Howard Park Community School



Progression In Mathematics

Number - Number and Place Value

	a Place Value	1	1	•	•	
EYFS	Y1	Y2	Y3	Y4	Y5	Y6
 EYFS Recognise some numerals of personal significance. Recognises numerals 1 to 5. Counts up to three or four objects by saying one number name for each item. Counts actions or objects which cannot be moved. Counts objects to 10, and beginning to count beyond 10. Counts out up to six objects from a larger group. Selects the correct numeral to represent 1 to 5, then 1 to 10 objects. Counts an irregular arrangement of up to ten objects. Estimates how many objects 	,	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward recognise the place value of each digit in a two-digit number (tens, ones) identify, represent and estimate numbers using different representations, including the number line compare and order numbers from 0 up to 100; use and = signs read and write numbers to at least 100 in numerals and in words use place value and number facts to solve problems.	count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number recognise the place value of each digit in a three-digit number (hundreds, tens, ones) compare and order numbers up to 1000 identify, represent and estimate numbers using different representations read and write numbers up to 1000 in numerals and in words solve number problems and practical problems involving these ideas.	count in multiples of 6, 7, 9, 25 and 1000 find 1000 more or less than a given number count backwards through zero to include negative numbers recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) order and compare numbers beyond 1000 identify, represent and estimate numbers using different representations round any number to the nearest 10, 100 or 1000 solve number and practical problems that involve all of the above and with increasingly large	• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit round any whole number to a required degree of accuracy use negative numbers in context, and calculate intervals across zero solve number and practical problems that involve all of the above.

they can see		 read Roman 	 read Roman 	
and checks by		numerals to 100 (I	numerals to	
counting them.		to C) and know	1000 (M) and	
Says the number		that over time,	recognise years	
that is one more		the numeral	written in	
than a given		system changed	Roman	
number.		to include the	numerals.	
Early Learning		concept of zero		
Goal Children		and place value.		
count reliably with				
numbers from one				
to 20, place them				
in order and say				
which number is				
one more or one				
less than a given				
number.				



Number -	Addition and	d Subtraction	(including	Y6 Multir	olication a	nd Division)	

Number - Addition d	ina sobilaction (including	g to multiplication and D	,			•
EYFS	Y1	Y2	Y3	Y4	Y5	Y6
 Uses the 	 read, write and 	 solve problems with 	 add and subtract 	add and	add and subtract	 multiply multi-digit
language of	interpret	addition and	numbers	subtract numbers	whole numbers	numbers up to 4
'more' and	mathematical	subtraction:	mentally,	with up to 4 digits	with more than 4	digits by a two-
'fewer' to	statements	using concrete	including:	using the formal	digits, including	digit whole
compare two	involving addition	objects and	 a three-digit 	written methods	using formal	number using the
sets of objects.	(+), subtraction (–)	pictorial	number and	of columnar	written methods	formal written
 Finds the total 	and equals (=)	representations,	ones	addition and	(columnar	method of long
number of	signs	including those	three-digit	subtraction	addition and	multiplication
items in two	 represent and use 	involving	number and	where	subtraction)	 divide numbers
groups by	number bonds and	numbers,	tens	appropriate	 add and subtract 	up to 4 digits by a
counting all of	related subtraction	quantities and	 a three-digit 	 estimate and use 	numbers mentally	two-digit whole
them.	facts within 20	measures	number and	inverse	with increasingly	number using the
 Says the 	 add and subtract 	applying their	hundreds	operations to	large numbers	formal written
number that is	one-digit and two-	increasing	 add and subtract 	check answers to	 use rounding to 	method of long
one more than	digit numbers to 20,	knowledge of	numbers with up	a calculation	check answers to	division, and
a given	including zero	mental and	to three digits,	solve addition	calculations and	interpret
number.	solve one-step	written methods	using formal	and subtraction	determine, in the	remainders as
Finds one more	problems that	recall and use	written methods	two-step	context of a	whole number
or one less from	involve addition	addition and	of columnar	problems in	problem, levels of	remainders,
a group of up	and subtraction,	subtraction facts to	addition and	contexts,	accuracy	fractions, or by
to five objects,	using concrete	20 fluently, and	subtraction	deciding which	solve addition	rounding, as
then ten	objects and	derive and use	estimate the	operations and	and subtraction	appropriate for
objects.	pictorial	related facts up to	answer to a	methods to use	multi-step	the context
In practical	representations,	100	calculation and	and why.	problems in	divide numbers
activities and	and missing	add and subtract	use inverse		contexts,	up to 4 digits by a
discussion,	number problems	numbers using	operations to		deciding which	two-digit number using the formal
beginning to	such as 7 = -9.	concrete objects,	check answers		operations and methods to use	written method of
use the		pictorial	solve problems,		and why.	short division
vocabulary involved in		representations,	including missing		and wriy.	where
adding and		and mentally,	number			appropriate,
subtracting.		including: • a two-digit	problems, using number facts,			interpreting
Records, using		number and				remainders
marks that they		ones	place value, and more complex			according to the
can interpret		• a two-digit	addition and			context
and explain.		number and tens	subtraction.			perform mental
απα θλριαπί.			Jobii aciion.			calculations,

