



Unit 1	Analysing and displaying data
Intention	To develop essential statistical skills for understanding, analysing, and graphically representing data
Key words	mode, median, range, grouped data, quantitative, qualitative, primary, secondary
Study	https://sites.google.com/langdonpark.org/maths/study/key-stage-3

Success criteria	R	A	G
I can calculate mean, median, mode and range from a data set			
I can calculate the median from a frequency table			
I can calculate the mean from a grouped frequency table			
I can find the modal class from a grouped frequency table			
I can compare and interpret data in different contexts			
I can draw and interpret line graphs			
I can draw and interpret bar charts			

Unit sequence	Top career
<ol style="list-style-type: none">1. Mode, median and range2. Displaying data3. Grouping data4. Averages and comparing data5. Line graphs and more bar charts	Game Theory Analyst Studies strategic interactions, using mathematical models to optimise decisions in competitive environments. Salary £90,000 - £150,000+ per year

Useful links	YouTube channels
https://www.sparxmaths.uk/ https://sites.google.com/langdonpark.org/maths https://www.1stclassmaths.com/edexcelrevision https://www.mathsgenie.co.uk/ https://corbettmaths.com/ https://mmerevise.co.uk/gcse-maths-revision/ https://www.thenational.academy/pupils/years/ https://www.maths4everyone.com/	@ExamSolutions_Maths @1stClassMaths @mathsgenie7808 @corbettmaths @mathsmadeeasy123 @TheGCSEMathsTutor @Cognitoedu @DrFrostMaths

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David Blackwell (1919–2010) was a pioneering Black mathematician and statistician. He made major contributions to game theory and created the "Blackwell algorithm" which improved computer decision-making and influenced many fields, including finance and genetics.



Unit 2	Number skills
Intention	To build confidence in number skills, including mental maths, operations, practical applications, and understanding number properties for problem-solving and reasoning.
Key words	negative numbers, factors, multiples, primes, and square numbers
Study	https://sites.google.com/langdonpark.org/maths/study/key-stage-3

Success criteria	R	A	G
I can solve mental maths problems, choosing the most efficient strategies			
I can add and subtract large numbers, both with and without a calculator			
I can multiply and divide using written methods and apply to real-world problems			
I can use addition, subtraction, multiplication, and division in money problems			
I can compare, add, and subtract positive and negative numbers on a number line			
I can identify factors and multiples of numbers, and recognise prime numbers			
I can recognise, recall, and calculate square numbers up to 15^2			

Unit sequence	Top career
<ol style="list-style-type: none">1. Mental maths2. Addition and subtraction3. Multiplication4. Division5. Money and time6. Negative numbers7. Factors, multiples and primes8. Square numbers	<p>Cryptographer</p> <p>Designs secure encryption methods for data protection, used by governments, banks, and tech companies.</p> <p>Salary</p> <p>£50,000 - £150,000+ per year</p>

Useful links	YouTube channels
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Elizebeth Smith Friedman (1892–1980) was a groundbreaking female American cryptographer who cracked enemy codes during both World Wars, pioneering modern cryptography and setting the stage for future cryptographers, especially women.



Unit 3	Expressions, functions and formulae
Intention	To build confidence in recognising, simplifying, expanding, and solving algebraic expressions and equations, enabling students to model scenarios algebraically
Key words	terms, expressions, equations, formulae, factorise, expand, rearrange, balancing
Study	https://sites.google.com/langdonpark.org/maths/study/key-stage-3

Success criteria	R	A	G
I can recognise terms, expressions, equations, and formulae			
I can identify and collect like terms to simplify algebraic expressions			
I can expand and simplify algebraic terms and expressions			
I can factorise terms and expressions			
I can use the balancing method to solve linear equations			
I can use the balancing method to rearrange formulae			
I can express a scenario algebraically using terms and expressions			

Unit sequence	Top career
<ol style="list-style-type: none"> 1. Functions 2. Simplifying expressions 1 3. Simplifying expressions 2 4. Writing expressions 5. Substituting into formulae 6. Writing formulae 	<p>Quantitative Analyst (Quant)</p> <p>Uses algebra to develop financial models, optimise trading strategies, and assess market risks.</p> <p>Salary</p> <p>£120,000 - £200,000+ per year</p>

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<p>Bhāskara II (1114–1185), an Indian mathematician, excelled in algebra, writing the influential <i>Bijaganita</i> text. His pioneering techniques in solving complex algebraic problems greatly influenced the development of modern mathematics.</p>



Unit 4	Decimals and measures
Intention	To build confidence in recognising, simplifying, expanding, and solving algebraic expressions and equations, enabling students to model scenarios algebraically
Key words	decimals, decimal points, significant figures, nearest, metrics, units, mass, capacity
Study	https://sites.google.com/langdonpark.org/maths/study/key-stage-3

