Mathematical language

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims

The National Curriculum for mathematics aims to ensure that all pupils:
- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

In order for this to happen, children need to understand key mathematical words and phrases if they are to make good progress in their mathematics.

There are three main ways in which children's failure to understand mathematical vocabulary may show itself:
- children do not respond to questions in lessons
- they cannot do a task they are set
- they do poorly in tests.

Their lack of response may be because they:
- do not understand the spoken or written instructions, such as 'draw a line between…', 'ring…' or 'find two different ways to…'
- are not familiar with the mathematical vocabulary, that is, words such as 'difference', 'subtract', 'divide' or 'product'
- they may be confused about mathematical terms, such as 'odd' or 'table', which have different meanings in everyday English
- they may be confused about other words, like 'area' or 'divide', which are used in everyday English and have similar, though more precise, meanings in mathematics

There are, then, practical reasons why children need to acquire appropriate vocabulary so that they can participate in the activities, lessons and tests that are part of classroom life. There is, however, an even more important reason: mathematical language is crucial to children's development of thinking. If children don't have the vocabulary to talk about division, or perimeters, or numerical difference, they cannot make progress in understanding these areas of mathematical knowledge.

Children should be introduced to appropriate mathematical language in planning and teaching sequences. The following vocabulary checklists for each year group should be referred to as a core list of essential words and phrases but are not intended to be exhaustive. The lists have been extended from those provided by the National Numeracy Strategy to line up with the National Curriculum 2014. They are organised in four strands: Number, Measurement, Geometry and Statistics, using and applying is integrated throughout. In addition Year 6 has a section for Algebra and Ratio and proportion.

The words listed for each year include vocabulary from the previous year. Some words may appear under different strands in different years, as their meaning is expanded or made more specific.

Class teachers can use these lists to identify the vocabulary relating to a series of lessons they are planning. They can make provision for the introduction of new vocabulary and the consolidation of familiar terms. They can ask support staff and parents to emphasise this vocabulary for an appropriate period.

Spoken Language

The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

The National Curriculum sets out specific expectations in relation to the use of vocabulary and its link to spelling to be met at the end of Year 2, 4 and 6:

Years 1 and 2
Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Years 3 and 4
Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Years 5 and 6
Pupils should read, spell and pronounce mathematical vocabulary correctly.

The following words have been taken from the English spelling appendix and children should be able to spell these words correctly:

Years 3 and 4	favourite	often	Years 5 and 6
answer	February	opposite	average
calendar	forwards	popular	forty
centre	group	position	symbol
century	height	probably	twelfth
certain	increase	quarter	temperature
circle	length	regular	
complete	minute	straight	
different		weight	
eight/eighth			

Teachers often use informal, everyday language in mathematics lessons before or alongside technical mathematical vocabulary. Although this can help children to grasp the meaning of different words and phrases, a structured approach to the teaching and learning of vocabulary is essential if children are to move on and begin using the correct mathematical terminology.

New words should be introduced in a suitable context, if possible with relevant real objects, mathematical apparatus, pictures and/or diagrams. Explain their meanings carefully and rehearse them several times as referring to new words only once will do little to promote learning. Encourage their use in context in oral sessions, particularly through a range of open and closed questioning.

Use every opportunity to draw attention to new words or symbols with the whole class, in a group or when talking to individual pupils. The final stages are learning to read and write new mathematical vocabulary in a range of circumstances, ultimately spelling the relevant words correctly.

Regular, planned opportunities for development

All children throughout Key Stages 1 and 2 needs to experience a cycle of oral work, reading and writing.

They should have opportunities to:

- listen to adults and other children using the words correctly
- acquire confidence and fluency in speaking, using complete sentences that include the new words and phrases, sometimes in chorus with others and sometimes individually
- describe, define and compare mathematical properties, positions, methods, patterns, relationships, rules
- discuss ways of tackling a problem, collecting data, organising their work

- hypothesise or make predictions about possible results
- present, explain and justify their methods, results, solutions or reasoning, to the whole class or to a group or partner
- generalise, or describe examples that match a general statement

Reading aloud and silently, sometimes as a whole class and sometimes individually for example, reading:
- numbers, signs and symbols, expressions and equations in blackboard presentations
- instructions and explanations in workbooks, textbooks, CD-ROMs
- texts with mathematical references in fiction and non-fiction books and books of rhymes during the literacy hour as well as mathematics lessons
- labels and captions on classroom displays, in diagrams, graphs, charts and tables
- definitions in illustrated dictionaries, including dictionaries that they themselves have made, in order to discover synonyms, origins of words, words that start with the same group of letters (such as triangle, tricycle, triplet, trisect)

