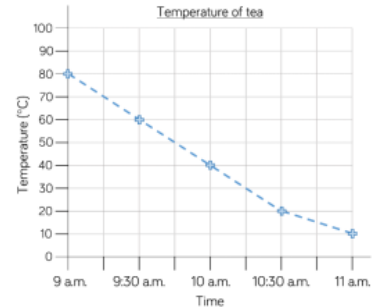
What would be a better way of presenting this data?

data will change over time; the weight of a baby in its first year or the temperature in a room throughout the day.

This data is best shown on a line graph as this type of graph can show how the data changes over a given period of time.

(Tommy is incorrect because you cannot have 1.5 dogs.)

Eva measured the temperature of a cup of tea every 30 minutes for 2 hours. The graph shows Eva's results.



Eva says,



In the first 45 minutes the temperature of the tea had dropped by 20 degrees.

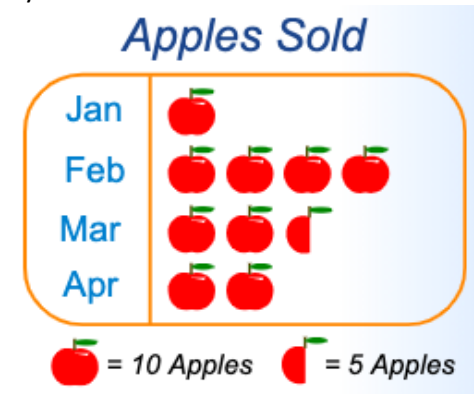
Do you agree with Eva?
Explain why.

(I do not agree with Eva. At 9 a.m. the temperature was 80 degrees and at 9.45 a.m. the temperature was 50 degrees, so it had dropped 30 degrees not 20 degrees.)

pictogram

A pictogram uses pictures or symbols to show the value of data.

The key tells us what each picture / symbol is worth.



The key tells us that 1 whole apple is worth 10 apples, and half an apple is worth 5 apples.

Team	Number of house points
Sycamore	4 whole circles, 1 half circle
Oak	3 whole circles, 1 half circle
Beech	3 whole circles, 1 quarter circle
Ash	2 whole circles, 1 half circle

= 20 points

How many more points does the Sycamore team have than the Ash team? (15)

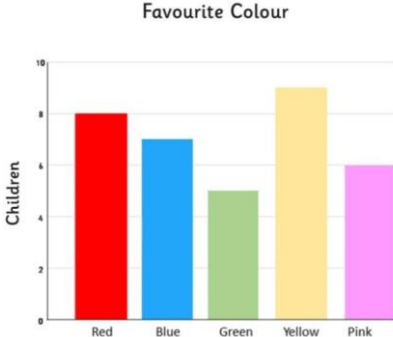
How many points do Beech and Oak teams have altogether? (140)

How many more points do Ash need to be equal to Oak? (20)

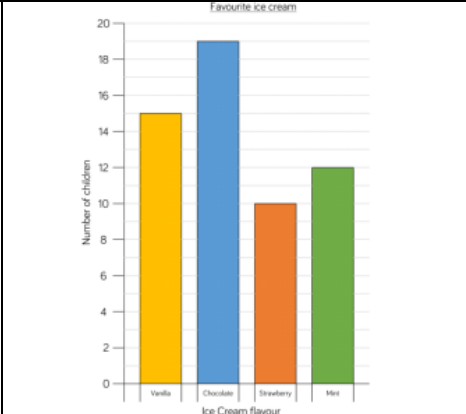
bar chart

A bar chart is a graph drawn using rectangular bars to show how large each value is.

The bars can be horizontal or vertical.



One axis shows the topics being studied and the other shows the measure.



Rosie says,

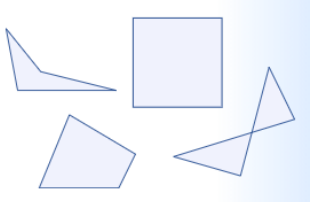


We asked 54 people altogether.

