



Week.	Mathematical aspect	Non-negotiable end points Year 5.	Non-negotiable end points Year 6	Curriculum statements – Year 5.	Curriculum Statements. Year 6.
1.	Number and place value: properties of place value, decimals.	Knows how to read and write numbers with up to 7 digits using the comma separator. Knows decimal notation and the language associated with it for up to three decimal places.	Knows how to read and write numbers with up to 8 digits using the comma separator. Knows how to round decimals and use the correct notation for recurring decimal places.	<ul style="list-style-type: none"> To read, write, order and compare numbers at least to 1,000,000 and determine the value of each digit. To count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. To read, write, order and compare numbers with up to three decimal places. To round decimals with two decimal places to the nearest whole numbers and to one decimal place. To recognise and use thousandths and relate them to tenths, hundredths and decimals equivalents. To solve problems involving number up to three decimal places. 	<ul style="list-style-type: none"> To read, write, order and compare numbers at least to 10,000,000 and determine the value of each digit. To round any whole number to a required degree of accuracy. To identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100, 1000 where the answers are up to three decimal places. To solve problems which require answers to be rounded to specified degrees of accuracy.

Links to resources and policy documents:

Number in digits	Number in words
3 905 231	One million, six hundred and thirty-three thousand, four hundred and fifty
2 730 867	Five million, one hundred and ninety-four thousand, eight hundred and two

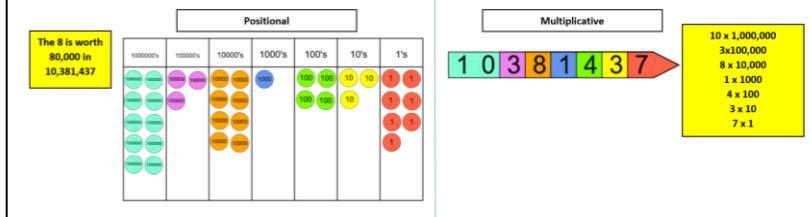
Here are two number cards.

Find the difference between the numbers.

Two million, three hundred thousand and sixty four

Two million, three hundred and sixty four thousand

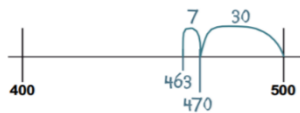
Write the number **three million, twenty five thousand and seventeen** in figures.



2.	All four operations: mental methods	Knows efficient mental methods for addition and subtraction.	Knows efficient mental methods applying knowledge of properties of number.	<ul style="list-style-type: none"> To add and subtract whole numbers with more than 4 digits To add and subtract numbers mentally with increasingly large numbers. To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. To multiply and divide numbers mentally drawing upon known facts; To multiply and divide whole numbers and those involving decimals by 10, 100 and 1000; To solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes; 	<ul style="list-style-type: none"> To perform mental calculations, including with mixed operations and large numbers. To identify common factors, common multiples and prime numbers. To solve problems involving addition, subtraction, multiplication and division. To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
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Links to resources and policy documents:

Using number facts
Number bonds to 100 and to the next multiple of 100
e.g. 288 + 12 = 300
e.g. 1353 + 47 = 1400
e.g. 463 + 37 = 500



To multiply by 4: Double and then double again.

To multiply by 5: Multiply by 10 and then halve.

To multiply by 20: Multiply by 10 and then double.

To multiply by 9: Multiply by 10 and then adjust.

To multiply by 6: Multiply by 3 and then double.

