

Numeracy Foundation Phase		Reception	Year 1	Year 2
Strands	Elements	Children are able to:	Children are able to:	Children are able to:
Developing numerical reasoning	Identify processes and connections	<ul style="list-style-type: none"> transfer mathematical skills to play and classroom activities identify steps to complete the task or reach a solution select appropriate mathematics and techniques to use select and use relevant number facts and mental strategies select appropriate equipment and resources use knowledge and practical experience to inform estimations 		
	Represent and communicate	<ul style="list-style-type: none"> use everyday and mathematical language to talk about their own ideas and choices present their work orally, pictorially and in written form and use a variety of ways to represent collected data devise and refine informal, personal methods of recording, moving to using words and symbols in number sentences 		
	Review	<ul style="list-style-type: none"> use simple checking strategies to decide if answers are reasonable interpret answers within the context of the problem and consider whether answers are sensible interpret information presented in simple charts and diagrams and draw appropriate conclusions 		
Using number skills	Use number facts and relationships	<ul style="list-style-type: none"> count reliably up to 10 objects read and write numbers to at least 10 compare and order numbers to at least 10 	<ul style="list-style-type: none"> count reliably up to 20 objects read and write numbers to at least 20 compare and order numbers to at least 20 use number facts within 10, i.e.: <ul style="list-style-type: none"> doubling and halving (e.g. $4 + 4$) bonds of 10 (e.g. $6 + 4$) 	<ul style="list-style-type: none"> count sets of objects by grouping in 2s, 5s or 10s read and write numbers to 100 compare and order 2-digit numbers use mental recall of number facts to 10 to derive other facts, i.e.: <ul style="list-style-type: none"> doubling and halving (e.g. $40 + 40$) bonds of 10 (e.g. $60 + 40$) recall 2, 5 and 10 times tables and use to work out simple problems
	Fractions, decimals, percentages and ratio			<ul style="list-style-type: none"> find halves and quarters in practical situations
	Calculate using mental and written methods	<ul style="list-style-type: none"> combine two groups of objects to find 'how many altogether?' take away objects to find 'how many are left?' 	<ul style="list-style-type: none"> add and subtract numbers when solving problems involving up to 10 objects use 'counting on' strategies to add 2 collections, starting with the larger number (e.g. $8 + 5$) 	<ul style="list-style-type: none"> find small differences within 20 by using 'counting on' strategies use mental recall of number facts to 10 and place value to add or subtract larger numbers (e.g. $24 + 4$, $30 + 5$, $34 + 10$)
	Estimate and check		<ul style="list-style-type: none"> make a sensible estimate of a number of objects that can be checked by counting 	<ul style="list-style-type: none"> using checking strategies: <ul style="list-style-type: none"> repeat addition in a different order use halving and doubling within 20
	Money	<ul style="list-style-type: none"> use 1p, 2p, 5p and 10p coins to pay for items 	<ul style="list-style-type: none"> use different combinations of money to pay for items up to 20p find totals and give change from 10p 	<ul style="list-style-type: none"> use different combinations of money to pay for items up to £1 find totals and give change from multiples of 10p
Using measuring skills	Length, weight (mass) and capacity	<ul style="list-style-type: none"> use direct comparisons with: <ul style="list-style-type: none"> length, height and distance, e.g. <i>longer/shorter than</i> weight (mass), e.g. <i>heavier/lighter than</i> capacity, e.g. <i>holds more/less than</i> 	<ul style="list-style-type: none"> use non-standard units to measure: <ul style="list-style-type: none"> length, height and distance weight (mass) capacity (e.g. <i>the jug holds 8 cups</i>) 	<ul style="list-style-type: none"> use standard units to measure: <ul style="list-style-type: none"> length, height and distance: using metres, half metres or centimetres weight (mass): using kilograms or 10 gram weights capacity: comparing containers by finding out how much they hold; introduce the litre
	Time	<ul style="list-style-type: none"> use timers to understand the passage of time, e.g. <i>sand timers</i> use the concept of time in terms of their daily activities 	<ul style="list-style-type: none"> use standard units of time to read o'clock using both analogue and digital clocks use the concept of time in terms of their daily and weekly activities and the seasons of the year 	<ul style="list-style-type: none"> interpret 'half past', 'quarter past' and 'quarter to' on an analogue clock read hours and minutes on a 12-hour digital clock demonstrate a developing sense of how long tasks and everyday events take
	Temperature	<ul style="list-style-type: none"> use direct comparisons when describing temperature, e.g. <i>hot/cold</i> 	<ul style="list-style-type: none"> use descriptive words for a range of temperatures, e.g. <i>cooler/warmer</i> 	<ul style="list-style-type: none"> compare daily temperatures using a simple thermometer (°C)
	Area and volume Angle			
Using data skills	Collect and record data Present and analyse data Interpret results	<ul style="list-style-type: none"> sort and classify objects using one criterion record collections using marks, numbers or pictures. 	<ul style="list-style-type: none"> sort and classify objects using more than one criterion collect information by voting or sorting and represent in pictures, objects or drawings make lists and simple tables based on data collected. 	<ul style="list-style-type: none"> gather and record data from: <ul style="list-style-type: none"> simple lists and tables diagrams block graphs pictograms where the symbol represents one unit extract and interpret information from lists, tables, diagrams and graphs.