Begins to	• two two-digit	including with
identify own	numbers	mixed operations
mathematical	adding three	and large
problems	one-digit	numbers
based on own	numbers	identify common
interests and	 show that addition 	factors, common
fascinations.	of two numbers can	multiples and
Early Learning	be done in any	prime numbers
Goal	order	• use their
Using quantities	(commutative) and	knowledge of the
and objects,	subtraction of one	order of
children add and	number from	operations to
subtract two	another cannot	carry out
single-digit	recognise and use	calculations
numbers and	the inverse	involving the four
count on or back	relationship	operations and distinct
to find the	between addition	solve addition and subtraction
answer. They	and subtraction and use this to	and subtraction multi-step
-	check calculations	problems in
solve problems,	and solve missing	contexts.
including	number problems.	deciding which
doubling, halving	Homber problems.	operations and
and sharing.		methods to use
		and why
		• solve problems
		involving addition,
		subtraction,
		multiplication and
		division
		use estimation to
		check answers to
		calculations and
		determine, in the
		context of a
		problem, an
		appropriate
		degree of
		accuracy.



Number - Multiplication	n and division (ir	ncluding Y6	Addition and Subtraction)
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	ation and division (include			1		
EYFS	Y1	Y2	Y3	Y4	Y5	Y6
 Records, using 	 solve one-step 	 recall and use 	 recall and use 	 recall multiplication 	 identify multiples 	 multiply multi-digit
marks that	problems involving	multiplication and	multiplication and	and division facts	and factors,	numbers up to 4
they can	multiplication and	division facts for	division facts for	for multiplication	including finding	digits by a two-
interpret and	division, by	the 2, 5 and 10	the 3, 4 and 8	tables up to 12 × 12	all factor pairs of a	digit whole
explain.	calculating the	multiplication	multiplication	 use place value, 	number, and	number using the
 Begins to 	answer using	tables, including	tables	known and derived	common factors	formal written
identify own	concrete objects,	recognising odd	write and	facts to multiply	of two numbers	method of long
mathematical	pictorial	and even numbers	calculate	and divide	 know and use the 	multiplication
problems	representations	• calculate	mathematical	mentally, including:	vocabulary of	 divide numbers up
based on own	and arrays with	mathematical	statements for	multiplying by 0	prime numbers,	to 4 digits by a
interests and	the support of the	statements for	multiplication and	and 1; dividing by	prime factors and	two-digit whole
fascinations.	teacher.	multiplication and	division using the	1; multiplying	composite	number using the
Early Learning		division within the	multiplication	together three	(nonprime)	formal written
Goal		multiplication	tables that they	numbers	numbers	method of long
Children solve		tables and write	know, including for	 recognise and use 	 establish whether 	division, and
problems,		them using the	two-digit numbers	factor pairs and	a number up to	interpret
including		multiplication (×),	times one-digit	commutativity in	100 is prime and	remainders as
doubling,		division (÷) and	numbers, using	mental calculations	recall prime	whole number
halving and		equals (=) signs	mental and	 multiply two-digit 	numbers up to 19	remainders,
sharing.		• show that	progressing to	and three-digit	 multiply numbers 	fractions, or by
		multiplication of	formal written	numbers by a one-	up to 4 digits by a	rounding, as
		two numbers can	methods	digit number using	one- or two-digit	appropriate for the
		be done in any	• solve problems,	formal written	number using a	context
		order	including missing	layout	formal written	divide numbers up
		(commutative)	number problems,	 solve problems 	method, including	to 4 digits by a
		and division of one	involving	involving	long multiplication	two-digit number
		number by	multiplication and	multiplying and	for two-digit	using the formal
		another cannot	division, including	adding, including	numbers	written method of
		• solve problems	positive integer	using the	multiply and	short division
		involving	scaling problems	distributive law to	divide numbers	where
		multiplication and	and	multiply two digit	mentally drawing	appropriate,
		division, using	correspondence	numbers by one	upon known facts	interpreting
		materials, arrays,	problems in which	digit, integer	divide numbers up	remainders