$$35 \times 6 = 30 \times 6 + 5 \times 6$$

$$= 180 + 30$$

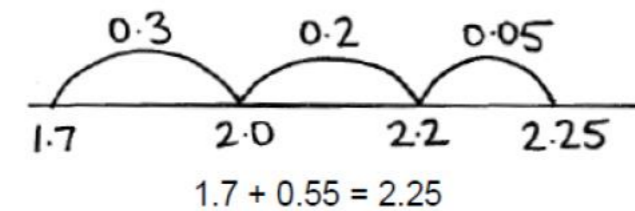
$$= 210$$



$$4^2 = 4 \times 4 = 16$$



$$4^3 = 4 \times 4 \times 4 = 64$$





3.	Addition and Subtraction: Written methods.	Knows efficient written algorithms for addition and subtraction dependent on the numbers in the question.	Knows efficient written algorithms for addition and subtraction dependent on the numbers in the question.	<ul style="list-style-type: none"> To solve problems involving addition, subtraction, multiplication and division. Add whole numbers and decimals using formal written methods (columnar addition). Subtract whole numbers and decimals using formal written methods (columnar subtraction). To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. 	<ul style="list-style-type: none"> To solve problems involving addition, subtraction, multiplication and division. Add whole numbers and decimals using formal written methods (columnar addition). Subtract whole numbers and decimals using formal written methods (columnar subtraction). To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
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Links to resources and policy documents:

3426
+1715
5141
± ±

The exchanged digits should be carried below the sum and crossed through when they have been added

0	9	1	3	1		
1	0	5	4	1	9	kg
-	3	6	0	8	0	kg
	6	9	3	3	9	kg

Add a zero to empty decimal places to aid understanding of place value.

52344
- 1187
51157

6	5	4	4	2
+ 2	6	8	9	4
9	2	3	3	6

8	4	5	3
- 5	8	1	0
2	6	4	5

3,565 + 2,250 = 5,815

Use this calculation to decide if the following calculations are true or false.

True or False?

4,565 + 1,250 = 5,815

5,815 – 2,250 = 3,565

4,815 – 2,565 = 2,250

3,595 + 2,220 = 5,845

4.	Multiplication: written methods – short and long, estimation and remainders	Knows the efficient written algorithms for long and short multiplication.	Knows the efficient written algorithms for long/short multiplication.	<ul style="list-style-type: none"> To solve problems involving multiplication and division where larger numbers are used by decomposing them into factors. To multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. To multiply numbers up to 4 digits by a one- or two-digit number using an efficient written method, including long multiplication for two-digit numbers. 	<ul style="list-style-type: none"> To multiply multi-digit numbers up to 4 digits by a one-digit whole number using the efficient written method of short multiplication. To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the efficient written method of long multiplication. To solve problems involving addition, subtraction, multiplication and division. To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
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Links to resources and policy documents:

4	5	3
x		6
2	7	1
3	1	

28
x 27
196
5
560
1
756
1

6	7	4	9
x	2	6	
4	0	4	9
1	3	4	9
1	7	5	4

3	3	9
x	2	6
2	0	3
6	7	8
8	8	1

7	6	
x	5	8
6	0	8
3	8	0
4	4	0

78 Place the carried digits correctly.

x42
156
3120
3 276

418 What are the missing digits?

x 4
2508
1620
19228

4	0	7
x	2	3
1	2	2
8	1	4
9	3	6
9	3	6

3 x 3 = 9



5.	Division: written methods – short and long, estimation and remainders	Knows the efficient written algorithms for long and short division.	Knows the efficient written algorithms for long/short division.	<ul style="list-style-type: none"> ● To solve problems involving multiplication and division where larger numbers are used by decomposing them into factors. To multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. ● To divide numbers up to 4 digits by a one-digit number using the efficient written method of short division and interpret remainders appropriately for the context. 	<ul style="list-style-type: none"> ● To divide numbers up to 4 digits by a one-digit whole number using the efficient written method of long division, and interpret remainders as whole number remainders, ● To divide numbers up to 4 digits by a two-digit whole number using the efficient written method of long division, and interpret remainders as whole number remainders, fractions or by rounding, as appropriate for the context. ● To solve problems involving addition, subtraction, multiplication and division. ● To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
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Links to resources and policy documents:

$186 \div 6 =$

0 3 1

6 $\overline{) 186}$

no groups of 6 can be made

$3 \times 6 = 18$

$1 \times 6 = 6$

$6 \overline{) 146} \rightarrow 6 \overline{) 146.5}$

289

123468

24

106

96

108

108

0

$255 r 9$

369189

72

198

180

189

180

9

$4 \overline{) 492}$

$7 \overline{) 943} = 134 r 6$

$8 \overline{) 906} = 113 r 2$

$943 \div 7 = 134 \text{ and } 6/7\text{s}$

$906 \div 8 = 113 \text{ and } 2/8\text{s} = 113.25$

$7 \overline{) 7586}$

1083.5

$15 \overline{) 432}$

30 (15 x 2)

132

120 (15 x 8)

12

Answer: 28 remainder 12

What is the partial table?