Numeracy Key Stage 2		Year 3	Year 4	Year 5	Year 6	
Strands	Elements	Learners are able to:	Learners are able to:	Learners are able to:	Learners are able to:	
Developing numerical reasoning	Identify processes and connections	<ul style="list-style-type: none"> transfer mathematical skills to a variety of contexts and everyday situations identify the appropriate steps and information needed to complete the task or reach a solution select appropriate mathematics and techniques to use select and use suitable instruments and units of measurement choose an appropriate mental or written strategy and know when it is appropriate to use a calculator estimate and visualise size when measuring and use the correct units 				
	Represent and communicate	<ul style="list-style-type: none"> explain results and procedures clearly using mathematical language refine informal methods of recording written calculations, moving to formal methods of calculation when developmentally ready use appropriate notation, symbols and units of measurement select and construct appropriate charts, diagrams and graphs with suitable scales 				
	Review	<ul style="list-style-type: none"> select from an increasing range of checking strategies to decide if answers are reasonable interpret answers within the context of the problem and consider whether answers, including calculator displays, are sensible draw conclusions from data and recognise that some conclusions may be misleading 				
Using number skills	Use number facts and relationships	<ul style="list-style-type: none"> read and write numbers to 1 000 compare and estimate with numbers up to 100 use mental strategies to recall number facts within 20 recall 2, 3, 5 and 10 multiplication tables and use to solve simple multiplication and division problems multiply numbers by 10 	<ul style="list-style-type: none"> read and write numbers to 10 000 compare and estimate with numbers up to 1 000 use a range of mental strategies to recall multiplication tables for 2, 3, 4, 5, 6 and 10 and use to solve division problems multiply and divide numbers by 10 and 100 	<ul style="list-style-type: none"> read and write numbers to 100 000 compare 1-place decimals and 2-place decimals use a range of mental strategies to recall multiplication tables for 2, 3, 4, 5, 6, 8 and 10 and use to solve division problems multiply and divide numbers and decimals by 10 and 100 	<ul style="list-style-type: none"> read and write numbers to 1 million and to 3-place decimals in the context of measures use a range of mental strategies to recall multiplication tables up to 10 x 10 and use to solve division problems multiply numbers and decimals by a multiple of 10, e.g. 15 x 30, 1.4cm x 20 	
	Fractions, decimals, percentages and ratio	<ul style="list-style-type: none"> use halves, quarters in simple contexts, e.g. ½ of 20 halve 2-digit numbers in the context of number, money and measures find fractional quantities linked to known table facts, e.g. 1/3 of 18, 1/5 of 15 	<ul style="list-style-type: none"> halve 3-digit numbers in the context of number, money and measures find fractional quantities using known table facts, e.g. 1/6 of 30cm recognise fractions that are several parts of a whole, e.g. 2/3, 3/10 	<ul style="list-style-type: none"> use understanding of simple fraction and decimal equivalences when measuring and calculating, e.g. ½ = 0.5, 1/10 = 0.1 calculate fractional quantities based on unitary fractions, e.g. 1/8 of 24 = 3, so 5/8 of 24 = 15 use doubling and halving strategies when working with simple proportions, e.g. recipes 	<ul style="list-style-type: none"> use understanding of simple fraction, decimal and percentage equivalences, e.g. find 25% of 60cm and know that this is equivalent to ¼ of 60cm calculate simple percentage quantities based on 10%, e.g. 20%, 5%, 15% use simple ratio and proportion, e.g. mixing paint 	
	Calculate using mental and written methods	<ul style="list-style-type: none"> find differences within 100 add and subtract 2-digit numbers use partitioning to double and halve 2-digit numbers 	<ul style="list-style-type: none"> find differences within 1 000 add a 2-digit number to, and subtract a 2-digit number from, a 3-digit number using an appropriate written method multiply and divide 2-digit numbers by a single digit 	<ul style="list-style-type: none"> find differences within 1-place decimals, e.g. when measuring add and subtract 3-digit numbers using an appropriate written method multiply and divide 3-digit numbers by a single-digit number 	<ul style="list-style-type: none"> add and subtract numbers using whole numbers and decimals when working with measures multiply 2- and 3-digit numbers by a 2-digit number divide 3-digit numbers by a 2-digit number 	
