



Thorngumbald Primary School Mathematics Progression Ladder



Number & Place Value						
Counting						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Children can verbally count beyond 20, recognising the pattern of the counting system. Children can say which number is one more or one less than a given number.	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. Given a number, identify one more and one less.	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.	Count backwards through zero to include negative numbers. Count in multiples of 6, 7, 9, 25 and 1000. Find 1000 more or less than a given number.	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.	Use negative numbers in context, and calculate intervals across zero.
Comparing Numbers						
Compare quantities up to 10 and use the language of greater than, less than or the same as.	Use the language of: equal to, more than, less than (fewer), most, least	Compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs.	Compare and order numbers up to 1000.	Order and compare numbers beyond 1000	Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.	Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.
Identifying, Representing & Estimating Numbers						
Subitise up to 5 Link the number with its cardinal number value.	Identify and represent numbers using objects and pictorial representations including the number line	Identify, represent and estimate numbers using different representations, including the number line.	Identify, represent and estimate numbers using different representations.	Identify, represent and estimate numbers using different representations.		



Thorngumbald Primary School
Mathematics Progression Ladder



Reading & Writing Numbers (including Roman Numerals)						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place the numbers 1 -20 in order.	Read and write numbers from 1 to 20 in numerals and words.	Read and write numbers to at least 100 in numerals and in words.	Read and write numbers up to 1000 in numerals and in words.	Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.
Understanding Place Value						
		Recognise the place value of each digit in a two-digit number (tens, ones).	Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).	Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).	Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.	Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.
Rounding						
				Round any number to the nearest 10, 100 or 1000.	Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.	Round any whole number to a required degree of accuracy.
Problem Solving						
		Use place value and number facts to solve problems.	Solve number problems and practical problems involving these ideas.	Solve number and practical problems that involve all of the Year 4 Number and Place Value statements and with increasingly large positive numbers.	Solve number problems and practical problems that involve all of the Year 5 Number and Place Value statements.	Solve number and practical problems that involve all of the above.



Thorngumbald Primary School
Mathematics Progression Ladder



Number and Place Value Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
10's frame Subitise One more One less Place Order Number Count Numbers up to twenty Number line Pictorial Answer Equals Read Write Odd Even Number patterns	Same as EYFS plus the following: Forwards Backwards Numerals Words Multiples Equal to More than Less than Fewer Most Least Identify Represent Digit Calculate Odd Even Pattern Numbers up to one hundred	Same as EYFS & Year 1 plus the following: Ones Tens Two- digit Estimate Place Value Solve Problems Greater than > Less than < Nearest ten Number facts Partition Count in steps Zero Compare Determine Value	Same as EYFS & KS1 plus the following: Hundreds Three-digit ten more one hundred more ten less one hundred less Roman numeral Numbers up to one thousand	Same as previous year groups plus: Thousands Four- digit Negative number One thousand more One thousand less Decimal Decimal place Rounding Place holder Nearest ten Nearest hundred Nearest thousand One place Whole number Integer Tenths Hundredths	Same as previous year groups plus: Ten thousands Hundred thousands Millions Context Steps of powers Decimal equivalents Two decimal places Thousandths Numbers up to one million	Same as previous year groups plus: Intervals across zero Three decimal places Hundredths Thousandths Ten thousandths Numbers up to ten million



Thorngumbald Primary School
Mathematics Progression Ladder



Number: Addition & Subtraction						
Number Bonds						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Represent and use number bonds and related subtraction facts within 20.	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.				
Mental Calculation						
Understanding of the composition of 10 including number bonds Automatically recall number bonds to 5 (including subtraction facts) and some number bonds to 10, including double facts Can count on and count back to find an answer.	Add and subtract one-digit and two-digit numbers to 20, including zero. Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) sign	Add and subtract numbers using concrete objects, pictorial illustrations, and mentally, including: - A two-digit number and ones. - A two-digit number and tens. - Adding three one-digit numbers. - Two two-digit numbers. Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.	Add and subtract numbers mentally, including: a three-digit number and ones. Add and subtract numbers mentally, including: a three-digit number and tens. Add and subtract numbers mentally, including: a three-digit number and hundreds..		Add and subtract numbers mentally with increasingly large numbers.	Perform mental calculations, including with mixed operations and large numbers. Use their knowledge of the order of operations to carry out calculations involving the four operations.



