### MATHS PROGRESSION OVERVIEW

### Maths for the pupils of Carr Junior School

Fluency and reasoning are the two main skills prioritised in the Carr Junior Maths curriculum. Daily sessions ensure that skills are not forgotten and that new content can be pre taught or introduced or that misconceptions can be addressed. Most maths teaching is discrete some lessons, if appropriate and where maths is the focus, follow the school Big Idea:

Agents for change (8 weeks) Ancient ancestors (10 weeks) Where in the world? (7 weeks) Through the ages (7 weeks)



### Maths Lesson Structure

Recap	Guided Practice	Independent Practice	Tricky Trap
Time Challenge	Real life problem shared. Teacher modelling You do I do	Time for children to apply their learning to fluency, reasoning and problem	Dong Nao Ting opportunities for children to an deeper and address
Recap and apply (Tune in)	Paired work	solving questions. Deeper thinking question	misconceptions.

4 x Early Bird Maths sessions

5 x Maths lessons per week (Fortnightly Arithmetic clinic) Daily times table sessions in all year groups TT Rockstars used weekly to set homework

#### Resources

Whiterose Maths Maths No Problems Power Maths I see Reasoning I see Problem Solving Ready to Progress Deepening Understanding NCETM TT Rockstars YEAR 3

# MATHS PROGRESSION OVERVIEW

	AUTUMN	SPRING	
PLACE VALUE	<b>U1 U3</b> Count from 0 in multiples of 4, 8, 50 and 100.	These objectives will be recapped as part of Early Bird Maths, Time Challenge and Arithme	tic lessons.
	Find 10 or 100 more or less than a given number		
	<b>U1</b> identify, represent and estimate numbers using different representations		
	Read and write numbers up to 1000 in numerals and words		
	Recognise the place value of each digit in a three digit number (hundreds, tens and ones) Compare and order numbers up to 1000		
	Solve number problems and practical problems involving these ideas		
ADDITION AND	U2 estimate the answer to a calculation and use inverse operations to check answers	These objectives will be recapped as part of Early Bird Maths, Time Challenge and Arithmetic lessons.	
SUBIKACIION	add and subtract numbers mentally including: a 3 digit number and ones a 3 digit number and 10s a three digit number and hundreds.		
	Add and subtract numbers with up to three digits using formal written methods of columnar addition and subtraction		
	solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction		
MULTIPLICATION AND DIVISION	U3 recall and use multiplication and division facts for the three four and eight multiplication tables	UI recall and use multiplication and division facts for the three four and eight multiplication tables	These objectives will h Arithmetic lessons.
	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	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	
		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	
FRACTIONS		U3 count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one digit numbers in or quantity's by 10	U1 add and subtract frac 5/7 +1/7 = 6/7
		recognise find and write fractions of a discrete set of objects: unit fractions and non unit fractions with small denominators	solve problems that i
		recognise and use fractions as numbers: unit fractions and non unit fractions with small denominators	
		solve problems that involve all of the above	
		recognise an show using diagrams, equivalent fractions with small denominators	
		compare and order unit fractions, and fractions with the same denominators	
		solve problems that involve all of the above	

### SUMMER

be recapped as part of Early Bird Maths, Time Challenge and

actions with the same denominator within one whole for example

involve all of the above

MEASUREMENT	Previous year group objectives will be recapped as part of Time Challenge.	U2 & U4 Measure, compare, add and subtract lengths (m/cm/mm); mass (kg,g); volume/capacity (l/ml)	<b>U4</b> Measure, compare, add (I/mI)
		U2 measure the perimeter of simple 2D shapes	U2 add and subtract amo practical context
			<b>U3</b> tell and write the tim too XII and 12 hour an
			estimate and read tir compare time in term am/pm ,morning, afte Know the number of and leap year
			compare durations of event or task
GEOMETRY			U4 draw 2D shapes
			make 3D shapes usin orientations and desc
			recognise angles as a
			identify right angles of a turn and four a d than a right angle
			identify horizontal ar
			U5 interpret and present
STATISTICS			U5 solve one step and tw fewer?) using informe tables

dd and subtract lengths (m/cm/mm); mass (kg,g); volume/capacity

ount of money to give change using both pounds and pence in

ne from an analogue clock including using Roman numerals from 1 nd 24 hour clocks

me with increasing accuracy to the nearest minute; record and ns of seconds, minutes and hours; use vocabulary such as o'clock, ernoon, noon and midnight

seconds in a minute and the number of days in each month, year

events for example to calculate the time taken by a particular

ng modelling materials recognise 3D shapes in different cribe them

property of shape or a description of a turn

recognise that two right angles make half a turn three make 3/4 complete turn; identify whether angles are greater than or less

nd vertical lines and pairs of perpendicular and parallel lines

data using bar charts, pictograms and tables

wo step questions (for example How many more? and How many nation presented in scaled bar chart and pick to grammes and