Success criteria	R	A	G
I can round decimals to a specified decimal place accurately			
I can measure and convert between units of length, mass, and capacity			
I can interpret and use scales accurately on measuring tools			
I can perform mental calculations with decimals in different contexts			
I can add, subtract, multiply, and divide decimals confidently			
I can calculate the perimeter of various 2D shapes			
I can calculate the area of rectangles, triangles, parallelograms and trapeziums			

Unit sequence	Top career
<ol style="list-style-type: none"> Decimals and rounding Length, mass and capacity Scales and measures Working with decimals mentally Working with decimals Perimeter Area 	<p>Metrologist</p> <p>Ensures precise measurements in length, mass, temperature, calibrates instruments, and maintains standards for accuracy in various industries.</p> <p>Salary</p> <p>£50,000 - £70,000+ per year</p>

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Dr. George Robert Carruthers (1939–2020) was a pioneering Black physicist and inventor who developed precise measurement instruments for NASA, including an ultraviolet camera used on Apollo 16, advancing space exploration technology.



Unit 5	Fractions and percentages
Intention	To build confidence in comparing, simplifying, and calculating with fractions, decimals, and percentages, and solve real-world problems effectively.
Key words	percent, fraction, numerator, denominator, lowest common multiple
Study	https://sites.google.com/langdonpark.org/maths/study/key-stage-3

Success criteria	R	A	G
I can compare fractions and determine which is larger or smaller			
I can simplify fractions to their lowest terms			
I can add, subtract, multiply, and divide fractions accurately			
I can convert between fractions and decimals confidently			
I can explain the relationship between fractions, decimals, and percentages			
I can calculate percentages of given amounts accurately			
I can solve real-world problems using fractions, decimals, and percentages			

Unit sequence	Top career
<ol style="list-style-type: none">1. Comparing fractions2. Simplifying fractions3. Working with fractions4. Fractions and decimals5. Understanding percentages6. Percentages of amounts	Financial analyst Evaluates investment opportunities, using fractions and percentages to analyse financial data precisely. Salary £70,000 - £200,000+ per year

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Nobuhiro Kiyotaki (born 1955) is a Japanese economist known for the Kiyotaki-Moore model, which explains how credit cycles affect economic growth. His work has shaped finance and economic policy worldwide.



Unit 6	Probability
Intention	To develop understanding of probability language, calculations, and experimental methods, and to predict and interpret expected outcomes in various contexts.
Key words	event, outcome, scale, expected frequency, theoretical, experimental, predict
Study	https://sites.google.com/langdonpark.org/maths/study/key-stage-3

Success criteria	R	A	G
I can describe events using the language of probability			
I can calculate the probability of single events accurately			
I can calculate the probability of single events in different contexts			
I can conduct probability experiments and record results systematically			
I can compare experimental results to theoretical probabilities			
I can predict expected outcomes based on probability calculations			
I can interpret probability results and apply them to real-life scenarios effectively			

Unit sequence	Top career
<ol style="list-style-type: none">1. The language of probability2. Calculating probability3. More probability calculations4. Experimental probability5. Expected outcomes	Risk analyst Assesses potential risks for companies, using probability to predict and manage financial uncertainties. Salary £70,000 - £100,000+ per year

Useful links	YouTube channels
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Sharon Bowen (born 1962) is a prominent Black financial expert and risk analyst, known for her leadership in financial services, serving on boards and advocating for diversity in finance.



Unit 7	Ratio and proportion
Intention	To develop understanding of ratios, proportions, and fractions, enabling effective writing and application of these concepts in real-world situations.
Key words	direct, inverse, unitary, proportionality, ratios, parts
Study	https://sites.google.com/langdonpark.org/maths/study/key-stage-3

Success criteria	R	A	G
I can identify and calculate direct proportion in various contexts			
I can write and simplify ratios accurately			
I can use ratios to compare quantities effectively			
I can convert between ratios, proportions, and fractions in different contexts			
I can calculate percentages based on given proportions			
I can apply ratios and proportions to solve complex mathematical problems			
I can identify inverse proportion in various contexts			

Unit sequence	Top career
<ol style="list-style-type: none">1. Direct proportion2. Writing ratios3. Using ratios4. Ratios, proportions and fractions5. Proportions and percentages	Market Research Analyst Uses ratios and proportions to interpret consumer data, identify market trends, and evaluate competition. Salary £55,000 - £85,000+ per year

