

Vocabulary Progression



'There is an association between the quality and frequency of mathematical language used by carers, parents and teachers as they interact with young children, and children's development in important aspects of maths.'

Dunphy et al (2014)

Language is essential to the learning of mathematics. It provides a means for learners to express their understanding, negotiate meanings, to develop their thinking further and to share their findings with others. Language is necessary for the transition of problems between the real world of mathematics and mediates between the teacher and learner and between learners. It helps to expose understanding and develop meaning.

It is important to introduce children to the correct vocabulary at the appropriate time and within a suitable context. This should be done using relevant real-life objects, mathematical manipulatives and visual representations such as pictures and diagrams.

All children need regular, planned opportunities to develop their mathematical vocabulary in order that they become familiar with the language and are not confused by mathematical terms.

The Vocabulary Progression document provides a reference to support teachers in identifying the words that the children need to understand and use in order to make good progress in mathematics.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<u>Reasoning and Problem Solving Language</u>					
problem, problem solving mental, mentally explain your thinking	show how you ... explain your method describe the pattern describe the rule investigate mental calculation written calculation	greatest value, least value statement systematic	justify make a statement		
<u>Number and Place Value</u>					
Numeral twenty-one, twenty-two ... one hundred forwards backwards equal to equivalent to most, least many multiple of half-way between above, below	two hundred ... one thousand threes, fours and so on Tally sequence continue predict rule > greater than < less than hundreds	eights, fifties and so on to hundreds factor of Relationship Roman numerals one hundred more one hundred less approximate, approximately round, nearest, round to the nearest ten, hundred	ten thousand, hundred thousand, million sixes, sevens, nines, twenty-fives next, consecutive integer, positive above/below zero, minus one thousand more one	factorise prime factor formula divisibility square number prime number ascending/descending order \geq greater than or equal to \leq less than or equal	

roughly	one-, two- or three-digit number place, place value stands for, represents exchange twenty-first, twenty-second ... exact, exactly	round up, round down consecutive	Thousand less Thousand	to cardinal number negative numbers (<i>following White Rose Version 3, negative numbers are officially introduced in Year 5</i>)	
<u>Addition and Subtraction</u>					
Addition near double half, halve subtract equals is the same as number bonds/pairs missing number	one hundred more one hundred less Facts tens	hundreds exchange estimate inverse operation 3 digit complements to 100	Thousands 4 digit		
<u>Multiplication and Division</u>					
multiplication multiply multiplied by multiple division dividing Grouping	groups of times once, twice, three times ... ten times repeated addition divide, divided by, divided into	Factor Product Remainder Divisor Dividend	Factor pair	Common multiple Common factor square, squared cube, cubed factor pair common factor	Long division

array	share, share equally left, left over one each, two each, three each ... ten each group in pairs, threes ... tens equal groups of Row, column multiplication table multiplication fact, division fact				
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Fractions

fraction equal part equal grouping equal sharing one of two equal parts one of four equal parts whole	equivalent fraction mixed number numerator, denominator two halves two quarters, three quarters one third, two thirds one of three equal parts unit fractions non unit fractions	sixths, sevenths, eighths, tenths ...	hundredths decimal, decimal fraction, decimal point, decimal place, decimal equivalent proportion convert	equivalent, reduced to, cancel mixed number improper fraction	
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<u>Decimals and Percentages</u>					
			decimal point, decimal place,	Percentage, per cent, %	
<u>Algebra</u>					
					formulae equation unknown variable
<u>Measure</u>					
Measurement Roughly Centimetre, ruler metre stick kilogram, half kilogram litre, half litre capacity volume more than less than quarter full	measuring scale further, furthest, tape measure Gram Millilitre Contains temperature degree conjecture	Division Approximately Millimetre, kilometre, mile distance apart ... between ... to ... from perimeter Centigrade	unit, standard unit metric unit Breadth edge area, covers square centimetre cm ² , mass: big, bigger, small, smaller weight: heavy/light, heavier/lighter, heaviest/ lightest	imperial unit Pint Gallon yard, foot, feet, inch, inches Tonne,pound,ounce square metre (m ²), square millimetre (mm ²) square metre (m ²)	centilitre cubic centimetres (cm ³), cubic metres (m ³),cubic millimetres (mm ³), cubic kilometres(km ³) circumference volume of a cuboid mph m/s km/h speed

			measuring cylinder		
Measure: Time					
months of the year (January, February ...) seasons: spring, summer, autumn, winter day, week, weekend, month, year earlier, later First midnight date how long ago? how long will it be to ...? how long will it take to ...? how often? always, never, often, sometimes usually once, twice half past, quarter past, quarter to Clock face	Fortnight, 5, 10, 15 ... minutes past digital/analogue clock/watch, timer Seconds	Century Calendar, earliest, latest a.m., p.m. Roman numerals 12-hour clock time, 24-hour clock time convert noon midnight duration	leap year, Millennium date of birth timetable, arrive, depart		Greenwich Mean Time, British Summer Time, International Date Line

hour hand, minute hand hours, minutes					
<u>Measure: Money</u>					
change dear, costs more cheap, costs less, cheaper costs the same as how much ...? how many ...? total	Bought, Sold				Profit/Loss
<u>Geometry</u>					
Symmetry, symmetrical pattern point, pointed Cuboid Cylinder Underneath Centre Journey quarter turn, three-quarter turn	Surface line symmetry rectangular, circular, triangular pentagon hexagon octagon Route higher, lower clockwise, anticlockwise right angle	Perimeter Pentagonal Hexagonal octagonal quadrilateral right-angled parallel, perpendicular Hemisphere prism, triangular prism compass point	Line Construct, Sketch Centre angle, right-angled base, square- based reflect, reflection regular, irregular 2-D, two- dimensional oblong	Octahedron net, open, closed Protractor Reflex angle maximum/minimum value outcome axis of symmetry, reflective symmetry Congruent radius, diameter	Dodecahedron circumference, concentric, Arc intersecting, intersection plane

	<p>straight line Carroll diagram</p>	<p>north, south, east, west, N, S, E, W horizontal, vertical, diagonal angle ... is a greater/smaller angle than acute angle obtuse angle</p>	<p>rectilinear equilateral triangle, isosceles triangle, scalene triangle Heptagon parallelogram, rhombus, trapezium polygon 3-D, three- dimensional Spherical Cylindrical tetrahedron, polyhedron north-east, north- west, south-east, south-west, NE, NW, SE, SW translate, translation rotate, rotation Degree Reflection ruler, set square angle measurer, compass</p> <p>Coordinate</p>		
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			x-axis, y-axis, quadrant		
Statistics					
Vote Table	Tally graph, block graph, pictogram represent label, title most popular, most common least popular, least common, scale	chart, bar chart, frequency table Carroll diagram, Venn diagram axis, axes diagram interpret key data category	survey, questionnaire, data	Pie chart database	mean (mode, median, range as estimates for this) average statistics, distribution