Thorngumbald Primary School Mathematics Progression Ladder



Written Methods						
Automatically recall number bonds to 5 (including subtraction facts) and some number bonds to 10, including double facts	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) sign		Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).	
Inverse operations, estimating and checking answers						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Estimate the answer to a calculation and use inverse operations to check answers.	Estimate and use inverse operations to check answers to a calculation.	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
Addition & Subtraction: Problem Solving						
Automatically recall number bonds to 5 (including subtraction facts) and some number bonds to 10, including double facts	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \underline{\quad} - 9$.	Solve problems with addition and subtraction: applying their increasing knowledge of mental and written methods. Solve problems with addition and subtraction: using concrete objects and pictorial	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Solve problems involving addition, subtraction,



Thorngumbald Primary School
Mathematics Progression Ladder



		representations, including those involving numbers, quantities and measures.				multiplication and division.
Addition & Subtraction Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
10's frame Part part whole Add Subtract Addition Subtraction Adding Subtracting Number Number line Single digit Count on Count back Answer Doubling Halving Sharing Numbers to twenty Check	Same as EYFS plus the following: One step problem Concrete object Pictorial representation Missing number Problem Read Write Interpret Equals = Signs One-digit Two-digit Ones Mental Mentally	Same as EYFS & Year 1 plus the following: Columnar addition Columnar Subtraction Tens Order Inverse Relationship Calculation Solve problems Missing number problems Quantities Measures Formal Written method Mental method Method Operation Apply Whole number	Same as EYFS & KS1 plus the following: Three-digit number Hundreds Estimate Number facts	Same as previous year groups plus: Two step problems Context Four-digit	Same as previous year groups plus: Increasingly large numbers More than 4 digits Rounding Determine Context Multi-step problems	Same as previous year groups plus: Estimation Mixed operations



Thorngumbald Primary School
Mathematics Progression Ladder



Number: Multiplication & Division						
Multiplication & Division facts						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Begin to count in multiples of twos, fives and tens (from Number and Place Value)	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. (from Number and Place Value) Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.	Count from 0 in multiples of 4, 8, 50 and 100 (from Number and Place Value) Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.	Count in multiples of 6, 7, 9, 25 and 1000. (from Number and Place Value) Recall multiplication and division facts for multiplication tables up to 12 x 12.	Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 (from Number and Place Value)	
Mental Calculation						
		Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. Recognise and use factor pairs and commutatively in mental calculations.	Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	Perform mental calculations, including with mixed operations and large numbers.



Thorngumbald Primary School
Mathematics Progression Ladder



Written Calculation						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs.	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.	Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. <i>Use written division methods in cases where the answer has up to two decimal places (copied from fraction – including decimals)</i>
Properties of Numbers: Multiples, Factors, Primes, Square & Cube Numbers						
				Recognise and use factor pairs and commutativity in mental calculations.	Identify multiples and factors, including finding all factor pairs of a number, and common factors of two number.	Identify common factors, common multiples and prime numbers. <i>Use common factors to simplify fractions;</i>



Thorngumbald Primary School
Mathematics Progression Ladder



					Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19. Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed.	<i>use common multiples to express fractions in the same denominator (copied from fractions)</i>
<u>Order of Operations</u>						
						Use their knowledge of the order of operations to carry out calculations involving the four operations.
<u>Inverse Operations, estimating and checking answers</u>						
<u>EYFS</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
			<i>Estimate the answer to a calculation and use inverse operations to check answers.(from addition and subtraction)</i>	<i>Estimate and use inverse operations to check answers to a calculation. (from addition and subtraction)</i>		Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.