YEAR 4

# MATHS PROGRESSION OVERVIEW

	AUTUMN	SPRING	
PLACE VALUE	U1 U4 Count in multiples of 6, 7, 9, 25 and 1000.	These objectives will be recapped as part of Early Bird Maths, Time Challenge an	d Arithmetic lessons.
	Count backwards through zero to include negative numbers		
	U1 identify, represent and estimate numbers using different representations		
	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		
	Find 1000 more or less than a given number.		
	Recognise the place value of each digit in a four digit number (thousands, hundreds, tens and ones)		
	Compare and order numbers beyond 1000		
	Round any number to the nearest 10, 100 or 1000.		
	Solve number and practical problems that involve all of the above with increasingly large positive numbers		
Addition and	U2 estimate and use inverse operations to check answers to a calculation	These objectives will be recapped as part of Early Bird Maths, Time Challenge and Arithmetic lesso	
SUBTRACTION	add and subtract numbers with up to four digits using formal written methods of columnar addition an subtraction where appropriate.		
	solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why.		
MULTIPLICATION AND	U4 recall multiplication and division facts for multiplication tables up to 12 x 12	U1 recall multiplication and division facts for multiplication tables up to 12 x 12 $$	These objectives wi and Arithmetic less
DIVISION	use place value known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers	use place value known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers	
	recognise and use factor pairs and commutativity mental calculations	recognise and use factor pairs and commutativity mental calculations	
		multiply two digit and three digit numbers by a one digit number using formal written layout	
		solve problems involving multiplying and adding, including using the distributive law to multiply 2 digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	
FRACTIONS		U4 count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10	<b>U1</b> count up and down dividing an object b
		U3 recognise and show using diagrams, families of common equivalent fractions	These objectives wi and Arithmetic less
		add and subtract fractions with the same denominator	recognise and write hundredths
		solve problems involving increasingly hard fractions to calculate quantities, and fractions to divide quantities, including non unit fractions where the answer is	recognise and write
			round decimals wit

### SUMMER

vill be recapped as part of Early Bird Maths, Time Challenge ssons.

n in hundredths; recognise that hundredths arise when by 100 and dividing tenths by 10

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e decimal equivalents of any number of tenths or

e decimal equivalent to ¼ ½, ¾

th one decimal place to the nearest whole

			number compare n two decimal places solve simple measu to two decimal place
MEASUREMENT		<ul> <li>U4 recognise and write decimal equivalents of any number of tenths or hundredths</li> <li>recognise and write decimal equivalent to ¼ ½, ¾</li> <li>U4 find the effect of dividing a one or two digit number by 10 and 100 identifying the value of the digits in the answers as ones, tenths and hundredths</li> <li>U3 U4 solve simple measure and money problems involving fractions and decimals to two decimal places</li> </ul>	U3 convert between di estimate compare read write and con clocks solve problems invo seconds, years to n U2 Estimate, compare pounds and pence
GEOMETRY	U3 measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres find the area of rectilinear shapes by counting squares Previous year group objectives will be recapped as part of Time Challenge.	U2 convert between different units of measure estimate compare and calculate different measures measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres find the area of rectilinear shapes by counting squares	U4 compare and classi based on their prop identify lines of sy identify acute and right angles by size identify lines of sy complete a simple symmetry U6 describe positions of describe movement left/ right and up/or plot specified point
STATISTICS			U5 interpret and prese graphical methods solve comparison, s in bar charts, pictor

# MATHS PROGRESSION OVERVIEW



numbers with the same number of decimal places up to

ure and money problems involving fractions and decimals

- fferent units of measure
- and calculate different measures
- vert time between analogue and digital 12 and 24 hour
- olving converting from hours to minutes, minutes to nonths, weeks to days
- and calculate different measures including money in
- ify geometric shapes including quadrilaterals and triangles perties and size
- mmetry in 2D shapes presented on different orientations
- obtuse angles and compare and order angles up to two e
- mmetry in 2D shapes represented in different orientations
- symmetrical figure with respect to a specific line of
- on a 2D grid as coordinates in the first quadrant
- ts between positions as translations of a given unit to the down
- s and draw sides to give to complete a given Polygon
- ent discrete and continuous data using appropriate including bar charts and time graphs
- sum and difference problems using information presented grams ,tables and other graphs