$59 \overline{) 2242}$

177 (59 x 3)

482

472 (59 x 8)

10

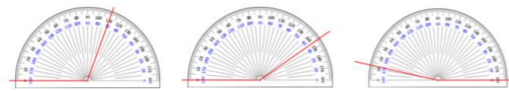
38 r 10

Spot the mistake

6.	Geometry: angles	Knows that angles are measured using a protractor. Knows right, acute, obtuse, straight and reflex angles.	Knows how unknown angles and lengths can be derived from known measurements.	<ul style="list-style-type: none"> ● To know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles ● To draw given angles and measure them in degrees (°). ● To identify: <ul style="list-style-type: none"> ● angles at a point and one whole turn (total 360°) ● angles at a point on a straight line and 1/2 a turn (total 180°) ● other multiples of 90°. 	<ul style="list-style-type: none"> ● To recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
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Links to resources and policy documents:

Measure the angles shown on the protractors.

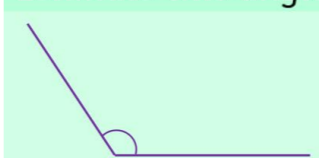


A right angle is ____ degrees.
Acute angles are ____ than a right angle.
Obtuse angles are ____ than a right angle.

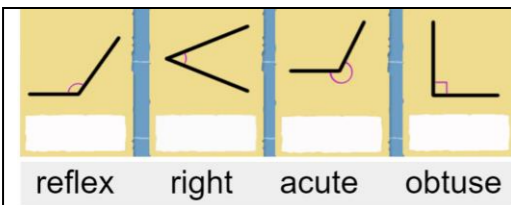
Label the angles. O for obtuse, A for acute and R for right angle.



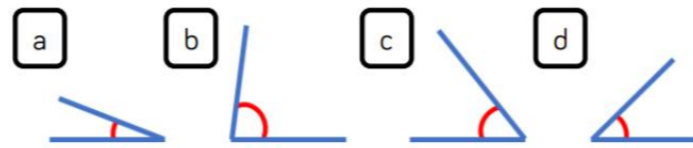
Estimate this angle



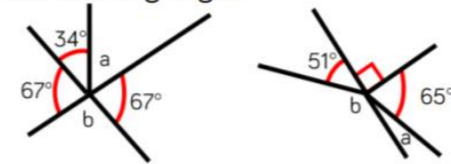
Draw an angle of 70°.



Put these angles in order of size. Explain how you know.



Calculate the missing angles.



7.	Geometry: properties of shape, 2D and 3D	Knows the conventional markings for parallel lines and right angles.	Knows the conventional markings for parallel lines, sides of equal length, angles and right angles.	<ul style="list-style-type: none"> To distinguish between regular and irregular polygons based on reasoning about equal sides and angles. To use the properties of rectangles to deduce related facts and find missing lengths and angles. To identify 3D shapes including cubes and cuboids from 2D representations. 	<ul style="list-style-type: none"> To draw 2-D shapes using given dimensions and angles To recognise, describe and build simple 3-D shapes, including making nets To compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
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Links to resources and policy documents:

Calculate the missing angles in the isosceles triangles.

Complete the table.

Angle	Fraction of a full turn	Degrees
Right angle	$\frac{1}{4}$	90°
Straight line		
Three right angles		
Full turn		

Parallel
Lines that will never meet and are always the same distance apart.

Perpendicular
Lines that meet at a right angle (90°)

✓ all the regular shapes.

Explain why this shape is irregular.

