



Number, Money & Measure

Fife Numeracy and Mathematics Overview for Number, Money & Measure:

- Provides a **brief overview** of progression within Number, Money and Measure
- **Aligns with the *Fife Numeracy and Mathematics Progression Pathway***
- **Should be used in conjunction with the *Fife Numeracy and Mathematics Progression Pathway*** which exemplifies how to plan for Conceptual Understanding in Numeracy
- **Should not be used** as a standalone document.
- **Can be used** as part of **professional dialogue** in relation to **Teacher Professional Judgement**

	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Estimation and rounding key vocabulary: acceptable range, accuracy, approximation, boundary estimate, decimal places, decimal fraction, exact, justification, limits, reasonable, round, significant figures, tolerance, validity							
Estimation and rounding	<ul style="list-style-type: none"> I can estimate the position of any number up to 100 000 on a number line. I can round any whole number to the nearest 10, 100, 1000. I can round numbers with one and two decimal places to the nearest whole number. I can explore situations that always require rounding up 	<ul style="list-style-type: none"> I can estimate the position of any number up to 1 000 000 on a number line. I can round whole numbers to the nearest 1000, 10 000 and 100 000 I can round decimal fraction to the nearest whole number, to one decimal place and two decimal places. I can apply knowledge of rounding to give an estimate to a calculation appropriate to the context. 	<ul style="list-style-type: none"> I can use rounding to estimate answers to calculations involving whole numbers and decimal fractions. I can explain whether an answer is reasonable using estimation strategies. I can recognise when multiplying or dividing by numbers less than 1 will increase or decrease a value. 	<ul style="list-style-type: none"> I can round decimal fraction to an appropriate degree of accuracy. I can explain my methods using mathematical vocabulary such as <i>approximation, upper and lower boundaries</i>. I can use estimation strategies to solve problems involving fractions, decimals, and percentages. 	<ul style="list-style-type: none"> I can round numbers to at least 3 decimal places. I can round numbers to at least 3 significant figures. I can use rounding to routinely estimate the answers to calculations. I can round in a way which is appropriate for the context when solving problems and determines the reasonableness of the solution. 	<ul style="list-style-type: none"> I can describe why different degrees of accuracy are needed in different situations. I can recognise that rounding at different stages can affect the final answer. I can begin to interpret measurements given within a simple tolerance. I can use the language of estimation and rounding, including <i>approximate, upper and lower boundaries</i>. 	<ul style="list-style-type: none"> I can explain how rounding can lead to inaccuracy in calculations. I can interpret tolerances, including percentage limits, in practical contexts. I can express required accuracy using tolerance notation. I can use upper and lower boundaries to support calculations and explain my reasoning. I can decide on an appropriate degree of accuracy for different situations and justify my choice. 	<ul style="list-style-type: none"> I can use tolerance to decide if a value is within an acceptable range. I can justify whether a measurement meets a required tolerance in a given context. I can use tolerance to choose the most appropriate degree of accuracy for real-life calculations. I can select and communicate efficient processes and solutions clearly.
	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Number and number processes key vocabulary: accuracy, brackets, calculation, compare, decimal fractions, integers, interpret, justification, negative numbers, order of operations, place value, problem-solving, reasoning, square numbers, strategy, subtraction							
Number and number processes	<ul style="list-style-type: none"> I can read, write, order, and recite whole numbers to 100 000, starting from any number in the sequence. <p>Negative numbers</p> <ul style="list-style-type: none"> I can show my understanding, through practical contexts, of how the number line extends to include numbers less than zero. <p>Decimal fractions to 2dp</p> <ul style="list-style-type: none"> I can read, write, and order sets of decimal fractions to two decimal places (2dp) 	<ul style="list-style-type: none"> I can read, write, and order whole numbers to 1 000 000, starting from any number in the sequence. <p>Negative Numbers</p> <ul style="list-style-type: none"> I can identify familiar contexts in which negative numbers are used. I can order numbers less than zero and locates them on a number line. <p>Decimal fractions to 3dp</p> <ul style="list-style-type: none"> I can read, write, and order sets of decimal fractions to three decimal places (3dp) 	<ul style="list-style-type: none"> I can use a range of methods (mental and written) to solve number problems in familiar contexts. I can recall and apply number facts, including multiplication facts, to support calculations. I can solve mental calculations involving the four operations. I can use negative numbers in familiar contexts, for example temperature or number lines. I can communicate my thinking and begin to explain the strategies I use 	<ul style="list-style-type: none"> I can quickly recall number facts, including the 12th multiplication table and square numbers. I can accurately solve written addition and subtraction problems involving whole numbers and decimal fractions (up to at least 3 decimal places) I can accurately solve written multiplication and division problems involving whole numbers and decimal fractions. I can select efficient methods (mental or written) to solve problems and explain my choices. I can extend my understanding of integers (including numbers less than zero) to solve problems in context 	<ul style="list-style-type: none"> I can quickly recall number facts including at least the 12th multiplication table and square numbers up to 144. I can solve written addition and subtraction problems accurately working with whole numbers and decimal fractions with up to at least 3 decimal places and selects and communicates the processes and solutions. I can solve written multiplication and division problems accurately working with whole numbers and decimal fractions with up to at least 3 decimal places. I can solve mental problems accurately involving the four operations. I can interpret and solve multi-step problems in familiar contexts ensuring correct order of operations. I can communicate and justify strategies used to solve problems. 	<ul style="list-style-type: none"> I can solve multi-step problems using addition, subtraction, multiplication, and division. I can choose a strategy that helps me solve a problem. I can explain the steps I took to reach my answer. I can use brackets in calculations and begin to follow the correct order of operations. I can use what I know from similar problems to help me solve new ones. 	<ul style="list-style-type: none"> I can solve multi-step problems using the four operations in a range of contexts. I can choose and explain why a strategy works for a given task. I can apply the correct order of operations, including brackets, in my calculations. I can adapt strategies from previous problems to help solve unfamiliar problems. I can communicate my thinking clearly using mathematical language. 	<ul style="list-style-type: none"> I can interpret and solve multi-step problems using the four operations. I can communicate and justify my choice of the most effective strategy for a given task. I can apply the correct order of operations in calculations involving brackets and explain my process and solutions. I can recognise similarities between problems and use this to solve unfamiliar problems independently. I can clearly communicate my reasoning using precise mathematical language.