Writing and recording in a variety of ways, progressing from words phrases and short sentences to paragraphs and longer pieces of writing, for example:
- writing prose in order to describe, compare, predict, interpret, explain, justify…
- writing formulae, first using words, then symbols
- sketching and labelling diagrams in order to clarify their meaning
- drawing and labelling graphs, charts or tables, and interpreting and making predictions from the data in them, in mathematics and other subjects

The use of questions is crucial in helping children to understand mathematical terms correctly. Asking questions in different ways and asking a range of open and closed questions are all important. Closed questions allow children to practise number facts and will be asked more often than open questions which require a higher level of thinking and present the opportunity for children to explain their thinking.

YEAR 3

Numbers and Place Value	Estimating	Multiplication and division	Statistics	Time		General
Counting, properties of numbers and number sequences	guess how many, estimate	lots of, groups of ⬚, times, multiply, multiplication, multiplied by	count, tally, sort, vote	All days of the week	middle, edge	same, different
	nearly, roughly, close to		graph, block graph, pictogram	All months of the year	centre, corner	missing number/s
	approximate, approximately	multiple of, product	represent	All seasons	direction	number facts, number pairs, number bonds
Number, numerals	about the same as	once, twice, three times… ten times…	group, set	day, week, fortnight,	journey, route, map, plan	greatest value, least value
zero, one, two, three… to twenty and beyond	just over, just under	times as (big, long, wide… and so on)	list, chart, bar chart	month, year, century	left, right, up, down	number line, number track
zero, ten, twenty… one hundred	exact, exactly	repeated addition	table, frequency table	weekend, birthday, holiday	higher, lower	number square, hundred square
zero, one hundred, two hundred… one thousand	too many, too few, enough, not enough	array	Carroll diagram, Venn diagram	calendar, date	forwards, backwards, sideways	number cards
none	round (up or down)	row, column	label, title, axis, axes diagram	morning, afternoon, evening, night, midnight	across	number grid
how many…?	nearest, round to the nearest ten	double, halve	most popular, most common	am, pm	close, far, near	abacus
count, count (up) to		share, share equally	least popular, least common	bedtime, dinnertime, playtime	along, through	counters, cubes, blocks, rods
count on (from, to)		one each, two each, three each…		today, yesterday, tomorrow	to, from, towards, away from	die, dice
count back (from, to)	**Fractions**			before, after	ascend, descend	dominoes
count in multiples of …	part, equal parts	group in pairs	**Measurement**	next, last	grid, row, column	pegs, peg board
more, less, many, few	fraction	equal groups of	**Measures (general)**	now, soon, early, late, earliest, latest	clockwise, anti-clockwise	geo-strips
odd, even	one whole	divide, division, divided by	measure	quick, quicker, quickest, quickly	compass point	same way, different way
every other	one half, two halves		size		north, south, east, west	best way, another way
how many times?	one quarter, two…	remainder	compare	fast, faster, fastest	horizontal, vertical, diagonal	in order, in a different order
multiple of	three… four quarters	positive integer scaling	measuring scale, division	slow, slower, slowest, slowly	movement	not
sequence	one third, two thirds, three thirds	problem	guess, estimate	old, older, oldest	slide, roll	all, every, each
continue	one tenth		enough, not enough	new, newer, newest	whole turn, half turn, quarter turn	
predict, pattern, pair, rule	unit, non-unit fraction	**Making decisions and reasoning**	too much, little, many, few	takes longer, takes less time	angle, …is a greater/smaller angle than	
relationship	denominator	pattern, puzzle	nearly, roughly, about, close to,	how long ago? how long will it be to…?	right angle	
		calculate, calculation	about the same as, approximately	how long will it take to…?	straight line	
Place value and ordering	**Calculations**	mental calculation	just over, just under		stretch, bend	
units, ones, tens, hundreds	**Addition and subtraction**	method		hour, minute, second		
digit	⬚, add, addition, more, plus	jotting	**Length**	o'clock, half past,	**Geometry – shape**	
one-, two- or three-digit number	make, sum, total	answer	length, width, height, depth	quarter to, quarter past	shape, pattern	
'teens' number	altogether	right, correct, wrong	long, short, tall, high, low	clock, watch, hands	flat, curved, straight	
place, place value	score	what could we try next?	wide, narrow, deep, shallow, thick, thin	digital/analogue clock/watch, timer	round	
stands for, represents	double, near double	how did you work it out?		how often?	hollow, solid	
	one more, two more…	number sentence			point, pointed	
	ten more… one hundred more	sign, operation, symbol,			face, side, edge, end	
					sort	