Calculate the size of angle A

parallelogram 2 pairs of equal sides Diagonally opposite angles are equal	trapezium 1 pair of sides are parallel	rhombus All sides are equal Diagonally opposite angles are equal
rectangle 2 pairs of equal parallel sides 4 right angles (90°)	kite 2 pairs of sides of equal length 1 pair of opposite angles is equal.	square 4 equal parallel sides 4 right angles (90°)

8.	Fractions: proper fractions, improper fractions and mixed numbers	Knows that when the numerator is larger than the denominator it is an improper fraction. Knows that an improper fraction is converted to a mixed number.	Knows how to add and subtract fractions with different denominators by identifying equivalent fractions with the same denominator. Knows how to convert improper fractions and mixed numbers.	<ul style="list-style-type: none"> To compare and order fractions whose denominators are all multiples of the same number. To identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. To recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number 	<ul style="list-style-type: none"> To use common factors to simplify fractions; use common multiples to express fractions in the same denomination To compare and order fractions, including fractions > 1 To add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
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Links to resources and policy documents:

Equivalent fractions

However, sometimes the denominators are different.

You use equivalent fractions to make them the same.

A **common multiple** of 2 and 3 is 6.

So, for each fraction we need an equivalent fraction with a denominator of 6.

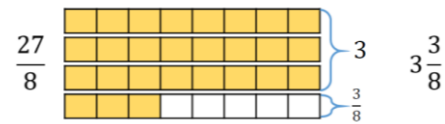
Now you can add these together.

$$\frac{1}{2} + \frac{1}{3} = ?$$

$$\frac{1}{2} \times 3 = \frac{3}{6} \quad \frac{1}{3} \times 2 = \frac{2}{6}$$

$$\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$

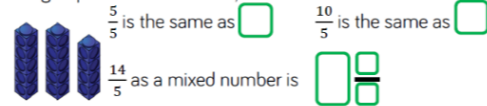
Tommy converts the improper fraction $\frac{27}{8}$ into a mixed number using bar models.



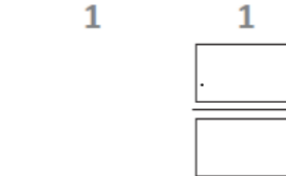
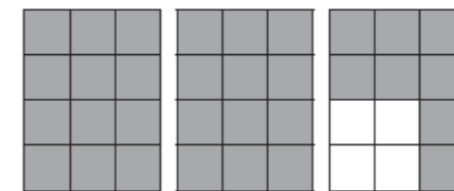
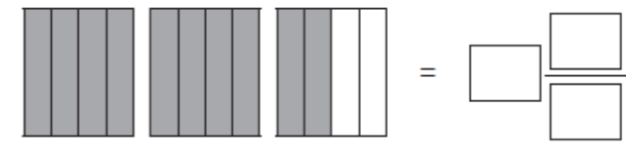
Use Tommy's method to convert $\frac{25}{8}$, $\frac{27}{6}$, $\frac{18}{7}$ and $\frac{32}{4}$

Whitney converts the improper fraction $\frac{14}{5}$ into a mixed number using cubes.

She groups the cubes into 5s, then has 4 left over.



Use Whitney's method to convert $\frac{11}{3}$, $\frac{11}{4}$, $\frac{11}{5}$ and $\frac{11}{6}$



Find an improper fraction that is greater than $1\frac{1}{3}$ but less than $\frac{10}{3}$.

9.

Percentages: Equivalence Finding % of amounts and quantities.

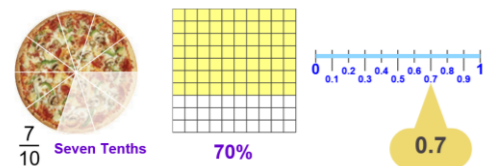
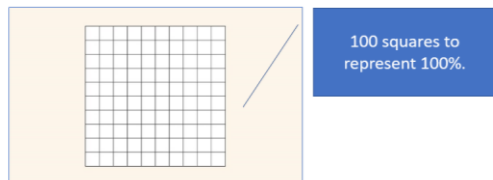
Knows how to find 10% and 1% of an amount using division by 10 and 100.