	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Multiples, factors and primes key vocabulary: common factors, common multiples, factor, factor pairs, highest common factor (HCF), lowest common multiple (LCM), prime factorisation, prime factors, prime numbers, product							
Multiples, Factors and Primes	<ul style="list-style-type: none"> I can use known relationships between multiplication and division to find multiples and factor pairs for a given whole number I can find all the factors of any whole number 	<ul style="list-style-type: none"> I can identify multiples and factors of whole numbers and apply knowledge and understanding of these when solving relevant problems in number, money and measurement. 	<ul style="list-style-type: none"> I can identify multiples and factors of whole numbers using lists and simple strategies. I can recognise and identify prime numbers (within a given range). I can use vocabulary such as multiple, factor and prime. I can find common multiples and factors of simple pairs of numbers. I can begin to explore prime factorisation using simple methods (e.g. grouping factors). I can solve straightforward problems involving multiples and factors. 	<ul style="list-style-type: none"> I can investigate common multiples and common factors and explain how they have been identified. I can identify prime numbers up to at least 100 and explain my method. I can use the terms lowest common multiple (LCM) and highest common factor (HCF). I can find the LCM and HCF of a set of numbers. I can find prime factors of a number using different methods. I can use knowledge of multiples and factors to solve problems in context. I can use prime factors to support finding LCM and HCF. 	<ul style="list-style-type: none"> I can identify common multiples for whole numbers and explain the method used. I can identify common factors for whole numbers and explain the method used. I can identify prime numbers up to at least 100 and explain the method used. I can use the terms LCM and HCF accurately when solving problems. I can use knowledge of multiples to identify the lowest common multiple (LCM) of a set of numbers and the highest common factor (HCF) of a set of numbers. I can find prime factors of a number and express a number as a product of prime numbers. I can find the lowest common multiple of two numbers using their prime factors. I can solve problems using multiples and factors and clearly explain my reasoning. 	There are no experiences and outcomes at fourth level.		

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	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Powers and roots key vocabulary: base, cube root, cubed, exponent, exponential notation, index, index notation, inverse, power, powers of ten, root, scientific calculator, scientific notation, simplify, square, square root, squared, standard form							
Powers and Roots	There are no experiences and outcomes at second level.		<ul style="list-style-type: none"> I can understand that exponents represent repeated multiplication. I can recognise and use simple index notation (e.g. 2^3). I can evaluate simple powers using concrete methods and known facts. I can begin to use vocabulary such as power, exponent and squared/cubed. I can solve straightforward problems involving repeated multiplication. 	<ul style="list-style-type: none"> I can recognise and use index notation confidently. I can understand the advantages of using index notation to simplify expressions. I can evaluate powers of whole numbers mentally and using a calculator. I can express whole numbers as powers (e.g. $27 = 3^3$). I can explain my thinking using appropriate mathematical vocabulary (e.g. base, exponent). I can solve problems involving powers in familiar contexts. 	<ul style="list-style-type: none"> I can evaluate simple whole number powers (e.g. $2^4 = 16$). I can express whole numbers as powers (e.g. $27 = 3^3$). I can explain index notation and use associated vocabulary appropriately. I can evaluate powers efficiently using mental strategies and calculator functions. I can apply my understanding of powers to solve problems and explain my reasoning clearly. 	<ul style="list-style-type: none"> I can understand the relationship between powers and roots. I can show that the square root is the inverse of squaring a number. I can evaluate simple powers and roots using mental strategies and calculator support. I can estimate where a square root would lie on a number line. I can recognise and use basic index notation and root notation. I can explore powers of ten and simple standard form (e.g. $5000 = 5 \times 10^4$). I can begin to use a scientific calculator (e.g. EXP button) to work with powers. 	<ul style="list-style-type: none"> I can solve calculations involving powers and roots mentally or using a calculator. I can demonstrate understanding of higher roots (e.g. cube roots). I can write and interpret calculations involving powers and roots correctly. I can convert numbers between standard form (scientific notation) and normal form. I can arrange numbers written in scientific notation in ascending and descending order. I can use scientific notation accurately when working with large and small numbers. I can apply my understanding of powers and roots in familiar problem-solving contexts (e.g. Pythagoras' Theorem). 	<ul style="list-style-type: none"> I can use my knowledge of the relationship between powers and roots to evaluate whole number powers of any appropriate number. I can use my knowledge of the relationship between powers and roots to evaluate whole number roots of any appropriate number. I can show understanding that the square root is the inverse process of squaring a number. I can use mathematical notation to express large numbers in scientific notation. I can use mathematical notation to express small numbers in scientific notation. I can solve problems involving numbers written in scientific notation, with and without a calculator. I can apply my understanding of powers, roots, and scientific notation to solve problems and explain my reasoning clearly.