exchange the same number as, as many as equal to Of **two** objects/amounts: greater, more, larger, bigger less, fewer, smaller Of **three** or more objects/amounts: greatest, most, biggest, largest least, fewest, smallest one, ten, one hundred more than one, ten, one hundred less than compare, order, size first, second, third… tenth… twentieth twenty-first, twenty-second… last, last but one before, after, next between, half-way between	how many more to make…? how many more is… than…? how much more is…? ⬜⬜⬜subtract, subtraction, take (away), minus leave, how many are left/left over? one less, two less… ten less… one hundred less how many fewer is… than…? how much less is…? difference between half, halve ⬜⬜⬜equals, sign, is the same as tens boundary, hundreds boundary columnar addition and subtraction	equation **Money** money coin, note penny, pence, pound (£) price, cost buy, bought, sell, sold spend, spent pay change dear, costs more, more/most expensive cheap, costs less, cheaper, less/least expensive how much…? how many…? total, amount value, worth	longer, shorter, taller, higher… longest, shortest, tallest, highest… and so on far, further, furthest, near, close distance apart/between, distance to… from… kilometre (*km*), metre (*m*), centimetre (*cm*) mile ruler, metre stick, tape measure **Mass** weigh, weighs, balances heavy/light, heavier/lighter, heaviest/lightest kilogram (*kg*), half-kilogram, gram (*g*) balance, scales, weight **Capacity** capacity full, half full, empty holds, contains litre (*l*), half-litre, millilitre (*ml*) container	always, never, often, sometimes, usually once, twice **Patterns and symmetry** size bigger, larger, smaller symmetrical line of symmetry fold, match mirror line, reflection pattern repeating pattern **Geometry - Position** position over, under, underneath above, below top, bottom, side on, in outside, inside, around in front, behind front, back before, after beside, next to opposite, apart, between	make, build, draw surface right-angled vertex, vertices layer, diagram **3D shapes** Cube, cuboid pyramid sphere, hemi-sphere cone cylinder prism **2D shapes** circle, circular, semi-circle triangle, triangular square rectangle, rectangular star pentagon, pentagonal hexagon, hexagonal octagon, octagonal quadrilateral	

YEAR 4

Numbers and place value		Multiplication and division	Making decisions and reasoning
Place value, ordering and rounding	sequence	lots of, groups of	pattern, puzzle
units, ones, tens, hundreds, thousands, ten thousand, hundred thousand, million	continue	times, multiply, multiplication, multiplied by	calculate, calculation
	predict	multiple of, product	mental calculation
digit, one-, two-, three- or four-digit number	pattern, pair, rule	once, twice, three times… ten times…	method
numeral	relationship	times as (big, long, wide… and so on)	jotting
'teens' number	sort, classify, property	repeated addition	answer
place, place value		array	right, correct, wrong
stands for, represents	**Number - Fractions and decimals**	row, column	what could we try next?
equal to	part, equal parts	double, halve	how did you work it out?
exchange	fraction	share, share equally	number sentence
the same number as, as many as	denominator	one each, two each, three each…	sign, operation, symbol, equation
Of **two** objects/amounts:	numerator	group in pairs, threes… tens	
>, greater than, more than, larger than, bigger than	unit, non-unit fraction	equal groups of	**Money**
<, less than, fewer than, smaller than	one whole	divide, division, divided by, divided into	money
Of **three** or more objects/amounts:	half, quarter, eighth	remainder	coin, note
greatest, most, largest, biggest	ones, tenth, hundredth	factor, quotient, divisible by	penny, pence, pound (£)
least, fewest, smallest	third, sixth	inverse	price, cost
one… ten… one hundred… one thousand more/less	fifth, tenth, twentieth	scaling	buy, bought, sell, sold
compare, order, size	proportion, in every, for every		spend, spent
first… tenth… twentieth	decimal, decimal fraction		pay
last, last but one	decimal equivalent		change
before, after, next	decimal point, decimal place		dear, costs more, more/most expensive
between, half-way between			cheap, costs less, cheaper, less/least expensive
guess how many, estimate	**Calculations**		how much…? how many…?
nearly, roughly, close to, about the same as	**Addition and subtraction**		total, amount
approximate, approximately	add, addition, more, plus, increase		value, worth
just over, just under	sum, total, altogether		
exact, exactly	score		**Statistics**
too many, too few, enough, not enough	double, near double		count, tally, sort, vote
round (up or down), nearest	how many more to make…?		survey, questionnaire, data
round to the nearest ten	subtract, subtraction, take (away), minus, decrease		graph, block graph, pictogram
round to the nearest hundred	leave, how many are left/left over?		represent
integer, positive, negative	difference between		group, set
above/below zero, minus	half, halve		list, chart, bar chart, tally chart
Roman numerals to 100	how many more/fewer is… than…?		table, frequency table
	how much more/less is…?		Carroll diagram, Venn diagram
Properties of numbers and number sequences	equals, sign, is the same as		label, title, axis, axes
number, count, how many…?	tens boundary, hundreds boundary		diagram
odd, even	inverse		most popular, most common
how many times?	columnar addition and subtraction		least popular, least common
multiple of			
digit			
next, consecutive			