Knows how to calculate a range of %. Knows how to find common equivalences between fractions, decimals and percentages.

• To recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.

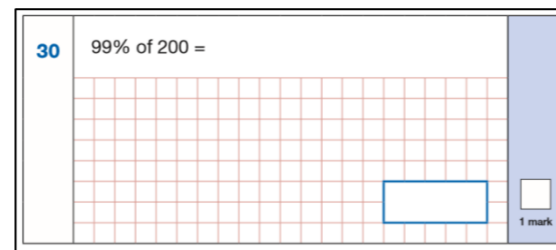
• Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. • Find simple percentages of amounts. • Solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentages for comparison.

Links to resources and policy documents:

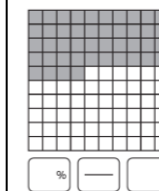


100% = 500
What is 10%?
What is 50%
Is 70% = 350

100% = £400
What is 30%?
Is 20% = £90?



From Percent 75% To Decimal 0.75 move the decimal point 2 places to the left, and remove the "%" sign.



Change 1/8 into a decimal.

	a	b	c	d	e
Percentage	50%	25%	10%	75%	20%
Hundredths	$\frac{50}{100}$				
Decimal	0.5				
Fraction	$\frac{1}{2}$				
Hundredth grid					

Aleena eats 60% of her pizza.
Harris eats $\frac{3}{4}$ of his pizza.
Who has eaten more?



10.	Algebra: linear sequences Ratio and proportion: FDP to represent the whole, $a:b$ ratio	Knows how to describe a sequence using mathematical notation.	Knows how to find the common difference for the n th term. Knows that proportions relate to the whole and ratios are part to part.	<ul style="list-style-type: none"> To generate and describe linear number sequences 	<ul style="list-style-type: none"> To generate and describe linear number sequences To solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. To solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
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Links to resources and policy documents:

1 The numbers in this sequence increase by 14 each time.

Write the missing numbers.

82 96 124 138

2 marks

1 Write the next two numbers in each sequence.

6	12	18	<input type="text"/>	<input type="text"/>
21	28	35	<input type="text"/>	<input type="text"/>
90	81	72	<input type="text"/>	<input type="text"/>

+6
+7
-9

Fill in the missing numbers.

3	7	12	18	25	<input type="text"/>	<input type="text"/>
0.5	<input type="text"/>	1.3	1.7	<input type="text"/>	<input type="text"/>	<input type="text"/>

What is $n - 3$ when $n = 17$?

What is $6n + 4$ when $n = 30$?

Write down the first three terms of sequences whose n th term is:

$3n + 8$	<input type="text"/>	<input type="text"/>	<input type="text"/>
$6n - 5$	<input type="text"/>	<input type="text"/>	<input type="text"/>
$9n$	<input type="text"/>	<input type="text"/>	<input type="text"/>
$-7n - 1$	<input type="text"/>	<input type="text"/>	<input type="text"/>

21 The numbers in this sequence increase by the same amount each time.

Write the missing numbers.

$\frac{3}{8}$	1	$1\frac{5}{8}$	$2\frac{1}{4}$	$2\frac{7}{8}$
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$+/- \frac{5}{8}$

Spotting that $1 = \frac{8}{8}$

Spotting that $\frac{1}{4} = \frac{2}{8}$

8 In this sequence, the rule to get the next number is

Multiply by 2, and then add 3

Write the missing numbers.

<input type="text"/>	25	53	<input type="text"/>
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1 mark
1 mark

11.	Measurement: conversion of units	Knows how to use place value, multiplication and division to convert between standard units.	Knows that approximately 5 miles = 8 kilometres. Knows the approximate conversions and are able to tell if an answer is sensible.	<ul style="list-style-type: none"> To convert between different units of measure (for example, kilometre and metre; metre and centimetre; centimetre and millimetre; kilogram and gram; litre and millilitre). 	<ul style="list-style-type: none"> To solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate. To 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 three decimal places. To convert between miles and kilometres.
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Links to resources and policy documents:

A bag of sugar weighs 1.5kg. How much would half the bag weigh in grams? ---

Complete the missing information.