	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Fractions, decimal fractions, and percentages key vocabulary: denominator, direct proportion, equivalent fractions, improper fractions mixed numbers, percentage, percentage change, proportion, quantity, ratio, reduction, simplify, unitary fraction							
Fractions, decimal fractions, and percentages	<ul style="list-style-type: none"> I can compare and order fractions using knowledge of equivalence. I can find fractions of an amount, e.g. $\frac{2}{3}$ of 12, $\frac{7}{9}$ of 72 I can convert fractions into decimal fractions and percentages, e.g. $\frac{1}{2} = 0.5 = 50\%$ I can apply understanding of the relationship between fractions, decimal fractions, and percentages. I can find simple percentages of quantities, e.g. 25% of £16 or 50% of £24 I can identify where simple decimal fractions lie on a number line 	<ul style="list-style-type: none"> I can create equivalent fractions and uses this knowledge to put a set of most commonly used fractions in order. I can express fractions in their simplest form. I can calculate simple percentages of a quantity and use this knowledge to solve problems in everyday contexts, for example, calculates the sale price of an item with a discount of 15%. I can use knowledge of equivalent forms of common fractions, decimal fractions, and percentages, for example, $\frac{3}{4} = 0.75 = 75\%$, to solve problems. I can calculate simple fractions of a quantity and uses this knowledge to solve problems, for example, find $\frac{3}{5}$ of 60. 	<ul style="list-style-type: none"> I can understand fractions and their relationship to a whole. I can create equivalent fractions using knowledge of multiples. I can model improper fractions and mixed numbers. I can convert between improper fractions and mixed numbers. I can locate and represent fractions on a number line. I can add and subtract simple fractions using visual and mental strategies. I can model multiplication of unitary fractions and relate this to numbers. I can read, write, compare, and order simple decimal fractions. I can understand that multiplication and division with numbers less than 1 affects size. I can understand and find simple percentages (e.g. 10%, 1%). I can represent percentages in different ways. I can begin to understand ratio as comparing quantities. I can model and describe simple ratios in familiar contexts. 	<ul style="list-style-type: none"> I can simplify fractions when finding answers. I can add and subtract fractions with common and related denominators. I can understand why common denominators make calculations easier. I can use mental and written strategies for the four operations with fractions. I can multiply fractions (unitary and non-unitary). I can use mental and written strategies for the four operations with decimal fractions. I can model multiplication and division involving decimal fractions. I can read, write, compare, and order decimal fractions with increasing accuracy. I can calculate percentages of amounts and percentage change. I can understand the relationship between fractions, decimals, and percentages. I can convert between fractions, decimal fractions, and percentages. I can compare and order fractions, decimals, and percentages. I can understand and use ratio and proportion in familiar contexts. I can reduce ratios to their simplest form and use equivalent ratios. I can solve problems involving direct proportion in simple contexts. 	<ul style="list-style-type: none"> I can convert any fraction, decimal fraction, or percentage into an equivalent form. I can add and subtract commonly used fractions, including when changing a denominator. I can convert between whole numbers, mixed numbers, improper fractions, and decimal fractions. I can use fractions, decimal fractions, and percentages to conduct calculations with or without a calculator. I can use fractions, decimals, and percentages interchangeably in real-life situations. I can solve problems where quantities are increased or decreased proportionally. I can express quantities as a ratio and simplify where appropriate. I can solve problems involving ratio and proportion, including direct and inverse proportion. I can select efficient processes and clearly communicate solutions and reasoning. 	<ul style="list-style-type: none"> I can model the four operations with fractions and mixed numbers (e.g. $\frac{1}{4} \times \frac{3}{4}$). I can add and subtract mixed numbers using visual and written methods. I can represent fractions and mixed numbers on a number line. I can use mental and written strategies for calculations with fractions and mixed numbers. I can model multiplication and division of decimal fractions. I can solve straightforward problems using the four operations with decimal fractions. I can understand how a percentage relates to a whole. I can calculate simple percentages using a range of methods. I can recognise when it is useful to change between fractions, decimals, and percentages. I can begin to understand direct and inverse proportion in practical contexts. 	<ul style="list-style-type: none"> I can use efficient written and mental strategies for the four operations with fractions and mixed numbers. I can use technology to solve problems involving fractions and mixed numbers. I can solve problems involving decimal fractions using the four operations. I can understand and calculate percentages greater than 100%. I can choose appropriate methods to calculate percentages and explain my choice. I can use fractions, decimals, and percentages flexibly, selecting the most appropriate form for a given calculation. I can interpret solutions to make comparisons, decisions, and choices. I can recognise when quantities are in direct or inverse proportion. I can use numerical and graphical methods to represent direct and inverse proportion. I can solve problems involving direct and inverse proportion in familiar contexts. 	<ul style="list-style-type: none"> I can apply addition, subtraction, and multiplication skills to solve problems involving fractions and mixed numbers. I can choose the most efficient form (fraction, decimal or percentage) when making calculations and justify my methods. I can express one value as a percentage of another. I can calculate percentage increase and decrease. I can use calculations to support comparisons, decisions and choices and justify my reasoning. I can apply knowledge of proportion to solve real-life problems involving changes in related quantities. I can confidently move between fractions, decimals, and percentages to solve complex problems.