	Estimate and check	<ul style="list-style-type: none"> check subtraction using addition check halving using doubling check multiplication using repeated addition 	<ul style="list-style-type: none"> check answers using inverse operations estimate by rounding to the nearest 10 or 100 	<ul style="list-style-type: none"> check answers using inverse operations estimate by rounding to the nearest 10, 100 or 1 000 	<ul style="list-style-type: none"> check answers using inverse operations estimate by rounding to the nearest 10, 100, 1 000 or whole number 	
	Money	<ul style="list-style-type: none"> use different combinations of money to pay for items up to £2 and calculate the change order and compare items up to £10 	<ul style="list-style-type: none"> use money to pay for items up to £10 and calculate the change order and compare items up to £100 add and subtract decimal numbers in the context of money (total less than £10) 	<ul style="list-style-type: none"> order and compare the cost of items up to £1 000 add and subtract 2-place decimal numbers in the context of money (total less than £100) manage money, compare costs from different retailers and determine what can be bought within a given budget realise budgeting is important 	<ul style="list-style-type: none"> use the terms profit and loss in buying and selling activities and make simple calculations for this understand the costs, benefits and risks of using bank accounts 	
	Using measuring skills	Length, weight (mass) and capacity	<ul style="list-style-type: none"> use standard units of measure: <ul style="list-style-type: none"> length: measure on a ruler to the nearest ½ cm weight: use 5g, 10g and 100g weights capacity: use litres and half litres; measure to the nearest 100ml 	<ul style="list-style-type: none"> measure on a ruler to the nearest mm and record using a mix of units, e.g. 1cm 3mm use scales to weigh objects to the nearest 5g, 10g, 25g or 100g (divisions marked) measure capacities to the nearest 50ml or 100ml convert metric units of length to smaller units, e.g. cm to mm, m to cm, km to m 	<ul style="list-style-type: none"> record using decimal notation, e.g. 4.2mm read scales with 10 equal divisions between each major unit make use of simple conversions, e.g. ¼ of a km = 250m measure perimeters 	<ul style="list-style-type: none"> use a range of scales and measuring instruments, e.g. scales where there are 4 equal divisions between major units record measurements in different ways, e.g. 2.3kg = 2kg 300g use the language of imperial units in daily use, e.g. miles, pints
Time		<ul style="list-style-type: none"> tell the time to the nearest 5 minutes on an analogue clock and calculate how long it is to the next hour read hours and minutes on a 12-hour digital clock using am/pm conventions 	<ul style="list-style-type: none"> tell the time to the nearest minute on analogue clocks read hours and minutes on a 24-hour digital clock use stopwatches to time and order events in seconds use calendars to plan events 	<ul style="list-style-type: none"> read and use analogue and digital clocks use stopwatches to time events in minutes and seconds, and order the results carry out practical activities involving timed events and explain which unit of time is the most appropriate 	<ul style="list-style-type: none"> use and interpret timetables and schedules to plan events and activities and make calculations as part of the planning process estimate how long a journey takes use stopwatches to time events in minutes and seconds to the nearest tenth of a second 	
Temperature		<ul style="list-style-type: none"> take temperature readings using simple labelled thermometers and interpret readings above and below 0°C 				
Area and volume Angle						
Using data skills	Collect and record data Present and analyse data Interpret results	<ul style="list-style-type: none"> represent data using: <ul style="list-style-type: none"> simple lists, tally charts, tables and diagrams bar and bar line graphs labelled in 2s, 5s and 10s pictograms where one unit represents more than one object using simple key Venn and Carroll diagrams extract and interpret information from simple charts, timetables, diagrams and graphs. 		<ul style="list-style-type: none"> represent data using: <ul style="list-style-type: none"> lists, tally charts, tables and diagrams, frequency tables bar charts, grouped data charts, line graphs, conversion graphs extract and interpret information from an increasing range of diagrams, timetables and graphs, including simple pie charts use averages and range to describe a data set. 		