		repeated addition,	n objects are	scaling problems	to 4 digits by a	according to the
		mental methods,	connected to m	and harder	one-digit number	context
		and multiplication	objects.	correspondence	using the formal	perform mental
		and division facts,		problems such as n	written method of	calculations,
		including problems		objects are	short division and	including with
		in contexts.		connected to m	interpret	mixed operations
				objects.	remainders	and large numbers

		appropriately for	identify common
		the context	factors, common
		 multiply and 	multiples and
		divide whole	prime numbers
		numbers and	• use their
		those involving	knowledge of the
		decimals by 10,	order of operations
		100 and 1000	to carry out
		 recognise and use 	calculations
		square numbers	involving the four
		and cube	operations
		numbers, and the	 solve addition and
		notation for	subtraction multi-
		squared (2) and	step problems in
		cubed (3)	contexts, deciding
		 solve problems 	which operations
		involving	and methods to
		multiplication and	use and why
		division including	• solve problems
		using their	involving addition,
		knowledge of	subtraction,
		factors and	multiplication and
		multiples, squares	division
		and cubes	• use estimation to
		• solve problems	check answers to
		involving addition,	calculations and
		subtraction,	determine, in the
		multiplication and	context of a
		division and a	problem, an
		combination of	appropriate
		these, including	degree of
		understanding the	accuracy.
		meaning of the	
		equals sign	
		• solve problems	
		involving	
		multiplication and division, including	
		scaling by simple	
		fractions and	
		problems involving	
	1	simple rates.	I





Fractions (Including Decimals and Percenta	aaes)	
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Fractions (includ	ing Decimals and Percer	ntages)				
EYFS	Y1	Y2	Y3	Y4	Y5	Y6
	 recognise, find and name a half as one of two equal parts of an object, shape or quantity recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. 	 recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 4/2 and 2/1. 	 count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 recognise, find and write fractions of a discrete set of objects: unit fractions and non unit fractions with small denominators recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators recognise and show, using diagrams, equivalent fractions with small denominators add and subtract fractions with small denominators add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7] compare and order unit fractions, and fractions with the same denominators 	 recognise and show, using diagrams, families of common equivalent fractions count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number add and subtract fractions with the same denominator recognise and write decimal equivalents of any number of tenths or hundredths 	• compare and order fractions whose denominators are all multiples of the same number * identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths * recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5] • add and subtract fractions with the same denominator and denominators that are multiples of the same number • multiply proper fractions and mixed numbers by whole numbers,	 use common factors to simplify fractions; use common multiples to express fractions in the same denomination compare and order fractions, including fractions > 1 add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8] divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6] associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/] identify the value of each digit in

	solve problems that involve all of the above.	 recognise and write decimal equivalents to 1/4, 1/2, 3/4 find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths * round decimals with one decimal place to the nearest whole number * compare numbers with the same number of decimal places up to two decimal places solve simple measure and money problems involving fractions and decimal places. 	supported by materials and diagrams • read and write decimal numbers as fractions [for example, 0.71 = 71/100] • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places • solve problems involving number up to three decimal places • 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	numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