$\frac{1}{10}$ kilogram = grams $\frac{3}{10}$ km = metres

$7 \text{ kg} + \frac{1}{4} \text{ kg} =$ g $12 \text{ km} +$ km = 12,500 m



Multiplying and Dividing by 10, 100 and 1000

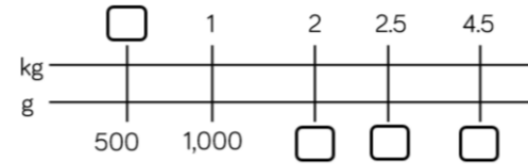
How to convert km to miles

10 000	1000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
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Multiplying
 X 10 digits move LEFT 1 space
 X 100 digits move LEFT 2 spaces
 X 1000 digits move LEFT 3 spaces

Dividing
 ÷ 10 digits move RIGHT 1 space
 ÷ 100 digits move RIGHT 2 spaces
 ÷ 1000 digits move RIGHT 3 spaces

Find the missing values on the double number line.



12.

Statistics:
reading tables
Line graphs
Pie charts.

Knows which representations of data are most appropriate and why.

Knows which representations of data are most appropriate and why.

- To complete, read and interpret information in tables, including timetables.
- To solve comparison, sum and difference problems using information presented in a line graph.

- To complete, read and interpret information in tables, including timetables.
- Interpret and construct pie charts and line graphs and use these to solve problems.
- Solve comparison, sum and difference problems using information presented in all types of graph.

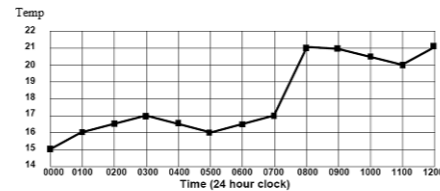
Links to resources and policy documents:

J	F	M	A	M	J	J	A	S	O	N	D
102	118	130	126	121	131	98	82	69	77	84	78

The table shows the usual rainfall in each month in mm for Sydney, Australia.

The table shows the seasons and months. Write some statements to match the information in both tables.

Summer	Dec, Jan, Feb
Autumn	Mar, Apr, May
Winter	June, July, Aug
Spring	Sep, Oct, Nov



This graph shows the temperature in a room over a twelve hours. Answer the questions below.

- 1) What was the lowest temperature recorded on the chart.
- 2) What was the temperature at 3 o'clock am?
- 3) What was the temperature at 11.00?
- 4) Which hour shows the biggest rise in temperature?
- 5) For how long was the temperature between 16 and 17 degrees?
- 6) Can you estimate the temperature at 07.30?
- 7) Can you estimate the temperature at 10.00?
- 8) Complete the table below using the line graph.

Time	Temperature
00.00	
01.00	
02.00	
03.00	
04.00	
05.00	
06.00	
07.00	
08.00	

This table shows the height a rocket reached between 0 and 60 seconds.

Time (seconds)	Height (metres)
0	0
10	8
20	15
30	25
40	37
50	50
60	70

Create a line graph to represent the information.

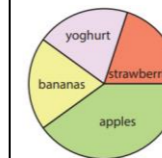
This table shows the distance a lorry travelled during the day.

Time	Distance in miles
7.00 a.m.	10
8.00 a.m.	28
9.00 a.m.	42
10.00 a.m.	58
11.00 a.m.	70
12.00 a.m.	95
1.00 p.m.	95
2.00 p.m.	118

Create a line graph to represent the information, where the divisions along the x-axis are every two hours.

Create a second line graph where the divisions along the x-axis are every hour. Compare your graphs. Which graph is more accurate?

Would a graph with divisions at each half hour be even more accurate?



The pie chart represents the proportions of the four ingredients in a smoothie drink.

The sector representing the amount of strawberries takes up 22% of the pie chart.

The sector representing the amount of apple is twice as big as the sector representing the amount of strawberries.

The sectors representing the amount of yoghurt and the amount of banana are identical.