Numeracy Key Stage 3		Year 7	Year 8	Year 9
Strands	Elements	Learners are able to:	Learners are able to:	Learners are able to:
Developing numerical reasoning	Identify processes and connections	<ul style="list-style-type: none"> transfer mathematical skills across the curriculum in a variety of contexts and everyday situations select, trial and evaluate a variety of possible approaches and break complex problems into a series of tasks prioritise and organise the relevant steps needed to complete the task or reach a solution choose an appropriate mental or written strategy and know when it is appropriate to use a calculator use a scientific calculator to carry out calculations effectively and efficiently using the available range of function keys identify, measure or obtain required information to complete the task identify what further information might be required and select what information is most appropriate select appropriate mathematics and techniques to use estimate and visualise size when measuring and use the correct units 		
	Represent and communicate	<ul style="list-style-type: none"> explain results and procedures precisely using appropriate mathematical language refine methods of recording calculations use appropriate notation, symbols and units of measurement, including compound measures select and construct appropriate charts, diagrams and graphs with suitable scales construct and interpret graphs that describe real-life situations interpret graphical representations used in the media, recognising that some graphs may be misleading 		
	Review	<ul style="list-style-type: none"> select and apply appropriate checking strategies interpret answers within the context of the problem and consider whether answers, including calculator displays, are sensible verify and justify results or solutions interpret mathematical information; draw inferences from graphs, diagrams and data draw conclusions from data and recognise that some conclusions may be misleading 		
Using number skills	Use number facts and relationships	<ul style="list-style-type: none"> read and write numbers of any size and use the four operations and the connections between them, e.g. <i>realise that division is the inverse of multiplication</i> reinforce key mental facts and strategies, e.g. <i>pairs of numbers that make 1, 10, 100, 1 000, etc.</i> reinforce multiplication and division facts using a variety of strategies including halving and doubling use factors and multiples 	<ul style="list-style-type: none"> use of powers and indices reinforce key mental facts and strategies use known facts to derive others, e.g. 0.7×6, 0.03×8 	<ul style="list-style-type: none"> understand the importance of powers of 10 show awareness of the need for standard form and its representation on a calculator use of the terms square, square root, cube, cube root and reciprocal
	Fractions, decimals, percentages and ratio	<ul style="list-style-type: none"> use equivalence of fractions, decimals and percentages to compare proportions recognise that some fractions are recurring decimals, e.g. $\frac{1}{3}$ is $0.33\bar{3}$ calculate percentages of quantities by first finding 1%, i.e. dividing by 100, using non-calculator methods where possible use ratio and proportion, e.g. <i>map scales 1:100 and gear ratios</i> 	<ul style="list-style-type: none"> use equivalence of fractions, decimals and percentages to select the most appropriate for a calculation simplify a calculation by using fractions in their simplest terms calculate a percentage, fraction, decimal of any quantity with a calculator where appropriate calculate the outcome of a given percentage increase or decrease use ratio and proportion 	<ul style="list-style-type: none"> use an appreciation of equivalence of fractions, decimals and percentages use and interpret different representations of fractions, e.g. <i>mixed numbers and improper fractions</i> express one quantity as percentage of another calculate a percentage increase or decrease
	Calculate using mental and written methods	<ul style="list-style-type: none"> use efficient written procedures to add and subtract whole numbers and decimals with up to 2 decimal places multiply and divide 3-digit by 2-digit whole numbers; extend to multiplying and dividing decimals with one or two places by single-digit whole numbers multiply and divide whole numbers by 0.5, 0.2, 0.1 use the order of operations 	<ul style="list-style-type: none"> consolidate efficient written procedures to add and subtract whole numbers and decimals with up to 2 decimal places use efficient procedures for multiplication and division of whole numbers and decimals, including decimals such as 0.6 or 0.06; understand where to position the decimal point by considering the equivalent calculation use the order of operations including brackets 	<ul style="list-style-type: none"> use efficient written methods to add and subtract whole numbers and decimals of any size, including a mixture of large and small numbers with differing numbers of decimal places multiply and divide whole numbers and decimals use the order of operations including brackets and powers