Thorngumbald Primary School Mathematics Progression Ladder



Problem Solving						
	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	Solve problems involving addition, subtraction, multiplication and division. <i>Solve problems involving similar shapes where the scale factor is known or can be found (copied from ratio and proportion)</i>
Multiplication and Division Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Multiples Twos Fives Tens Number	Same as EYFS & Year 1 plus the following: Multiplication facts Division facts Multiplication tables Odd numbers Even numbers Share	Same as EYFS & KS1 plus the following: Missing number problem Estimate Inverse	Same as previous year groups plus: Derived facts Factors Factor pairs Scaling problems Three-digit	Same as previous year groups plus: Decimals Four-digit Long multiplication Short division Remainders Context	Same as previous year groups plus: Scale factor Long division Whole number remainders Fractions Rounding



Thorngumbald Primary School Mathematics Progression Ladder



	Multiply Divide Multiplication Division One step problem Answer Concrete object Pictorial representation Arrays Count Equals Write	Equally Repeated division Calculate	Formal written method Mathematical statement Recall Integer Two- digit One- digit		Common factors Common multiples Prime numbers Prime factors Composite numbers Square number Cube number Notation Squares Cubes	Mixed operations
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Fractions (including Decimals and Percentages)

Counting in fractional steps.

<u>EYFS</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
		<i>Pupils should count in fractions up to 10, starting from any number and using 1/2 and 2/4 equivalence on the number line (from non-statutory guidance)</i>	Count up and down in tenths	Count up and down in hundredths.		

Recognising Fractions

	Recognise, find and name a half as one of two 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.	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-	Recognise that hundredths arise when dividing an object by one	recognise and use thousandths and relate them to tenths, hundredths and decimal	
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Thorngumbald Primary School
Mathematics Progression Ladder



	Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.		unit fractions with small denominators. Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.	hundred and dividing tenths by ten.	equivalents (appears also in Equivalence)	
Comparing Fractions						
			Compare and order fractions, and fractions with the same denominators.		Compare and order fractions whose denominators are all multiples of the same number	Compare and order fractions, including fractions >1
Comparing Decimals						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				Compare numbers with the same number of decimal places up to two decimal places.	Read, write, order and compare numbers with up to three decimal places.	Identify the value of each digit in numbers given to three decimal places.
Rounding Decimals						
				Round decimals with one decimal place to the nearest whole number.	Round decimals with two decimal places to the nearest whole number	Solve problems which require answers to be



Thorngumbald Primary School
Mathematics Progression Ladder



					and to one decimal place.	rounded to specified degrees of accuracy.
Equivalence (including fractions, decimals and percentages)						
		Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.	Recognise and show, using diagrams, equivalent fractions with small denominators.	Recognise and show, using diagrams, families of common equivalent fractions. Recognise and write decimal equivalents of any number of tenths or hundredths. Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$.	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$) Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. 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 as a decimal fraction.	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.



Thorngumbald Primary School
Mathematics Progression Ladder



Addition and Subtraction of Fractions						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			Add and subtract fractions with the same denominator within one whole [E.g. $5/7 + 1/7 = 6/7$].	Add and subtract fractions with the same denominator	Add and subtract fractions with the same denominator and multiples of the same number Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $2/5 + 4/5 = 6/5 = 1\text{whole and } 1/5$)	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
Multiplication and Division of Fractions						
					Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $1/4 \times 1/2 = 1/8$) Multiply one-digit numbers with up to two decimal places by whole numbers Divide proper fractions by whole numbers (e.g. $1/3 \div 2 = 1/6$)



Thorngumbald Primary School
Mathematics Progression Ladder



Multiplication and Division of Decimals						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				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.		Multiply one-digit numbers with up to two decimal places by whole numbers Multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) Use written division methods in cases where the answer has up to two decimal places



Thorngumbald Primary School
Mathematics Progression Ladder



Fractions (including decimals and percentages) Problem Solving.

			Solve problems that involve all of the Fractions statements for Year 3.	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. Solve simple measure and money problems involving fractions and decimals to two decimal places.	Solve problems involving numbers up to three decimal places Solve problems which require knowing percentage and decimal equivalents of $1/2$, $1/4$, $1/5$, $2/5$, $4/5$ and those with a denominator of a multiple of 10 or 25.	
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Fractions (including Decimals and Percentages) Vocabulary

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Fraction Half Equal parts One whole Object Shape Quantity Quarter	Same as EYFS & Year 1 plus the following: Simple fractions Equivalent equivalence Count	Same as EYFS & KS1 plus the following: Tenths Unit fractions Non- unit fractions Numerator Denominator Compare Order Add Subtract Solve problems	Same as previous year groups plus: Hundredths Decimal Decimal place One decimal place Two decimal places Round decimals Whole number Common equivalent fractions Decimal equivalents Dividing	Same as previous year groups plus: Thousandths Multiples Three decimal places Per cent Number of parts per hundred Percentages Decimal fraction Mixed numbers Improper fraction Proper fraction	Same as previous year groups plus: Common factors Common multiples Decimal fraction equivalents Simplest form