Measurement	Area	Geometry – Shape	Geometry - position	General
Measures (general)	area, covers, surface	shape, pattern	over, under, underneath	same, different
	square centimetre (*cm2*)	flat, line	above, below, top, bottom, side	missing number/s
measure, measurement	perimeter	curved, straight, round	on, in, outside, inside, around	number facts, number pairs, number
size	**rectilinear**	point, pointed	in front, behind, front, back	bonds
compare		face, side, edge, surface	before, after, beside, next to	greatest value, least value
unit, standard unit		sort	opposite, apart	number line, number track
metric unit, imperial unit	**Time**	make, build, construct, draw, sketch	between, middle, edge, centre	number square, hundred square
measuring scale, division	time	centre, radius, diameter	corner	number cards, number grid
guess, estimate	days of the week: Monday, Tuesday…	net	direction	abacus
enough, not enough	months of the year: January, February…	angle, right-angled	journey, route, map, plan	counters, cubes, blocks, rods
too much, too little	seasons: spring, summer, autumn, winter	base, square-based	left, right	die, dice
too many, too few	day, week, fortnight, month	vertex, vertices	up, down, higher, lower	dominoes
nearly, roughly, about, close to	year, leap year, century, millennium	layer, diagram	forwards, backwards, sideways,	pegs, peg board, pin board
about the same as, approximately	weekend, birthday, holiday	regular, irregular	across	geo-strips
just over, just under	calendar, date, date of birth	concave, convex	close, far, near	same way, different way
	morning, afternoon, evening, night	open, closed	along, through, to, from, towards,	best way, another way
	am, pm, noon, midnight	geometric shapes	away from	in order, in a different order
Length	today, yesterday, tomorrow	acute, obtuse	ascend, descend	not
length, width, height, depth, breadth	before, after, next, last	regular, irregular	grid	all, every, each
long, short, tall, high, low	now, soon, early, late, earliest, latest	polygon	row, column	
wide, narrow, deep, shallow, thick, thin	quick, quicker, quickest, quickly		origin, coordinates	
longer, shorter, taller, higher… and so on	fast, faster, fastest, slow, slower, slowest,	**3D Shapes**	clockwise, anti-clockwise	
longest, shortest, tallest, highest… and so	slowly	3D, three-dimensional	compass point, north, south, east,	
on	old, older, oldest, new, newer, newest	Cube, cuboid	west (N, S, E, W)	
far, further, furthest, near, close	takes longer, takes less time	pyramid	north-east, north-west, south-east,	
distance apart/between, distance to…	how long ago? how long will it be to…?	sphere, hemi-sphere, spherical	south-west	
from…	how long will it take to…?	cone	(NE, NW, SE, SW)	
edge, perimeter	timetable, arrive, depart	cylinder, cylindrical	horizontal, vertical, diagonal	
kilometre (*km*), metre (*m*)	hour, minute, second	prism	movement	
centimetre (*cm*), millimetre (*mm*)	o'clock, half past, quarter to, quarter past	tetrahedron, polyhedron	slide, roll	
mile	clock, watch, hands		whole turn, half turn, quarter turn,	
ruler, metre stick, tape measure	digital/analogue clock/watch, timer	**2D Shapes**	rotate	
	how often?	2D, two-dimensional	angle, …is a greater/smaller angle	
Mass	always, never, often, sometimes, usually	circle, circular, semi-circle	than	
mass: big, bigger, small, smaller, balances	Roman numerals	triangle, triangular	right angle	
weight: heavy/light, heavier/lighter,		equilateral triangle, isosceles triangle	degree	
heaviest/lightest		square, rectangle, rectangular, oblong	straight line	
weigh, weighs		pentagon, pentagonal, hexagon, hexagonal	stretch, bend	
kilogram (*kg*), half-kilogram, gram (*g*)		heptagon, octagon, octagonal	ruler, set square	
balance, scales		polygon, quadrilateral, parralellogram	angle measurer, compasses	
		rhombus, trapezium	quadrant	
Capacity				
capacity		**Patterns and symmetry**		
full, half full		bigger, larger, smaller		
empty		symmetrical		
holds, contains		line of symmetry, line symmetry		
litre (*l*), half-litre, millilitre (*ml*)		fold, match		
pint		mirror line, reflection, reflect		
container, measuring cylinder		pattern, repeating pattern, translation		