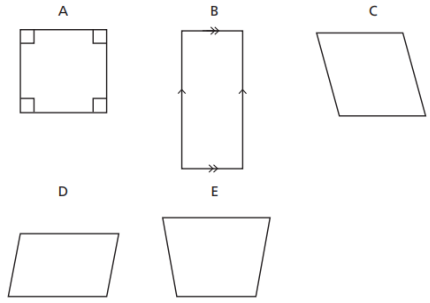
Can you spot Rosie's mistake?
 How many people were asked altogether?
 (Rosie has read the bar chart incorrectly. 15 people chose vanilla, 19 people chose chocolate, 10 chose strawberry and 12 chose mint. That means 56 people were asked altogether.)

quadrilateral

A quadrilateral is a 2D shape made up of 4 straight sides. A square is an example of a quadrilateral.



Here are some quadrilaterals.



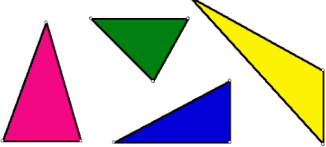
Mark any right angles on the shapes. One shape has been done for you.

Mark any pairs of parallel lines. One shape has been done for you.

Which shapes do not have any right angles?

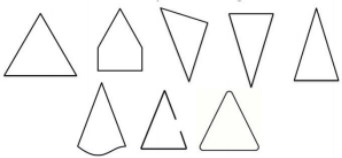
triangle

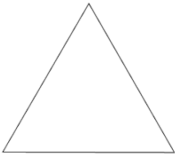
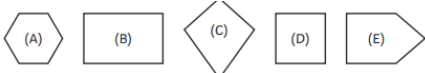

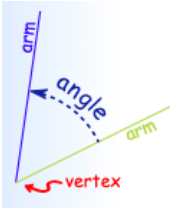
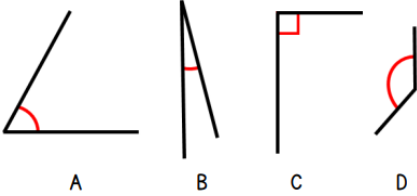
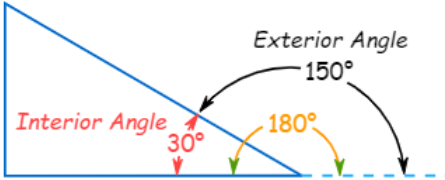

A triangle is a closed, two-dimensional shape with three straight sides.

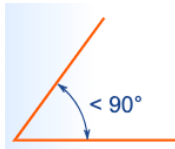
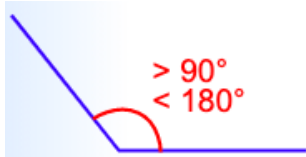
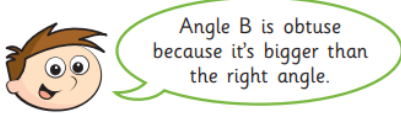
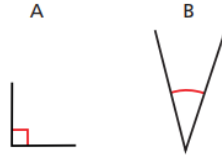
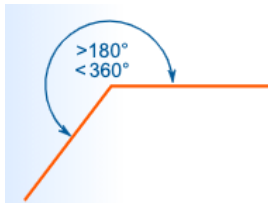
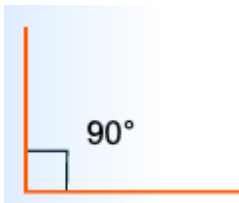

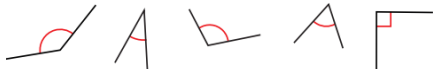




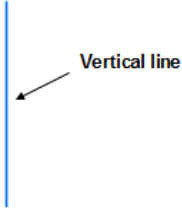

A triangle is also a polygon.

Use true or false to say which shapes are triangles.