Thorngumbald Primary School Mathematics Progression Ladder



				Ones Tenths Hundredths Simple measure Money problems	Convert Mathematical statements Multiply Percentage and decimal equivalents	
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Measurement						
Comparing and Estimating						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Children use everyday language to talk about size, weight, capacity, to compare quantities and objects and to solve problems	Compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than] * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter] * time [e.g. quicker, slower, earlier, later]	Compare and order lengths, mass, volume/capacity and record the results using >, < and = Compare and sequence intervals of time.	Compare durations of events, for example to calculate the time taken by particular events or tasks. Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time.)	Estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring)	Calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes (also included in measuring) Estimate volume (e.g. using 1 cm ³ blocks to build cubes and cuboids) and capacity (e.g. using water)	Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm ³) and cubic metres (m ³), and extending to other units such as mm ³ and km ³ .



Thorngumbald Primary School Mathematics Progression Ladder



	sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]					
Measuring and Calculating						
<u>EYFS</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
Children use everyday language to talk about size, weight, capacity, to compare quantities and objects and to solve problems	Measure and begin to record the following: * lengths and heights * mass/weight * capacity and volume * time (hours, minutes, seconds)	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.	Measure, compare, add and subtract: Lengths (m/cm/mm); Mass (kg/g); volume/capacity l/ml Measure the perimeter of simple 2-D shapes	Estimate, compare and calculate different measures, including money in pounds and pence (appears also in Comparing) Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling. Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Converting) Recognise that shapes with the same areas can have different perimeters and vice versa
Children use everyday language to compare quantities	Recognise and know the value of different denominations of coins and notes.	Recognise and use symbols for pounds (£) and pence (p); combine amounts to	Add and subtract amounts of money to give change, using both £ and p in practical contexts.	Find the area of rectilinear shapes by counting squares	calculate and compare the area of squares and rectangles including using standard units,	Calculate the area of parallelograms and triangles



Thorngumbald Primary School Mathematics Progression Ladder



and objects and to solve problems		make a particular value. Find different combinations of coins that equal the same amounts of money. Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.			square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) (copied from Multiplication and Division)	calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [e.g. mm^3 and km^3]. Recognise when it is possible to use formulae for area and volume of shapes
Telling the Time						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Children use everyday language to talk about time to solve problems using vocabulary such as first, then.	Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. Recognise and use language relating to dates, including days of the week, weeks, months and years.	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. (appears also in Converting)	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning,	Read, write and convert time between analogue and digital 12 and 24hour clocks (appears also in Converting) Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Converting)	Solve problems involving converting between units of time.	



Thorngumbald Primary School
Mathematics Progression Ladder



			afternoon, noon and midnight <i>(appears also in Comparing and Estimating)</i>			
Converting & Problem Solving.						
		Know the number of minutes in an hour and the number of hours in a day. <i>(appears also in Telling the Time)</i>	Know the number of seconds in a minute and the number of days in each month, year and leap year	convert between different units of measure <i>(e.g. kilometre to metre; hour to minute)</i> read, write and convert time between analogue and digital 12 and 24hour clocks <i>(appears also in Converting)</i> solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days <i>(appears also in Telling the Time)</i>	Convert between different units of metric measure <i>(e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</i> Solve problems involving converting between units of time. Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints.	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 up to three decimal places. Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate <i>(appears also in Measuring and Calculating)</i> Convert between miles and kilometres.