YEAR 5

Numbers and place value	Properties of numbers and umber sequences	how much more/less is…?	Money	Length	weekend, birthday, holiday
Place value ordering and rounding	**sequences**	equals, sign, is the same as	Money, coin, note	length, width, height, depth, breadth	calendar, date, date of birth
units, ones, tens, hundreds, thousands	number, count, how many…?	tens boundary, hundreds boundary	penny, pence, pound (£)	long, short, tall, high, low	morning, afternoon, evening, night
ten thousand, hundred thousand, million	odd, even	units boundary, tenths boundary	price, cost, buy, bought, sell, sold	wide, narrow, deep, shallow, thick, thin	am, pm, noon, midnight
digit, one-, two-, three- or four-digit number	every other	inverse	spend, spent	longer, shorter, taller, higher… and so on	today, yesterday, tomorrow
numeral	how many times?	**columnar addition, subtraction**	pay	longest, shortest, tallest, highest… and so on	before, after, next, last
'teens' number	multiple of		change	far, further, furthest, near, close	now, soon, early, late, earliest, latest
place, place value	digit	**Multiplication and division**	dear, costs more, more/most expensive	distance apart/between, distance to… from…	quick, quicker, quickest, quickly
stands for, represents	next, consecutive	lots of, groups of	cheap, costs less, cheaper, less/least expensive	edge, perimeter	fast, faster, fastest, slow, slower, slowest, slowly
exchange	sequence	times, multiply, multiplication, multiplied by	how much…? how many…?	kilometre (*km*), metre (*m*)	takes longer, takes less time
the same number as, as many as	continue	multiple of, product	total, amount, value, worth	centimetre (*cm*), millimetre (*mm*)	how long ago? how long will it be to…?
equal to	predict	once, twice, three times… ten times…	discount	inches, mile	how long will it take to…?
Of **two** objects/amounts:	pattern, pair, rule	times as (big, long, wide… and so on)	currency	ruler, metre stick, tape measure	timetable, arrive, depart
>, greater than, more than, larger than, bigger than	relationship	repeated addition			hour, minute, second
<, less than, fewer than, smaller than	sort, classify, property	array	**STATISTICS**		o'clock, half past, quarter to, quarter past
▯, greater than or equal to	formula	row, column	count, tally, sort, vote	**Mass**	clock, watch, hands
▯, less than or equal to	divisible (by), divisibility, factor	double, halve	survey, questionnaire	mass: big, bigger, small, smaller, balances	digital/analogue clock/watch, timer
Of **three** or more objects/amounts:	square number	share, share equally	data, database	weight: heavy/light, heavier/lighter, heaviest/lightest	24-hour clock, 12-hour clock
greatest, most, largest, biggest	one squared, two squared… (12, 22…)	one each, two each, three each…	graph, block graph, line graph	weigh, weighs	how often?
least, fewest, smallest		group in pairs, threes… tens	pictogram,	kilogram (*kg*), half-kilogram, gram (*g*)	always, never, often, sometimes, usually
one… ten… one hundred… one thousand more/less	**Number – Fractions, decimals, percentages, ratio and proportion**	equal groups of	represent	balance, scales	
compare, order, size	part, equal parts	divide, division, divided by, divided into	group, set		
ascending/descending order	fraction, proper/improper fraction	remainder	list, chart, bar chart, bar line chart	**Capacity**	
first… tenth… twentieth	mixed number	factor, quotient, divisible by	tally chart	full, half full, empty	
last, last but one	numerator, denominator	inverse	table, frequency table	holds, contains	
before, after, next	equivalent, reduced to, cancel	**prime number**	Carroll diagram, Venn diagram	litre (*l*), half-litre, millilitre (*ml*)	
between, half-way between	one whole	**prime factor**	label, title, axis, axes	pint, gallon	
guess how many, estimate	half, quarter, eighth	**composite number**	diagram	container, measuring cylinder	
nearly, roughly, close to, about the same as	third, sixth, ninth, twelfth	**square number**	most popular, most common		
approximate, approximately	fifth, tenth, twentieth, hundredth	**cubed number**	least popular, least common	**Area**	
▯, is approximately equal to	proportion, ratio		mode, range	area, covers, surface	
just over, just under	in every, for every	**Making decisions and reasoning**	maximum/minimum value	square centimetre (*cm2*), square metre (*m2*)	
exact, exactly	to every, as many as	pattern, puzzle	classify, outcome	square millimetre (*mm2*)	
too many, too few, enough, not enough	decimal, decimal fraction	calculate, calculation			
round (up or down), nearest	decimal point, decimal place	mental calculation	**Measurement**	**Time**	
round to the nearest ten/hundred	percentage, per cent, %	method, strategy	**Measure (general)**	days of the week: Monday, Tuesday…	
round to the nearest thousand		jotting	measure, measurement	months of the year: January, February…	
integer, positive, negative	**Calculations**	answer	size	seasons: spring, summer, autumn, winter	
above/below zero, minus	**Addition and subtraction**	right, correct, wrong	compare	day, week, fortnight, month	
Roman numerals to 1000(m)	add, addition, more, plus, increase	what could we try next?	unit, standard unit	year, leap year, century, millennium	
	sum, total, altogether, score	how did you work it out?	metric unit, imperial unit		
	double, near double	number sentence	measuring scale, division		
	how many more to make…?	sign, operation, symbol, equation	guess, estimate		
	subtract, subtraction, take (away), minus, decrease		enough, not enough		
	leave, how many are left/left over?		too much, too little		
	difference between		too many, too few		
	half, halve		nearly, roughly, about, close to		
	how many more/fewer is…		about the same as, approximately		
			just over, just under		