		(true, false, true, true, true, false, false, false)									
regular	<p>The definition of a regular shape is that all the sides are equal and all the inside angles are equal.</p>  <p>For example, an equilateral triangle is a regular shape because all the sides are equal and all the angles are equal.</p>	<p>Sort these 2D shapes in the Carroll diagram. Put the letters A-E in the correct places.</p>  <table border="1"> <thead> <tr> <th></th> <th>regular</th> <th>irregular</th> </tr> </thead> <tbody> <tr> <td>quadrilateral</td> <td></td> <td></td> </tr> <tr> <td>not a quadrilateral</td> <td></td> <td></td> </tr> </tbody> </table>		regular	irregular	quadrilateral			not a quadrilateral		
	regular	irregular									
quadrilateral											
not a quadrilateral											
irregular	<p>An irregular shape is a shape which has sides and angles of any length and size.</p> <p style="color: blue; text-align: center;">Irregular octagon</p> 	<p>Write the name of a different 2D shape that is an example of an irregular quadrilateral in the correct place on the diagram.</p> <p>What type of triangle must be placed in the 'regular' and 'not a quadrilateral' section? (equilateral)</p>									
angle	<p>An angle is a measure of a turn, measured in degrees or $^{\circ}$. There are 360° in a full turn.</p> <p>You can find out the size of an angle using a protractor.</p> 	<p>An angle of less than 90 degrees is called... (acute)</p> <p>Order the angles from smallest to largest.</p>  <p>(B, A, C, D)</p>									
interior angle	<p>An interior angle is inside a shape, between 2 joined sides.</p> 	<p>A right angle is <input type="text"/> degrees.</p> <p>An acute angle is _____ than <input type="text"/> degrees.</p> <p>An obtuse angle is _____ than <input type="text"/> degrees but less than <input type="text"/> degrees.</p> <p>How many right angles are there in 1 whole complete turn? (4)</p>									
acute	<p>An acute angle is an angle that measures between 90° and 0°, meaning it is smaller than a right angle (an "L" shape) but has at least some space between the two lines that form it. A "V" shape is an example of an acute angle.</p>	<p>Tick all of the obtuse angles.</p>  <p>Is the angle acute, obtuse or a right angle? a) 35° (acute)</p>									

		<p>b) 99° (obtuse) c) 90° (right) d) 89° (acute) e) 121° (obtuse) f) 179° (obtuse)</p> <p>How do you know?</p>
<p>obtuse</p>	<p>An obtuse angle has a measurement greater than 90 degrees but less than 180 degrees.</p>  <p>Examples of obtuse angles are: 100°, 120°, 140°, 160°, 170° etc.</p>	 <p>A B</p> 
<p>reflex</p>	<p>A reflex angle is more than 180° but less than 360°.</p> 	<p>Do you agree with Teddy? Explain your answer. (angle B is acute because it is less than 90°)</p> <p>Are the statements always true, sometimes true or never true? Explain your answer.</p>
<p>right angle</p>	<p>A right angle is equal to 90°, one quarter of a full revolution.</p>  <p>We can find the right angles in shapes.</p> <p>A square or rectangle has four corners with right angles.</p> <p>All triangles with one angle right are called right-angled triangles.</p> 	<p>a) An obtuse angle is a greater turn than an acute angle. (always true) b) An acute angle is a greater turn than a right angle turn. (never true) c) If you turn through two acute angles you will have turned through an obtuse angle. (sometimes true)</p> <p>Tick all of the acute angles.</p> 
<p>horizontal</p>	<p>A horizontal line is one which runs left-to-right across the page.</p>	<p>Which pencil is vertical? Which pencil is horizontal?</p>

	<p style="text-align: center;">  Horizontal line </p> <p>It comes from the word 'horizon', in the sense that horizontal lines are parallel to the horizon.</p>	
<p>vertical</p>	<p>A vertical line is one which runs up and down the page.</p> <p style="text-align: center;">  Vertical line </p> <p>A vertical line is perpendicular to a horizontal line.</p>	<p>How many vertical pencils can you see below? (4)</p>  <p>How many horizontal pencils can you see? (4)</p>