	Second		Third			Fourth		
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	Money key vocabulary: affordability, bank cards, benefits, borrow, budget, cash, compare, compound interest, contracts, costs, credit, debit, deductions, digital technologies, earnings, expenditure, financial capability, financial decisions, hidden costs, income, interest, invest, loans, national insurance, net income, offers, online spending, overspending, payment methods, planning, profit, proportion, retailers, risks, save, savings, scams, simple interest, spend, tax							
Money	<ul style="list-style-type: none"> I can select appropriate strategies to solve money problems I can compare costs to determine what is affordable within a given expenditure including in the context of retailers I have experience of exploring the costs, benefits and risks of bank cards I understand the importance of budgeting I have experience of working out profit and loss in buying and selling activities 	<ul style="list-style-type: none"> I can carry out money calculations involving the four operations. I can compare costs and determines affordability within a given budget. I can demonstrate understanding of the benefits and risks of using bank cards and digital technologies. I can calculate profit and loss accurately, for example, when working with a budget for an enterprise activity. 	<ul style="list-style-type: none"> I can understand that planning ahead is important when managing money. I can explore basic living costs and begin to understand spending for independent living. I can understand simple financial terms such as save, spend, and borrow. I can recognise different ways to pay for goods and services (e.g. cash, debit). I can identify simple financial choices and describe their impact. I can begin to plan how money can be spent and saved in familiar contexts. I can recognise that different options may have different costs. 	<ul style="list-style-type: none"> I can explain the purpose of different financial products and services. I can compare different offers and identify which provides better value. I can recognise that there may be hidden costs when purchasing goods or services. I can understand a wider range of financial vocabulary (e.g. credit, debit, interest). I can use budgeting skills in a range of contexts to manage income and spending. I can begin to use technology to support budgeting and financial planning. I can explain reasons for my financial choices. I can interpret information to make simple financial decisions. 	<ul style="list-style-type: none"> I can demonstrate understanding of best value when comparing contracts and services. I can choose the best value option for a personal scenario and justify my decision. I can budget effectively using technology to manage income and expenditure. I can show increased financial capability by making informed spending and saving choices. I can explain the impact of financial decisions using relevant information. I can use financial information (including costs, offers and value) to make reasoned choices. I can communicate my processes and reasoning clearly when making financial decisions. 	<ul style="list-style-type: none"> I can develop my understanding of tax and how it affects income. I can develop my understanding of National Insurance and its purpose. I can apply my knowledge of saving, spending, and borrowing in more complex contexts. I can explore financial products such as loans, savings accounts, and credit. I can recognise risks such as overspending, scams and online spending. I can begin to compare different financial offers and identify key differences. I can understand how interest is applied to savings and borrowing. 	<ul style="list-style-type: none"> I can calculate and compare different financial offers and explain which provides best value. I can use percentages to calculate interest and compare costs more accurately. I can connect compound interest to repeated applications of simple interest using digital tools. I can apply my understanding of financial services (credit, debit, borrowing) to make informed decisions. I can consider the impact of financial decisions, including risks and long-term consequences. I can confidently use budgeting skills to manage income and expenditure in a variety of contexts. I can justify my financial choices using relevant information. 	<ul style="list-style-type: none"> I can apply understanding of credit and debit in relation to earnings and deductions. I can calculate net income by selecting appropriate financial information. I can use budgeting skills effectively to manage income and justify spending and saving choices. I can compare a range of personal finance products and explain my decisions clearly. I can communicate the impact of financial decisions using appropriate reasoning. I can make informed financial decisions by analysing costs, value, and available options.