Geometry Shape	**2D Shapes**	movement
shape, pattern	2D, two-dimensional	slide, roll
flat, line, curved, straight	circle, circular, semi-circle	whole, half quarter turn
round	triangle, triangular	rotate, rotation
hollow, solid	equilateral triangle, isosceles triangle, scalene triangle	reflection
corner	square	angle, …is a greater/smaller
point, pointed	rectangle, rectangular, oblong	right angle, acute, obtuse
face, side, edge, end	pentagon, pentagonal	degree
sort	hexagon, hexagonal	straight line
make, build, construct, draw, sketch	heptagon	ruler, set square
centre, radius, diameter	octagon, octagonal	angle measurer, compasses, protractor
net	polygon	
surface	quadrilateral	**General**
angle, right-angled		same, different
congruent	**Patterns and symmetry**	missing number/s
base, square-based	bigger, larger, smaller	number facts, number pairs, number bonds
vertex, vertices	symmetrical	greatest value, least value
layer, diagram	line of symmetry, axis of symmetry	number line, number track
regular, irregular	line, reflective symmetry	number square, hundred square
concave, convex	fold, match	number cards, number grid
open, closed	mirror line, reflection, reflect	abacus
degree	pattern, repeating pattern, translation	counters, cubes, blocks, rods
		die, dice, spinner
3D Shapes	**Geometry - position**	dominoes
3D, three-dimensional	over, under, underneath	pegs, peg board, pin board
cube, cuboid	above, below, top, bottom, side	geo-strips
pyramid	on, in, outside, inside, around	same way, different way
sphere, hemi-sphere, spherical	in front, behind, front, back	best way, another way
cone	before, after, beside, next to	in order, in a different order
cylinder, cylindrical	opposite, apart	not
prism	between, middle, edge, centre	all, every, each
tetrahedron, polyhedron, octahedron	direction	
	journey, route, map, plan	
	left, right	
	up, down, higher, lower	
	forwards, backwards, sideways, across	
	close, far, near	
	along, through, to, from, towards, away from	
	ascend, descend	
	grid, row, column	
	origin, coordinates	
	clockwise, anti-clockwise	
	compass point, north, south, east, west (N, S, E, W)	
	north-east, north-west, south-east, south-west	
	(NE, NW, SE, SW)	
	horizontal, vertical, diagonal	
	parallel, perpendicular	
	x-axis, y-axis	
	quadrant	