Useful links	YouTube channels
https://www.sparxmaths.uk/ https://sites.google.com/langdonpark.org/maths https://www.1stclassmaths.com/edexcelrevision https://www.mathsgenie.co.uk/ https://corbettmaths.com/ https://mmerevise.co.uk/gcse-maths-revision/ https://www.thenational.academy/pupils/years/ https://www.maths4everyone.com/	@ExamSolutions_Maths @1stClassMaths @mathsgenie7808 @corbettmaths @mathsmadeeasy123 @TheGCSEMathsTutor @Cognitoedu @DrFrostMaths

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Angela Lee Duckworth (born 1970) is a prominent psychologist and market researcher known for her work on grit, founding Character Lab, which enhances educational outcomes and influences talent development strategies in business and education



Unit 8	Lines and angles
Intention	To understand and apply angle facts, including angles on a straight line, around a point, and in triangles and quadrilaterals, to solve geometric problems and justify reasoning.
Key words	parallel, perpendicular, quadrilateral, interior, exterior, alternate, corresponding
Study	https://sites.google.com/langdonpark.org/maths/study/key-stage-3

Success criteria	R	A	G
Identify and name different types of angles			
Measure angles accurately using a protractor			
Use angle rules on a straight line and around a point			
Apply angle facts in triangles and quadrilaterals			
Identify and use vertically opposite angles			
Use angle rules with parallel lines and a transversal			
Justify answers using correct mathematical reasoning and terminology			

Unit sequence	Top career
<ol style="list-style-type: none">1. Measuring and drawing angles2. Lines, angles and triangles3. Drawing triangles accurately4. Calculating angles5. Angles in a triangle6. Quadrilaterals	<p>Architect</p> <p>Designs buildings using creativity and maths to create safe, functional, and attractive spaces.</p> <p>Salary</p> <p>£30,000 - £150,000+ per year</p>

Useful links	YouTube channels
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<p>Zaha Hadid (1950 - 2016) was a groundbreaking architect known for her futuristic, flowing designs. She combined creativity with engineering to create iconic buildings like the London Aquatics Centre and Guangzhou Opera House, inspiring architects around the world with her bold vision.</p>



Unit 9	Sequences and graphs
Intention	To recognise, describe, and generate sequences, including linear and non-linear patterns, including representing the Nth term of a linear sequences algebraically
Key words	Sequence, term, term-to-term, position-to-term, linear, non-linear
Study	https://sites.google.com/langdonpark.org/maths/study/key-stage-3

Success criteria	R	A	G
Identify term-to-term and position-to-term rules in sequences			
Generate terms in a linear sequence using a word rule			
Recognise and describe patterns in non-linear sequences			
Find the nth term of a linear sequence algebraically			
Draw and extend a sequence by recognising patterns			
Use algebraic reasoning to determine whether a term is in a sequence			
Represent a sequence graphically and recognising the mathematical relationship			

Unit sequence	Top career
<ol style="list-style-type: none">1. Sequences2. Pattern sequences3. Coordinates and midpoints4. Extending sequences5. Straight-line graphs6. Position-to-term rules	<p>Data Analyst</p> <p>Uses statistics, sequences, and graphs to help businesses make informed decisions based on evidence</p> <p>Salary</p> <p>£55,000 - £85,000+ per year</p>

Useful links	YouTube channels
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Gladys West (born 1930) is an African American mathematician whose work in modelling the Earth's surface and analysing satellite data contributed to the development of GPS technology. She used complex graphs, data, and sequences in her calculations.



Unit 10	Transformations
Intention	To understand and accurately perform translations, reflections, rotations, and enlargements on 2D shapes, using coordinates, vectors, and scale factors
Key words	translation, reflection, rotation, enlargement, centre, scale factor, column vectors
Study	https://sites.google.com/langdonpark.org/maths/study/key-stage-3

Success criteria	R	A	G
Translate shapes using vector notation			
Reflect shapes across horizontal, vertical, and diagonal lines			
Rotate shapes around a given point and angle			
Enlarge shapes using a positive scale factor and centre of enlargement			
Enlarge shapes using a negative scale factor and centre of enlargement			
Perform and describe a combination of transformations			
Use mathematical vocabulary to describe transformations			

Unit sequence	Top career
<ol style="list-style-type: none">1. Congruency and enlargements2. Symmetry3. Reflection4. Rotation5. Translations and combined transformations	<p>Graphic Designer</p> <p>Uses transformations like reflection, rotation, and scaling to create visually appealing layouts, logos, and digital content</p> <p>Salary</p> <p>£30,000 - £100,000+ per year</p>

Useful links	YouTube channels
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Jessica Walsh (born 1986) is a renowned graphic designer and art director. Her innovative work often involves geometric transformations to create dynamic visual compositions across branding and digital media.