	• solve problems which require knowing percentage and decimal equivalents of 1/2 , 1/4 , 1/5 , 2/5 , 4/5 and those
	fractions with a denominator of a multiple of 10 or 25.



Ratio and Proportion

EYFS	Y1	Y2	Y3	Y4	Y5	Y6
				• To be able to identity percentages ½, ¼ and ¾	• To be able to find 10% of a number and use this to find further amounts i.e. 15%	solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison solve problems involving similar shapes where the scale factor is known or can be found Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.



Algebra

EYFS	Y1	Y2	Y3	Y4	Y5	Y6
					To be able to find missing numbers in a number sentence for all four calculations	 use simple formulae generate and describe linear number sequences express missing number problems algebraically



Measurement

Measurement	L v 1	Lvo	Lvo		V.5	
EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Orders two or	compare, describe	choose and use	measure, compare,	Convert	convert between	solve problems
three items by	and solve practical	appropriate	add and subtract:	between	different units of	involving the
length or	problems for:	standard units to	lengths	different units of	metric measure	calculation and
height.	• lengths and	estimate and	(m/cm/mm); mass	measure [for	(for example,	conversion of
Orders two	heights [for	measure	(kg/g);	example,	kilometre and	units of measure,
items by	example,	length/height in	volume/capacity	kilometre to	metre; centimetre	using decimal
weight or	long/short,	any direction	(l/ml)	metre; hour to	and metre;	notation up to
capacity.	longer/shorter,	(m/cm); mass	measure the	minute]	centimetre and	three decimal
Uses everyday	tall/short,	(kg/g);	perimeter of simple	measure and	millimetre; gram	places where
language	double/half]	temperature (°C);	2-D shapes	calculate the	and kilogram; litre	appropriate
related to	mass/weight [for	capacity (litres/ml)	add and subtract	perimeter of a	and millilitre)	use, read, write
time.	example,	to the nearest appropriate unit,	amounts of money	rectilinear figure	understand and use approximate	and convert between
Beginning to	heavy/light, heavier than,	using rulers, scales,	to give change, using both £ and p	(including squares) in	use approximate equivalences	standard units,
use everyday	lighter than	thermometers and	in practical	centimetres and	between metric	converting
language related to	capacity and	measuring vessels	contexts	metres	units and common	measurements of
money.	volume [for	compare and	tell and write the	find the area of	imperial units such	length, mass,
Orders and	example,	order lengths, mass,	time from an	rectilinear	as inches, pounds	volume and time
sequences	full/empty, more	volume/capacity	analogue clock,	shapes by	and pints	from a smaller
familiar	than, less than,	and record the	including using	counting	measure and	unit of measure
events.	half, half full,	results using >, <	Roman numerals	squares	calculate the	to a larger unit,
Measures short	quarter]	and =	from I to XII, and 12-	• estimate,	perimeter of	and vice versa,
periods of time	• time [for	 recognise and use 	hour and 24-hour	compare and	composite	using decimal
in simple ways.	example,	symbols for pounds	clocks	calculate	rectilinear shapes	notation to up to
Early Learning	quicker, slower,	(£) and pence (p);	estimate and read	different	in centimetres and	three decimal
Goal	earlier, later]	combine amounts	time with increasing	measures,	metres	places
Children use	measure and begin	to make a	accuracy to the	including money	 calculate and 	 convert between
everyday	to record the	particular value	nearest minute;	in pounds and	compare the area	miles and
language to talk	following:	 find different 	record and	pence	of rectangles	kilometres
about size,	lengths and	combinations of	compare time in	 read, write and 	(including	 recognise that
weight,	heights	coins that equal	terms of seconds,	convert time	squares), and	shapes with the
capacity,	mass/weight	the same amounts	minutes and hours;	between	including using	same areas can
position,	 capacity and 	of money	use vocabulary	analogue and	standard units,	have different
distance, time	volume	solve simple	such as o'clock,	digital 12- and	square centimetres	perimeters and
and money to	time (hours,	problems in a	a.m./p.m., morning,	24-hour clocks	(cm²) and square	vice versa
compare	minutes,	practical context	afternoon, noon	• solve problems	metres (m ²) and	recognise when
quantities and	seconds)	involving addition	and midnight	involving	estimate the area	it is possible to
		and subtraction of		converting from	of irregular shapes	use formulae for