	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Time key vocabulary: 24-hour clock, 12-hour clock, analogue clock, average speed, calendar, calculation, compatible units, conversion, decimal time, digital clock, distance, distance/time graph, duration, formula, fraction (time), graphs, hours, hundredths of a second, interval, journey time, kilometres per hour (km/h), minutes, months, number of days, planning, problem-solving, reasoning, seconds, speed, strategy, time, time interval, time management, time zone, timetable, units of time							
Time	<ul style="list-style-type: none"> I can tell the time in 1-minute intervals using both analogue and digital clocks I can calculate time durations in 1-minute intervals I can record 12-hour and 24-hour time as well as beginning to convert between the two I can convert whole hours and half hours to minutes e.g. 1½ hours into minutes (90) or hours and minutes (1hr and 30mins) I have experience of a range of paper and electronic timetables and calendars set out in both 12- and 24-hour clock times I can calculate simple time durations of activities using 12- and 24-hour clock in hours and minutes 	<ul style="list-style-type: none"> I can read and record time in both 12 hour and 24-hour notation and can convert between the two. I know the relationships between commonly used units of time and carries out simple conversion calculations, for example, changes 1 $\frac{3}{4}$ hours into minutes. I can use and interpret a range of electronic and paper-based timetables and calendars to plan events or activities and solve real life problems. I can calculate durations of activities and events including situations bridging across several hours and parts of hours using both 12-hour clock and 24-hour notation. I can estimate the duration of a journey based on knowledge of the link between speed, distance and time. I can choose the most appropriate timing device in practical situations and records using relevant units, including hundredths of a second. I can select the most appropriate unit of time for a given task and justifies choice. 	<ul style="list-style-type: none"> I can understand the relationship between speed, distance, and time in simple contexts. I can identify and use appropriate units (e.g. km, hours). I can calculate simple time intervals within and across hours. I can begin to use the speed, distance, and time formula in familiar situations. I can extract relevant information from simple problem-solving contexts. I can interpret simple distance/time graphs. 	<ul style="list-style-type: none"> I can use the relationship between speed, distance, and time to calculate missing values. I can convert between hours and minutes and decimal hours. I can calculate time intervals across hours and days. I can calculate average speed, distance, and time in a range of contexts. I can identify and use compatible units (e.g. km and km/h). I can select the correct formula for a given situation. I can create and interpret distance/time graphs. I can use graphs to calculate speed. 	<ul style="list-style-type: none"> I can apply my understanding of the relationship between speed, distance, and time to calculate each variable. I can work with time expressed as fractions and decimal fractions (e.g. $\frac{1}{2}$, 0.5, $\frac{1}{4}$, 0.25). I can calculate time durations accurately across hours and days. I can solve problems involving speed, distance, and time in a range of contexts. I can use and interpret distance/time graphs to support calculations. I can select efficient strategies and clearly explain my methods and reasoning. 	<ul style="list-style-type: none"> I can convert between hours, minutes and decimal hours using appropriate methods. I can apply the relationship between speed, distance, and time in familiar contexts. I can identify and use the correct formula for simple problems. I can calculate time durations across hours and into the next day. I can begin to use decimal time when solving problems. 	<ul style="list-style-type: none"> I can confidently convert between hours, minutes, and decimal fraction hours. I can select and apply the correct formula in a range of contexts. I can conduct calculations involving speed, distance and time using decimal values. I can calculate time durations across multiple days and explain my methods. I can apply my understanding to solve more complex, multi-step problems. I can interpret and use time in real-life contexts (e.g. travel planning). 	<ul style="list-style-type: none"> I can demonstrate effective time management skills, including working across midnight and with different time zones. I can conduct calculations involving speed, distance and time using decimal and decimal fraction hours. I can calculate time durations accurately across hours, days, and months. I can apply my understanding to plan, solve problems, and justify my reasoning in real-life contexts. I can select efficient strategies and communicate my solutions clearly.
	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Measurement key vocabulary: accuracy, area, breadth, capacity, compound shapes, cuboids, cubes, depth, dimensions, displacement, error, estimation, formulae, imperial units, inaccurate(m ²), nets, perimeter, prism, reasoning, relationships, rhombus, surface area, volume, weight							
Measurement	<ul style="list-style-type: none"> I can use the known size of an object to estimate the size of unfamiliar objects. I can convert between fractional parts or decimal notation to 2dp when using measurements. I can compare, sort and order objects using different standard units. 	<ul style="list-style-type: none"> I can convert between related units to efficiently solve problems. I can use the comparative size of familiar objects to make reasonable estimations of length, mass, area, and capacity. I can estimate to the nearest appropriate unit, then measures 	<ul style="list-style-type: none"> I can choose appropriate units for length, area, and volume in practical situations. I can convert between standard units of measurement. I can explain that smaller units give more accurate measurements. I can use known relationships to solve simple measurement problems. 	<ul style="list-style-type: none"> I can convert between standard units up to 3 decimal places. I can apply relationships to calculate unknown measurements in different contexts. I can calculate the area of 2D shapes where the units are inconsistent. 	<ul style="list-style-type: none"> I can convert between standard units to at least 3 decimal places and apply this when solving problems involving length, area, volume, and capacity. I can determine and justify the level of accuracy needed to solve real-life measurement problems. I can calculate the area of compound 2D 	<ul style="list-style-type: none"> I can extend my understanding that smaller units of measurement give more accurate answers. I can describe situations where exact measurements are difficult to calculate. I can begin to consider the level of accuracy required when solving measurement problems. 	<ul style="list-style-type: none"> I can describe when and why exact measurements may not be possible in real-life contexts. I can determine an appropriate level of accuracy when solving multi-step measurement problems. I can split nets into multiple parts to calculate surface area. 	<ul style="list-style-type: none"> I can determine and justify the level of accuracy required to solve multi-step real-life measurement problems. I can demonstrate the impact of inaccuracy and error, including the effect of rounding at different stages of a calculation.