	AUTUMN	SPRING	
PLACE VALUE	<ul> <li>UI Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000</li> <li>Count forwards and backwards with positive and negative whole numbers, including through zero</li> <li>Read, write (order and compare) numbers to at least 1,000,000 and determine the value of each digit.</li> <li>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</li> <li>(Read, Write), order and compare numbers to at least 1,000,000 and determine the value of each digit.</li> <li>Interpret negative numbers in context.</li> <li>Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000.</li> <li>Solve number problems and practical problems that involve all of the above</li> </ul>	These objectives will be recapped as part of Early Bird Maths, Time Challenge and Arithmetic lessons.	U4 Count forwards or up to 1,000,000 Count forwards and including through ze
ADDITION AND SUBTRACTION	U2 use rounding to check answers to calculations and determine in the context of a problem levels of accuracy add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction) Add and subtract numbers mentally with increasingly large numbers solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division and a combination of these including understanding the meaning of the equals sign	These objectives will be recapped as part of Early Bird Maths, Time Challenge an	d Arithmetic lessons.
MULTIPLICATION AND DIVISION	<ul> <li>U3 identify multiples and factors including finding all factor pairs of a number and common factors of 2 numbers</li> <li>know and use vocabulary of prime numbers, prime factors and composite(non prime) numbers</li> <li>establish whether a number up to 100 is prime and recall prime numbers up to 19</li> <li>recognise and use square numbers and cube numbers the notation for squared and cubed.</li> <li>multiply numbers up to four digits by a one or two digit number using a formal written method including long multiplication for two digit numbers</li> <li>multiply and divide numbers mentally drawing upon known facts</li> <li>divide numbers up to four digits by a one digit number using formal written method of short division and interpret remainders appropriately for the context</li> <li>multiply and divide whole numbers and those involving decimals by 10,100 and 1000</li> <li>solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</li> <li>solve problems involving multiplication and division, including scaling by simple fraction and problems involving simple rates</li> </ul>	U multiply numbers up to four digits by a one or two digit number using a formal written method including long multiplication for two digit numbers multiply and divide numbers mentally drawing upon known facts divide numbers up to four digits by a one digit number using formal written method of short division and interpret remainders appropriately for the context multiply and divide whole numbers and those involving decimals by 10,100 and 1000 solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes solve problems involving multiplication and division, including scaling by simple fraction and problems involving simple rates solve problems involving addition subtraction multiplication and division and a combination of these, including understanding the meaning of the equals sign	
FRACTIONS	U4 identify name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements>1 as mixed number for example compare and order fractions whose denominators are all multiples of the same number add and subtract fractions with the same denominator and denominators that are multiples of the same number Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	U2 add and subtract fractions with the same denominator and denominators that are multiples of the same number Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	These objectives wil and Arithmetic less

#### SUMMER

r backwards in steps of powers of 10 for any given number

nd backwards with positive and negative whole numbers, zero

vill be recapped as part of Early Bird Maths, Time Challenge ssons.

MEASUREMENT		U3 read and write decimal numbers as fractions for example 0.71 = 71/100	U3 read and write deci
		recognise and use thousandths and relate them to tenths hundredths and decimal equivalents	recognise and use t decimal equivalents
		round decimals with two decimal places to the nearest whole number and to one decimal place	round decimals with one decimal place
		read, write, order and compare numbers with up to three decimal places	read, write, order ar
		recognise the percent symbol and understand that percent relates to number of parts per hundred and write percentages as a fraction with the denominator 100 and as a decimal	UI solve problems invo
		Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4 , 1/5, 2/5, 4/5 and those fractions with the nominator of a multiple of 10 or 25	
Geometry	US measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	U4 convert between different units of metric measure	U5 U6 convert between dit
	calculate and compare the area of rectangles including squares and including	understand and use approximate equivalence is between metric units and common imperial units such as incres pounds and pints	understand and use common imperial u
	estimate volume for example using one centimetre cubed blocks to build	use all four operations to solve problems involving measure using decimal notation including scaling	use all four operation notation including s
	cuboids including cubes and capacity for example using water	measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	U3 use all four operation
	Previous year group objectives will be recapped as part of Time Challenge.	calculate and compare the area of rectangles including squares and including using standard units and estimate the area of irregular shapes	US
		estimate volume for example using one centimetre cubed blocks to build cuboids including cubes and capacity for example using water	U6 measure and calcul centimetres and m
			calculate and compo using standard unit
			estimate volume fo cuboids including cu
STATISTICS			UI distinguish betweer equal sides and and
			use the properties of and angles
			identify 3D shapes
			U2 know angles are m and reflex angles
			draw given angles,
			identify: angles at a point ar angles at a point or
			other multiples of s
			identify describe an or translation, using not changed
		U5 complete read and interpret information in tables including timetables	
		solve comparison, sum and difference problems using information presented in a line graph	
		-	