			1	•	1	7
objects and to solve problems.	recognise and know the value of different denominations of coins and notes sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] recognise and use language relating to dates, including days of the week, weeks, months and years tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	money of the same unit, including giving change compare and sequence intervals of time tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times know the number of minutes in an hour and the number of hours in a day.	know the number of seconds in a minute and the number of days in each month, year and leap year compare durations of events [for example to calculate the time taken by particular events or tasks].	hours to minutes; minutes to seconds; years to months; weeks to days.	estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] solve problems involving converting between units of time use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	area and volume of shapes calculate the area of parallelograms and triangles calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³].



Geometry – Properties of Shape								
EYFS	Y1	Y2	Y3	Y4	Y5	Y6		
Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes. Selects a particular named shape. Uses familiar objects and common shapes to create and recreate patterns and build models. Early Learning Goal Children explore characteristics of everyday objects and shapes and use mathematical language to describe them. They recognise, create and describe patterns.	 recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles] 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. 	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] compare and sort common 2-D and 3-D shapes and everyday objects.	 draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them recognise angles as a property of shape or a description of a turn identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle identify horizontal and vertical lines and pairs of perpendicular and parallel lines. 	 compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes identify acute and obtuse angles and compare and order angles up to two right angles by size identify lines of symmetry in 2-D shapes presented in different orientations complete a simple symmetric figure with respect to a specific line of symmetry. 	identify 3-D shapes, including cubes and other cuboids, from 2-D representations know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles draw given angles, and measure them in degrees (°) identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and 21 a turn (total 180°) other multiples of 90° use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	 draw 2-D shapes using given dimensions and angles recognise, describe and build simple 3-D shapes, including making nets compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. 		





Geometry – Position and Direction

<u> </u>	eometry – Position of	illa bileciloti					
	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
	• Can describe their relative position such as 'behind' or 'next to'.	describe position, direction and movement, including whole, half, quarter and three quarter turns.	order and arrange combinations of mathematical objects in patterns and sequences use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).	Recognise angles as a property of shape or description of a turn. Identify right angles, recognise that two complete turns make a half turn, three make 3 quarters of a turn and four make a complete turn Identify if angles are greater or less than a right angle.	describe positions on a 2-D grid as coordinates in the first quadrant describe movements between positions as translations of a given unit to the left/right and up/down plot specified points and draw sides to complete a given polygon.	identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	describe positions on the full coordinate grid (all four quadrants) draw and translate simple shapes on the coordinate plane, and reflect them in the axes.



Statistics

EYFS	Y1	Y2	Y3	Y4	Y5	Y6
		 interpret and construct simple pictograms, tally charts, block diagrams and simple tables ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ask and answer questions about totalling and comparing categorical data. 	interpret and present data using bar charts, pictograms and tables solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	 interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. 	 solve comparison, sum and difference problems using information presented in a line graph complete, read and interpret information in tables, including timetables. 	interpret and construct pie charts and line graphs and use these to solve problems calculate and interpret the mean as an average.