	<ul style="list-style-type: none"> I can draw squares and rectangles with a given perimeter. I can calculate the area of a 2D rectangle or square and explain the method used. I can begin to see the relationship between counting cubes and calculations for calculating volume. I can interpret unnumbered graduations on a variety of scales. I can show an awareness of imperial units used in everyday life, for example, miles or stones. 	<p>accurately: length, height and distance in millimetres (mm), centimetres (cm), metres (m), and kilometres (km); mass in grams (g) and kilograms (kg); and capacity in millilitres (ml) and litres (l). (Measuring accurately including using decimals and fractional parts.)</p> <ul style="list-style-type: none"> I can calculate the perimeter of simple straight sided 2D shapes in millimetres (mm), centimetres (cm), and metres (m). I can calculate the area of squares, rectangles and right-angled triangles in square millimetres (mm²) square centimetres (cm²) and square metres (m²). I can calculate the volume of cubes and cuboids in cubic centimetres (cm³) and cubic metres (m³). I can convert between common units of measurement using decimal notation, for example, 550 cm = 5.5 m: 3.009 kg = 3009 g. I can choose the most appropriate measuring device for a given task and conducts the required calculation, recording results in the correct unit. I can read a variety of scales accurately. I can draw squares and rectangles accurately with a given perimeter or area. I can demonstrate understanding of the conservation of measurement, for example, draw three different rectangles each with an area of 24 cm². 	<ul style="list-style-type: none"> I can begin to calculate unknown measurements using relationships. I can estimate length, volume, mass, weight, and area without given units. I can understand that units can be made up of smaller parts combined. I can recognise parts of compound shapes and objects using my knowledge of familiar shapes. I can begin to split simple compound shapes or objects into parts to help find area or volume. 	<ul style="list-style-type: none"> I can find the area of compound 2D shapes. I can use formulae to calculate the area of parallelograms, rhombuses, and kites. I can describe situations where exact measurements are difficult to calculate. I can begin to choose an appropriate level of accuracy when solving problems. I can split compound shapes and objects into multiple parts to calculate area or volume. I can use liquid displacement to measure and compare the volume of objects. I can explain the relationship between length, breadth and depth when calculating area and volume. I can begin to link these relationships to known formulae. 	<p>shapes and explain my method clearly.</p> <ul style="list-style-type: none"> I can use appropriate formulae to calculate area, including parallelograms, rhombuses, and kites. I can calculate the volume of 3D shapes where the units are inconsistent. I can use formulae to calculate the volume of regular prisms and cuboids. I can find the volume of compound 3D shapes and explain my method. I can select the most appropriate formula to solve measurement problems. I can use my understanding of compound shapes and formulae to solve multi-step problems. I can confidently split complex shapes and objects into manageable parts to calculate area and volume. I can apply estimation to check the reasonableness of my answers. I can explain and justify how relationships between dimensions support my calculations. 	<ul style="list-style-type: none"> I can understand that a net is made from common 2D shapes. I can recognise and identify the shapes that make up a net. I can begin to split a net into parts to help calculate surface area. I can begin to explore relationships between dimensions to understand surface area and volume. I can use my knowledge of shapes to begin forming simple formulae for area and volume. 	<ul style="list-style-type: none"> I can use my understanding of relationships between dimensions to develop and use formulae for surface area and volume. I can use knowledge of nets and formulae to solve problems involving surface area. I can apply formulae to calculate the surface area of a range of 3D objects. I can apply formulae to calculate the volume of different 3D objects. I can begin to select appropriate formulae when solving measurement problems. 	<ul style="list-style-type: none"> I can select the most appropriate formula to solve surface area and volume problems. I can calculate the surface area of cylinders, cuboids and triangular prisms using formulae. I can use surface area calculations to solve problems involving efficient use of materials. I can calculate the volume of cuboids, triangular prisms and cylinders using formulae. I can use volume calculations to make practical decisions in real-life contexts.