YEAR 6

Numbers and place value	next, consecutive	boundary	Statistics
Place value, ordering and rounding	sequence	units boundary, tenths boundary	count, tally, sort, vote
units, ones, tens, hundreds, thousands	continue	inverse	survey, questionnaire
ten thousand, hundred thousand, million	predict	**columnar addition and subtraction**	data, database
digit, one-, two-, three- or four-digit number	pattern, pair, rule		graph, block graph, line graph
numeral	relationship	**Multiplication and division**	pictogram,
'teens' number	sort, classify, property	lots of, groups of	represent, group, set
place, place value	formula	times, multiply, multiplication, multiplied by	list, chart, bar chart, bar line
stands for, represents	divisible (by), divisibility, factor, factorise	long multiplication	tally chart
exchange	square number	multiple of, product	table, frequency table
equal to	one squared, two squared… (12, 22…)	once, twice, ten times…	Carroll diagram, Venn diagram
Of **two** objects/amounts:	prime, prime factor	times as (big, long, wide…	label, title, axis, axes
>, greater than, more than, larger than, bigger than		repeated addition	diagram
<, less than, fewer than, smaller than	**Number – Fractions, decimals, percentages, ratio and**	array, row, column	most popular, most common
🗌, greater than or equal to	**proportion**	double, halve	least popular, least common
🗌, less than or equal to	part, equal parts	share, share equally	mode, range, mean, average, median
Of **three** or more objects/amounts:	fraction, proper/improper fraction	one each, two each..	statistics, distribution
greatest, most, largest, biggest	mixed number	group in pairs, threes… tens	maximum/minimum value
least, fewest, smallest	numerator, denominator	equal groups of	classify, outcome
one… ten… one hundred… one thousand more/less	equivalent, reduced to, cancel	divide, division, divided by, divided into	
compare, order, size	one whole	long division	Measurement (General)
ascending/descending order	half, quarter, eighth	remainder	measure, measurement
first… tenth… twentieth	third, sixth, ninth, twelfth	factor, quotient, divisible by	size
last, last but one	fifth, tenth, twentieth	inverse	compare
before, after, next	hundredth, thousandth	factor	unit, standard unit
between, half-way between	proportion, ratio		metric unit, imperial unit
guess how many, estimate	in every, for every	**Solving Problems**	measuring scale, division
close to, about the same as	to every, as many as	pattern, puzzle	guess, estimate
approximate, approximately	decimal, decimal fraction	calculate, calculation	enough, not enough
is approximately equal to	decimal point, decimal place	mental calculation	too much, too little
just over, just under	percentage, per cent, %	method, strategy	too many, too few
exact, exactly	integer	jotting, answer	nearly, roughly, about, close to
too many, too few, enough, not enough	scale factor	right, correct, wrong	about the same as, approximately
round (up or down), nearest	pie charts	what could we try next?	just over, just under
round to the nearest ten/hundred/thousand		how did you work it out?	
integer, positive, negative	**Calculations**	number sentence	Length
above/below zero, minus	**Addition and subtraction**	sign, operation, symbol, equation	length, width, height, depth, breadth
	add, addition, more, plus, increase		long, short, tall, high, low
Properties of numbers and number sequences	sum, total, altogether	**Money**	wide, narrow, deep, shallow, thick, thin
number, count, how many…?	double, near double	Money, coin, note	longer, shorter, taller, higher…
odd, even	how many more to make…?	penny, pence, pound (£)	longest, shortest, tallest, highest…
every other	subtract, subtraction, take (away), minus, decrease	price, cost	far, further, furthest, near, close
how many times?	leave, how many are left/left over?	buy, bought, sell, sold	distance apart/between, distance to… from…
multiple of	difference between	spend, spent	edge, perimeter, circumference
digit	half, halve	pay, change	kilometre (km), metre (m)
	how many more/fewer is… than…?	dear, costs more, more/most expensive	centimetre (cm), millimetre (mm)
	how much more/less is…?	cheap, costs less, cheaper, less/least expensive	mile, yard, feet, foot, inch
	equals, sign, is the same as	how much…? how many…?	ruler, metre stick, tape measure, compasses
	tens boundary, hundreds	total, amount, value, worth	cubic mm, cm, m, Km
		discount, profit, loss	
		currency	