	Estimate and check	<ul style="list-style-type: none"> use a range of strategies to check calculations including the use of inverse operations, equivalent calculations and the rules of divisibility use rounding to estimate answers present answers to a given number of decimal places 	<ul style="list-style-type: none"> use rounding to estimate answers to problems to a given number of significant figures present answers to a given number of significant figures 	<ul style="list-style-type: none"> make and justify estimates and approximations of calculations choose the appropriate degree of accuracy to present answers
	Money	<ul style="list-style-type: none"> use profit and loss in buying and selling calculations understand the costs, benefits and risks of using bank accounts, including bank cards 	<ul style="list-style-type: none"> carry out calculations relating to VAT, saving and borrowing appreciate the basic principles of budgeting, saving (including understanding compound interest) and borrowing 	<ul style="list-style-type: none"> calculate using foreign money and exchange rates understand the risks involved in different ways of saving and investing recognise that insurance can protect against some financial risks
Using measuring skills	Length, weight (mass) and capacity	<ul style="list-style-type: none"> convert between units of the metric system and carry out simple calculations read and interpret scales on a range of measuring instruments 	<ul style="list-style-type: none"> use the common units of measure, convert between related units of the metric system and carry out calculations when solving problems use rough metric equivalents of imperial units in daily use 	<ul style="list-style-type: none"> make links between time, speed and distance
	Time	<ul style="list-style-type: none"> use stopwatches to measure time rounding to the nearest hundredth of a second use time zones 	<ul style="list-style-type: none"> use stopwatches interpreting fractions of a second appropriately use timetables and time zones to calculate travel time 	
	Temperature	<ul style="list-style-type: none"> record temperatures in Celsius and Fahrenheit 	<ul style="list-style-type: none"> convert temperatures between Celsius and Fahrenheit 	<ul style="list-style-type: none"> convert temperatures between Celsius and Fahrenheit
	Area and volume Angle	<ul style="list-style-type: none"> find perimeters and use formula for the area of a rectangle and triangle use angle measure 	<ul style="list-style-type: none"> calculate areas of compound shapes (e.g. <i>rectangles and triangles</i>) and volumes of simple solids (e.g. <i>cubes and cuboids</i>) use bearing and grid references to specify locations 	<ul style="list-style-type: none"> find areas and circumference of circles apply understanding of bearings and scale to interpret maps and plans to create accurate plans and scale drawings of routes and journeys
Using data skills	Collect and record data Present and analyse data Interpret results	<ul style="list-style-type: none"> collect own data for a simple survey, e.g. <i>through designing a questionnaire</i> construct frequency tables for sets of data, grouped where appropriate, in equal class intervals (groups given to learners) construct graphs and diagrams to represent the data and reflect the importance of scale use mode, mean, median and range to compare two distributions (discrete data) interpret diagrams and graphs (including pie charts). 	<ul style="list-style-type: none"> plan how to collect data to test hypotheses construct frequency tables for sets of data in equal class intervals, selecting groups as appropriate construct graphs to represent data including scatter diagrams to investigate correlation interpret diagrams and graphs to compare sets of data use mode, mean, median and range to compare two distributions (continuous data). 	<ul style="list-style-type: none"> test simple hypotheses, making decisions about how best to record and analyse the information from large data sets construct and interpret graphs and diagrams (including pie charts) to represent data, with the learner choosing an appropriate scale select and justify statistics most appropriate to the problem considering extreme values (outliers) examine results critically, select and justify choice of statistics recognising limitations of any assumptions and their effect on the conclusions drawn use appropriate mathematical instruments and methods to construct accurate drawings.