	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Mathematics – its impact on the world, past, present, and future key vocabulary: analysis, careers, communication, contribution, discussion, employability, evaluation, explanation, findings, impact, independence, influence, inquiry, investigation, justification, mathematician, mathematics, significance, STEM							
Mathematics – its impact on the world, past, present, and future	<ul style="list-style-type: none"> There is a great deal of opportunity for learner choice and linking to other curricular areas (see progression pathway for suggestions). 	<ul style="list-style-type: none"> Researches and presents examples of the impact mathematics has in the world of life and work. Contributes to discussions and activities on the role of mathematics in the creation of important inventions, now and in the past. 	<ul style="list-style-type: none"> I can explore a mathematician and describe the work for which they are known. I can explore a mathematical topic of interest with support. I can share simple information about how mathematics is used in the world. I can work with others to create a basic presentation about mathematics or a mathematician. I can ask simple questions about the work or findings of others. I can respond to questions about my own ideas with support. 	<ul style="list-style-type: none"> I can explore a mathematician and explain their contribution in more detail. I can investigate a mathematical topic of interest and share my findings. I can explain how mathematics has impacted the world in different contexts. I can work with others to create a clear presentation about the impact of mathematics or mathematicians. I can ask relevant questions to explore and challenge the ideas of others. I can respond to questions about my findings and explain my thinking. 	<ul style="list-style-type: none"> I can investigate a mathematician and evaluate the significance of their work and its impact. I can independently explore a mathematical topic of interest and present detailed findings. I can explain and justify how mathematics has influenced the world, both in the past and present. I can create and deliver a well-structured presentation with others on the impact of mathematics or mathematicians. I can use effective questioning to critically analyse and interrogate the findings of others. I can respond confidently to questioning, justifying my ideas and conclusions. 	<ul style="list-style-type: none"> I can explore the mathematical skills required for different careers. I can describe the importance of mathematics in everyday life and the world of work. I can begin to explore how mathematics is used within STEM subjects. I can work with others to gather and share information about how mathematics is applied in the workplace. I can ask questions to develop my understanding of the role mathematics plays in jobs and STEM. I can respond to questions about my ideas and share my learning with support. 	<ul style="list-style-type: none"> I can explain the mathematical skills required for a range of careers, including those in STEM. I can explain the importance of mathematics in the real world and the workplace with examples. I can explore links between mathematical topics and their application within STEM. I can work collaboratively to create and deliver a clear presentation about how mathematics is applied in the workplace. I can ask purposeful questions to extend my understanding of mathematics in employability and STEM contexts. I can respond to questioning by explaining my research and ideas. 	<ul style="list-style-type: none"> I can investigate the mathematical skills required for a range of careers, including those in STEM subjects. I can contribute to discussions about the role of mathematics in everyday life and in the workplace. I can contribute to presentations about how mathematics is applied in real-life and workplace contexts. I can explain and justify the importance of mathematics in employability and STEM. I can ask informed questions to deepen understanding of how mathematics is used across different contexts. I can respond confidently to questioning, sharing, and justifying my knowledge of the impact of mathematics in the world of work.

	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Patterns and relationships key vocabulary: algebraic notation, analysis, axes, constant difference, coordinates, conclusions, diagrams, distance–time graphs, equations, Fibonacci sequence, generalisation, gradient, graphs, horizontal lines, intercept (y-intercept), linear sequences, multiples, non-linear sequences, nth term, patterns, relationships, rule, scale, sequences, square numbers, straight line, symbolic rules, tables, terms, triangular numbers, vertical lines							
Patterns and Relationships	<ul style="list-style-type: none"> I can determine the rule (known as 'generalisation') that describes the pattern from a table of results and use this rule to calculate the corresponding value for a larger number. 	<ul style="list-style-type: none"> I can explain and use a rule to extend well known number sequences including square numbers, triangular numbers, and Fibonacci sequence. I can apply knowledge of multiples, square numbers, and triangular numbers to generate number patterns. 	<ul style="list-style-type: none"> I can recognise patterns and understand that they can be continued. I can describe patterns using words. I can understand that patterns can follow a rule. I can represent patterns using tables, diagrams, or simple graphs. I can begin to analyse patterns to identify simple relationships. I can continue a sequence when given a rule and starting point. 	<ul style="list-style-type: none"> I can analyse patterns using tables, graphs, words, and simple symbolic rules. I can select appropriate methods to help me identify and describe a pattern. I can identify and describe the rule for a sequence of numbers. I can calculate missing terms in a sequence. I can continue a sequence when given the rule and first term. I can begin to express pattern rules using algebraic notation. I can make connections between patterns and real-life contexts. 	<ul style="list-style-type: none"> I can generate number sequences from a given rule. I can determine the rule defining a sequence of numbers. I can express sequence rules using algebraic notation. I can construct the rule for the nth term of a sequence. I can construct an algebraic rule from a word problem. I can analyse patterns and functions using tables, graphs, words, and symbolic rules. I can select and use appropriate methods to analyse patterns and identify rules and terms. 	<ul style="list-style-type: none"> I can recognise that there are different types of sequences, including non-linear sequences. I can construct a rule for the nth term of a sequence with a constant difference. I can use an nth term rule to generate a sequence. I can understand that gradient measures the steepness of a slope. I can describe gradients as positive, negative, zero or undefined. I can identify patterns in coordinates on horizontal and vertical lines. I can understand the meaning of the term y-intercept. I can complete a table of values for a given equation. I can plot points from a table onto a graph. I can begin to explore the relationship between a graph and its equation. 	<ul style="list-style-type: none"> I can construct formulae for the nth term of linear and non-linear sequences. I can use nth term formulae to generate and analyse sequences. I can calculate the gradient of a straight line using two points. I can calculate gradient by finding the change in vertical distance over horizontal distance. I can select appropriate points on a graph to calculate gradient. I can compare gradients to determine which line is steeper. I can understand how the scale of axes affects the appearance of gradient. I can identify the gradient and y-intercept from the equation of a straight line. I can use the form $y = mx + c$ to describe a straight line. I can plot a straight line using a given equation. I can describe and represent horizontal and vertical lines using equations. I can begin to interpret graphs, including distance–time graphs, using gradient. I can solve problems involving sequences and gradients in familiar contexts. 	<ul style="list-style-type: none"> I can determine a general formula to describe a sequence and use it to solve related problems. I can calculate the gradient of a straight line from a coordinate diagram. I can calculate the gradient of a straight line using two given coordinates. I can draw conclusions about the gradient of a line. I can communicate the gradient of vertical and horizontal lines and state their equations. I can use the formula $y = mx + c$ to express the equation of a straight line. I can use a given formula to plot a straight line. I can interpret graphs of straight lines to solve real-life problems. I can use my understanding of gradient to interpret distance–time graphs. I can solve real-life problems involving gradients and explain what the solution means. I can analyse connections between equations, graphs, gradients, and intercepts.