## MATHS PROGRESSION OVERVIEW

mal numbers as fractions for example 0.71 = 71/100 thousandths and relate them to tenths hundredths and the two decimal places to the nearest whole number and to and compare numbers with up to three decimal places plving number up to three decimal places

fferent units of metric measure

- e approximate equivalence is between metric units and units such as inches pounds and pints
- ions to solve problems involving measure using decimal scaling
- ons to solve problems involving measure for example
- olving converting between units of time
- ate the perimeter of composite rectilinear shapes in etres
- are the area of rectangles including squares and including ts and estimate the area of irregular shapes
- or example using one centimetre cubed blocks to build ubes and capacity for example using water
- n regular and irregular polygons based on reasoning about gles
- of rectangles to juice related facts and find missing lengths
- including cubes and other cuboids from 2D representations
- leasured in degrees: estimate and compare acute, obtuse
- and measure them in degrees
- nd one whole turn n a straight line and half a turn
- 90 degrees
- nd represent the position of a shape following a reflection ig the appropriate language, and khow that the shape has

	AUTUMN	SPRING	
PLACE VALUE	UI Read, write (order and compare) numbers to at least 10,000,000 and determine the value of each digit. (Read, Write), order and compare numbers to at least 10,000,000 and determine the value of each digit. Round any whole number to a requires degree of accuracy. Use negative numbers in context, and calculate intervals across zero.	These objectives will be recapped as part of Early Bird Maths, Time Challenge ar	nd Arithmetic lessons.
	Solve number problems that involve all of the above.		
ADDITION AND SUBTRACTION	U2 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. solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why	These objectives will be recapped as part of Early Bird Maths, Time Challenge ar	nd Arithmetic lessons.
MULTIPLICATION AND DIVISION FRACTIONS	U2         identify common factors, common multiples and prime numbers         use estimation to check to answers to calculations and determine, in the context of a problem. an appropriate degree of accuracy.         multiply multi digit numbers up to four digits by a two digit whole number using the formal written method of long multiplication         divide numbers up to four digits by a two digit whole number using the formal written method of long multiplication         divide numbers up to four digits by a two digit mumber using the formal written method of long division and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context         divide numbers up to four digits by a two digit number using the formal written method of short division where appropriate, interpreting remainders according to the context         perform mental calculations including with mixed operations and large numbers         solve problems involving addition subtraction multiplication and division         use their knowledge of the order of operations to carry out calculations involving the four operations         U3         use common factors to simplify fractions; ballsuse common multiples to express fractions in the same denomination nomination         fractions         compare and under order fractions, including fractions>1         U3 & U4         Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions	These objectives will be recapped as part of Early Bird Maths, Time Challenge ar These objectives will be recapped as part of Early Bird Maths, Time Challenge ar	nd Arithmetic lessons. nd Arithmetic lessons.
	Divide proper fractions by whole numbers (for example $\frac{1}{3} \div 2 = \frac{1}{6}$ )		
MEASUREMENT		U3 identify the value of each digit in numbers given to three decimal places U1 multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places multiply 1 digit numbers with up to two decimal places by whole numbers use written division methods in cases where the answer has up to two decimal places solve problems which require answers to be rounded to specific degrees of accuracy U3 U4 associate a fraction with division and calculate decimal fraction equivalents for a simple fraction recall and use equivalence is between simple fractions decimals and percentages	These objectives will and Arithmetic less



### SUMMER

GEOMETRY		<b>UI</b> solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts solve problems involving the calculation of percentages 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	
STATISTICS		U2 use simple formula generate and describe linear number sequences express missing number problems algebraically find pairs of numbers that satisfy an equation with two unknowns enumerate possibilities of combinations of two variables	
	US solve problems involving the calculation and conversion of units of measure using decimal notation up to three decimal places where appropriate 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 notations up to three decimal places convert between miles and kilometres Previous year group objectives will be recapped as part of Time Challenge. use read write and convert between standard units converting measurements of time from a smaller unit of measure to a larger unit and vice versa	US recognise that shapes with the same area can have different perimeters and vice Versa recognise when it is possible to use formulae for area and volume of shapes calculate the area of parallelograms and triangles calculate estimate and compare volume of cubes and cuboids using standard units including cubic centimetres and cubic metres and extending to other units	
			U2 describe positions of draw and translate in the axes U1 draw 2D shapes us compare and classi- illustrate and name circumference and recognise describe of find unknown angle recognise angles wh vertically opposite of
		UG interpret and construct pie charts and line graphs and use these to solve problems calculate and interpret the mean as an average	

on the full coordinate grid all 4 quadrants te simple shapes on the coordinate plane, and reflect them

- sing given dimensions and angles
- ify geometric shapes based on their properties and sizes
- e parts of circles including radius and diameter and know that the diameter is twice the radius
- and build simple 3D shapes including making nets
- les in any triangles, quadrilaterals and regular polygons
- here they meet at a point, on a straight line or are and find missing angles