Thorngumbald Primary School
Mathematics Progression Ladder



Measurement Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measure Measurement Size Weight Capacity Compare Solve Problems Object Time First Then	Same as EYFS plus: Length /Height Long / Short Longer / Shorter Tall Double / Half Mass Heavy / Light Heavier than Lighter than Volume Full / Empty More than Less than Half / Half full Quarter Quicker / Slower Earlier / Later Sequence events Chronological order Before After Next First Today Yesterday Tomorrow Morning Afternoon Evening	Same as EYFS & Year 1 plus the following: Greater than > Less than < Equals = Intervals Standard units Estimate Direction Temperature Unit Scales Rulers Thermometers Measuring vessels Metres Centimetres Kilograms Grams Degrees Celsius Litres Millilitres Symbols Money Pounds (£) Pence (p) Different combinations Change Five past Ten past	Same as EYFS & KS1 plus the following: Duration Time taken Nearest minute Record Seconds a.m. p.m. noon midnight kilometre add subtract millimetres perimeter simple 2-D shapes analogue clock roman numerals 12-hour 24-hour Leap year	Same as previous year groups plus: Estimate Rectilinear figure Area Rectilinear shapes Convert	Same as previous year groups plus: Square centimetres (cm ²) Square metres (m ²) Irregular shapes Volume (cm ³) Cubes Cuboids Square numbers Cube numbers Metric measure Metric units Imperial units Inches Pounds Pints	Same as previous year groups plus: Decimal notation Cubic centimetres (cm ³) Cubic metres (m ³) Cubic millimetre (mm ³) Cubic kilometre (Km ³) Decimal places formulae Miles



Thorngumbald Primary School
Mathematics Progression Ladder



	Record Hours Minutes Half past O clock Hands Clock face Seconds Coins Notes Dates Days Weeks Months Year	Quarter past Twenty past Twenty-five past Half past Twenty-five to Twenty to Quarter to Ten to Five to				
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Geometry: Properties of Shape						
Identifying shapes and their properties						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore characteristics of everyday objects and shapes and use mathematical language to describe them.	Recognise and name common 2-D and 3-D shapes, including: - 2-D shapes [e.g. rectangles (including squares), circles and triangles] - 3-D shapes [e.g. 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 lines of symmetry in 2-D shapes presented in different orientations.	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.	Recognise describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing.) Illustrate and name parts of circles, including radius, diameter and circumference and know that the



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		Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid.]				diameter is twice the radius.
Drawing and Constructing						
			Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.	Complete a simple symmetric figure with respect to a specific line of symmetry.	Draw given angles, and measure them in degrees ($^{\circ}$).	Draw 2-D shapes using given dimensions and angles. Recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties).
Comparing and Classifying						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Compare and sort common 2-D and 3-D shapes and everyday objects.		Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.	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.	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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Angles						
			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.	Identify acute and obtuse angles and compare and order angles up to two right angles by size.	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Identify: - Angles at a point and one whole turn (total 360°) - Angles at a point on a straight line and ½ a turn (total 180°) - Other multiples of 90°	Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
Geometry: Properties of Shape Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Flat Round Shape Square Rectangle Circle Triangle Sides	Same as EYFS plus: 2-D Shapes 3-D Shapes Two- Dimensional Three-Dimensional Cuboid Cube Pyramid	Same as EYFS & Year 1 plus: Properties Compare Common Line symmetry Vertical line Edges Faces Vertices	Same as EYFS & KS1 plus: Angle Turn Right angles Quarter of a turn Half-turn Three quarters of a turn	Same as previous year groups plus: Lines of symmetry Symmetric figure Classify Geometric shapes Quadrilaterals Acute angle Obtuse angle	Same as previous year groups plus: Angles Measure Degrees Missing lengths Missing angles	Same as previous year groups plus: Radius Diameter Circumference Nets



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Straight side Curved side	Cone Cylinder Sphere	Pentagon Hexagon Heptagon Octagon Nonagon Decagon Kite Rhombus Polygon Square-based pyramid Triangular pyramid Triangular prism Rectangular prism Pentagonal prism Hexagonal prism Octagonal prism Octahedron Dodecahedron Tetrahedron Rectangular pyramid Pentagonal pyramid Hexagonal pyramid Octagonal pyramid	Complete turn Horizontal lines Vertical lines Perpendicular lines Parallel lines		Regular polygons Irregular polygons Degrees Estimate Compare Reflex angle Point Straight line Multiples	
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<u>Geometry: Position and Direction</u>						
<u>Position, Direction and Movement</u>						
<u>EYFS</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
Children use everyday language to talk about	Describe position, direction and movement, including half,	Use Mathematical vocabulary to describe position, direction and		Describe positions on a 2-D grid as coordinates in the first quadrant.	Identify, describe and plot specified points and draw sides to	Describe positions on the full coordinate grid (all four quadrants).