Year 6

Mass	Geometry - shape	Patterns and symmetry	General
mass: big, bigger, small, smaller, balances	shape, pattern	size	same, identical, different
weight: heavy/light, heavier/lighter, heaviest/lightest	flat, line	bigger, larger, smaller	missing number/s
weigh, weighs	curved, straight	symmetrical	number facts, number pairs, number bonds
tonne, kilogram (*kg*), half-kilogram, gram (*g*)	round	line of symmetry, axis of symmetry	greatest value, least value
pound (*lb*), ounce (*oz*)	hollow, solid	line symmetry, reflective symmetry, fold	number line, number track
balance, scales	point, pointed	match	number square, hundred square
	face, side, edge, end	mirror line, reflection, reflect	number cards, number grid
Capacity	make, build, construct, draw, sketch, sort	pattern, repeating pattern, translation	abacus
full, half full, empty	centre, radius, diameter		counters, cubes, blocks, rods
holds, contains	circumference, concentric, arc	**Geometry - position**	die, dice, spinner
litre (*l*), half-litre, centilitre (*cl*), millilitre (*ml*)	net	over, under, underneath	dominoes
pint, gallon	surface	above, below, top, bottom, side	pegs, peg board, pin board
container, measuring cylinder	angle, right-angled	on, in, outside, inside, around	geo-strips
	congruent	in front, behind, front, back	same way, different way
Area	intersecting, intersection	before, after, beside, next to	best way, another way
area, covers, surface	plane	opposite, apart	in order, in a different order
square centimetre (*cm2*), square metre (*m2*)	base, square-based	between, middle, edge, centre	not
square millimetre (*mm2*)	vertex, vertices	direction	all, every, each
perimeter	layer, diagram	journey, route, map, plan	
Time	regular, irregular	left, right	
All days of the week	concave, convex	up, down, higher, lower	
All months of the year	open, closed	forwards, backwards, sideways, across	
All seasons	tangram	close, far, near	
day, week, fortnight, month	**geometric**	along, through, to, from, towards, away from	
year, leap year, century, millennium		ascend, descend	
weekend, birthday, holiday	**3D Shapes**	grid, row, column	
calendar, date, date of birth	3D, three-dimensional	origin, coordinates	
morning, afternoon, evening, night	cube, cuboid	clockwise, anti-clockwise	
am, pm, noon, midnight	pyramid	compass point, north, south, east, west (N, S, E, W)	
today, yesterday, tomorrow	sphere, hemi-sphere, spherical	north-east, north-west, south-east, south-west	
before, after, next, last	cone	(NE, NW, SE, SW)	
now, soon, early, late, earliest, latest	cylinder, cylindrical	horizontal, vertical, diagonal	
quick, quicker, quickest, quickly	prism	parallel, perpendicular	
fast, faster, fastest, slow, slower, slowest, slowly	tetrahedron, polyhedron, octahedron, dodecahedron	x-axis, y-axis	
old, older, oldest, new, newer, newest		quadrant	
takes longer, takes less time		movement	
how long ago? how long until?	**2D Shapes**	slide, roll	
timetable, arrive, depart	2D, two-dimensional	whole turn, half turn, quarter turn, rotate, rotation	
hour, minute, second	circle, circular, semi-circle	angle, ...is a greater/smaller	
o'clock, half past, quarter to, quarter past	triangle, triangular	right angle, acute, obtuse, reflex	
clock, watch, hands	equilateral triangle, isosceles triangle, scalene triangle	degree	
digital/analogue clock/watch	square, rhombus	straight line	
24-hour clock, 12-hour clock	rectangle, rectangular, oblong	ruler, set square	
Greenwich Mean Time, British Summer Time	pentagon, pentagonal	angle measurer, compasses, protractor	
	hexagon, hexagonal		
	heptagon		
	octagon, octagonal		
	polygon		
	quadrilateral, kite, parallelogram, trapezium		