	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Expressions and equations key vocabulary: algebra, algebraic expressions, brackets, coefficient, commutative law, cubic terms, distributive law, equations, evaluate, expand, expressions, factorise, formula, generalisation, highest common factor, inequalities, inequality symbols (<, >, ≤, ≥), inverse operations, like terms, linear equations, mathematical modelling, multiplicands, multipliers, multi-step problems, nth term, patterns, relationships, simplify, substitution, symbols, tables, terms, unlike terms, variable							
Expressions and Equations	<ul style="list-style-type: none"> I am beginning to use letters in a variety of numerical expressions for missing minuends and subtrahends. I am beginning to use letters in a variety of numerical expressions for missing multiplicands and multipliers. e.g. $\blacklozenge \times 4 = 24$ and $4 \times \blacklozenge = 24$ 	<ul style="list-style-type: none"> I can solve simple algebraic equations with one variable, for example, $a - 30 = 40$ and $4b = 20$. 	<ul style="list-style-type: none"> I can understand the meaning of the terms variable and coefficient. I can understand that an expression is a combination of numbers, letters, and symbols. I can write simple expressions using letters instead of numbers. I can begin to evaluate expressions by substituting numbers for letters. I can understand why like terms can be combined. I can add and subtract simple like terms. I can understand how tables can help identify patterns and relationships. I can begin to create simple formulae from tables or patterns. 	<ul style="list-style-type: none"> I can evaluate expressions by substituting positive and negative values. I can apply BODMAS when evaluating algebraic expressions. I can add and subtract like terms in more complex expressions. I can multiply and divide algebraic terms. I can understand why unlike terms can be multiplied and divided. I can create expressions and formulae from tables, diagrams, and word problems. I can interpret simple formulae and explain what they represent. I can begin to construct equations from word problems. I can begin to evaluate more complex formulae. I can select appropriate methods to create formulae. 	<ul style="list-style-type: none"> I can collect like terms, including up to cubic terms, to simplify algebraic expressions. I can evaluate expressions involving more than one variable using positive and negative values. I can construct linear equations from word problems and real-life contexts. I can solve linear equations. I can create a simple linear formula from a diagram, problem, or statement. I can evaluate a simple linear formula. I can interpret problems and create equations or formulae to model them. I can deconstruct a formula to explain what each part represents. 	<ul style="list-style-type: none"> I can model the distributive law in practical contexts. I can recognise that the commutative law applies to algebraic expressions. I can understand that factorising is the opposite of expanding brackets. I can evaluate expressions that include brackets by substituting values. I can begin to expand simple expressions using the distributive law. I can identify common factors in simple algebraic expressions. I can understand and use the symbols <, >, ≤ and ≥. I can model solving equations by balancing both sides. I can begin to solve simple equations with unknowns on both sides. 	<ul style="list-style-type: none"> I can expand and simplify algebraic expressions, including those with negative multipliers. I can factorise algebraic expressions using common factors. I can identify the highest common factor in algebraic expressions. I can evaluate algebraic expressions that include brackets. I can solve equations with unknowns on both sides, including those with brackets. I can solve inequations and understand how operations affect the inequality symbol. I can construct equations and inequations from diagrams and real-life contexts. I can use inverse operations to simplify and solve equations and inequations. I can interpret solutions within the context of a problem. 	<ul style="list-style-type: none"> I can expand brackets using the distributive law. I can factorise expressions with a numeric common factor. I can evaluate algebraic expressions involving brackets. I can solve an extended range of linear equations involving the distributive law. I can solve linear inequalities, including within simple closed intervals. I can construct and solve equations, inequations and formulae to model real-life problems. I can interpret solutions and check their validity within the original context. I can use algebra confidently to solve multi-step problems involving equations and inequalities.