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position, distance.	quarter and three- quarter turns.	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 anti- clockwise.)		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.	complete a given polygon.	Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
Pattern						
Recognise, create and describe patterns around them and within numbers up to 10		Order and arrange combinations of mathematical objects in patterns and sequences.				
Geometry: Position and Direction Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
In front of Behind Position Distance Direction Move Movement Patterns	Same as EYFS plus: Half turn Quarter turn Three-quarter turn Left Right Up Down	Same as EYFS & Year 1 plus: Rotation Right angle Clockwise Anti-clockwise Order Arrange Sequence	Same as EYFS & KS1 plus:	Same as previous year groups plus: Co-ordinates Quadrant Grid Translate Translation Axis X- axis Y-axis Spaces Unit	Same as previous year groups plus: Reflection	Same as previous year groups plus: Four quadrants



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				Plot Point Polygon		
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Statistics						
Interpreting, Constructing and Presenting Data						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		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.	Interpret and present data using bar charts, pictograms and tables.	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	Complete read and interpret information in tables, including timetables.	Interpret and construct pie charts and line graphs and use these to solve problems.



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		Ask and answer questions about totalling and comparing categorical data.				
Solving Problems						
			Solve one-step and two- step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	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.	Calculate and interpret the mean as an average.
Statistics Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Interpret Construct Pictogram Tally chart Block diagrams Horizontal Vertical x- axis y-axis key title	Same as KS1 plus: Present Presented Graph Statistics Bar charts Tables Solve One- step questions Two- step questions Information	Same as previous year groups plus: Time graphs Comparison Problems	Same as previous year groups plus: Timetables Line graph	Same as previous year groups plus: Pie chart Calculate Mean Average



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		chart title Simple tables Ask Answer Questions Counting Objects Category Sort Quantity Total Compare Data				
Algebra						
Equations						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as: $7 = \square - 9$ (copied from Addition and Subtraction) <i>represent and use number bonds and related subtraction</i>	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems . (copied from Addition and Subtraction) Recall and use addition and subtraction facts to 20 fluently, and derive	Solve problems, including missing number problems , using number facts, place value, and more complex addition and subtraction. (copied from Addition. and Subtraction) Solve problems, including missing number problems , involving multiplication and division, including integer scaling (copied from Multiplication and Division)		Use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geometry: Properties of Shapes.)	Express missing number problems algebraically. Find pairs of numbers that satisfy number sentences involving two unknowns. Enumerate all possibilities of combinations of two variables.



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	facts within 20 (copied from Addition and Subtraction)	and use related facts up to 100 (copied from Addition and Subtraction)				
Formulae						
				Perimeter can be expressed algebraically as $2(a + b)$ where a and b are the dimensions in the same unit. (Copied from NSG measurement)		Use simple formulae. Recognise when it is possible to use formulae for area and volume of shapes (copied from Measurement.)
Sequences						
<u>EYFS</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
	Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening (copied from Measurement)	Compare and sequence intervals of time. (copied from Measurement) Order and arrange combinations of mathematical objects in patterns. (copied from Geometry: position and direction)				Generate and describe linear number sequences.



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Algebra Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Same as EYFS plus: Solve One-step problem Missing number Check Calculate problem Sequence Chronological	Same as EYFS plus: Inverse Relationship Compare Order Arrange Pattern	Same as EYFS & KS1 plus:	Same as previous year groups plus: Perimeter Algebra Algebraically	Same as previous year groups plus: Properties Rectangles Deduce Related facts Missing lengths Missing angles	Same as previous year groups plus: Missing number Problem Pairs Number sentence Variables Combination Possibility Enumerate Equation Formulae Generate Linear number sequence
Ratio and Proportion						
Statements only appear in Year 6 but should be connected to previous learning, particularly fractions, multiplication and division.						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						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



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						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.
Ratio and Proportion Vocabulary						
<u>EYFS</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
						Ratio Proportion Size Quantity Missing value Integer Multiplication Division Multiply Divide Solve Problem Calculate Percentage Comparison Unequal sharing Grouping Fractions Multiples

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