Year /	Seguences Place Value Calculations	Parimeter/Area/Malume and Displacing Date	Angles and Algebraic Mexiculation	EDD and Linear Graphs	Dowers/Poots and Avers	Patio Percentages Algebraia Maniaulatia
Topic Summary	Sequences, Place Value, Calculations	Perimeter/Area/Volume and Displaying Data	Angles and Algebraic Manipulation	FDP and Linear Graphs	Powers/Roots and Averages	Ratio, Percentages, Algebraic Manipulation
Thinking Hard	Write numbers using standard form Perform calculations with standard form	Calculate surface area of 3D shapes including cubes, cuboids and triangular prisms. Identify and critique misleading features of graphs/tables.	Use a combination of angle facts to calculate missing angles Use substitution in a variety of contexts	Understand and calculate simple interest Write equations of parallel lines in the form y=mx+c from a graph	Calculate the mean from grouped data Simplify and perform calculations including surds	Solve inverse proportion problems in real-life situations Calculate reverse percentage change Use algebra in real life situations
Developing Character	Curiosity: exploring different place values and it's uses in different civilisations as well as within computers	Kindness: Developing Spatial awareness.	Grit: Systematic approach to tackling work/presenting work. Learning what is seen as the "scary" part of Mathematics	Mindfulness: How creating an equation can help us solve problems systematically. Understanding how sequences follow patterns. Mathematics teaches students to be disciplined and obey the rules.	Curiosity: Creating a statistical enquiry and becoming aware of how statistics can be manipulated.	Self-Assurance: A systematic approach to solving equations, making and testing conjectures.
Understanding Diversity	Acquiring culture capital: the invention of zero and development of different base systems. Big Question: What is zero in Roman numerals? (the lack of zero in counting systems pre-773AD.	Understanding democracy: Understanding of popular vote, looking at real life examples of data represented in different ways.	No limits to your destination: rules of algebra, universal language and problem solving tool. Link to Muhamad ibn Musa al-Khwarizmi.	Understanding environmental diversity: Looking at graphs and diagrams of different locations	Awareness of where you live: Comparing averages of local population against other regions	Being a world citizen: introduction to some of the Greek alphabet
Literacy Reading, Oracy	Reading 1: The Pattern Shortcut Reading 2: How many hairs are there on an adult humans head?	Reading 1: Why do we learn Maths? Reading 2: Energy, climate and the environment	Reading 1: Animals that can do Maths understand more than we think Reading 2: Can bees count?	Reading 1: What's the best way to cut a cake? Reading 2: Something about nothing	Reading 1: Crime fighting maths Reading 2: Do more people go to football matches at the weekend than go to church?	Reading 1: Cows versus human - which emits the most methane? Reading 2: How much water is flushed down London toilets each day
Gatsby, Careers	Sequencing - using in-tray examples Concept of 'input/ operation/ output to every aspect of modern life (mobile phones, Uber, programming))	Architecture, Engineering, Product Design, Data analyst, Big Data, Marketing (SEO), Business (financial/sales data), Actuary, Academia/Research, Research and Development, Scientific Research, Small Business Owner, Media, Politics, Civil Servant, Data Scientist, Project Manager	Engineering, design, art Stem careers - lots of careers involve logical thinking and having to follow a process to get to a successful outcome	Medicine, Statistician, Data analyst across numerous industries	Data analyst, Big Data, Marketing (SEO), Business (financial/sales data), Actuary, Academia/Research, Research and Development, Scientific Research, Small Business Owner, Media, Politics, Civil Servant, Data Scientist, Project Manager	Data analyst, finance, construction and engineering Stem careers - lots of careers involve logical thinking and having to follow a process to get to a successful outcome
Mental and Physical Well-being	Developing confidence in solving unfamiliar problems through a logical process	Teaches systematic approach to problem solving in mathematics which can be transferred into interpersonal issues. Importance of understanding data so it can be interpreted correctly	Learning effective methods of problem-solving useful as a framework for solving real-life problems	Tracking health data in the form of graphs, logic puzzles involving conversion of FDP	Better understanding of statistics given in news and advertising allowing for better informed decisions and less anxiety from understanding.	Developing analytical processing skills, making correct choices
Cross-Curricular Links	Binary - the main computer language - is used regularly in Computer Science.	Engineering - construction constraints/requirements Displaying data - links to sustainability and climate change (Geography/science)	Cross curricular multi subject including rearranging and substitution which are particular used in Science and Engineering. Inequalities used in Computing for logic commands	Science - use of multipliers and exponential growth. Subjects such as history and geography that use linear graphs to display data	Links to data analysis in Science as well as critical reasoning. Social looking at real life data	Links to computing through using a sequence of steps to solve a problem. Lots of subjects may use and refer to 'unknowns' within the context of their topics. Geography through map reading, engineering for scale drawings.
Extra-Curricular Links	Coding, game design (esports)	Construction, trades skills involving measuring	Coding, robotics, cyphers, construction Orienteering, navigation, woodworking, snooker/pool	Cooking and baking, Model Making	The ability to reason and understand data allows for a more well rounded worldly understanding	Solving puzzles, crosswords, logical problem solving, shopping, Baking, Modelling
Precise Learning Endpoints Students will learn/ be able to:	Describe and continue sequences using diagrams and numbers Confidently round numbers to a given degree of accuracy Perform calculations using mental and written strategies and using calculators Identify factors, multiples and prime numbers	1.Recognise and name 2D and 3D shapes and their properties 2. Calculate perimeter, area and volume of shapes 3. Display data using tables and graphs	Draw and measure lines to a suitable degree of accuracy Find missing angles using angle facts Find inputs and outputs using function machines Substitute into expressions Solve linear equations	Calculate fractions and percentages of amounts Add, subtract, multiply and divide fractions Convert between fractions, decimals and percentages Plot coordinates in all 4 quadrants Plot linear graphs Identify gradients and mid-points of a line	from a set of data 2. Simplify expressions using powers	Simplify ratios (including into the form 1:n) Divide amounts into a ratio Solve direct proportion problems Calculate percentage increase and decrease Manipulate algebraic expressions and solve equations
Maths	Autum	n Term	Spring term		Summer term	
Year 8	Autumn Term 1 2		3 4		5 6	
Topic Summary	Calculations, Perimeter/Area, Directed Number	3D Shapes, Compound Units and Algebra	Fractions and Probability	Equations, Rounding, Ratio and Proportion	Angles and Percentages	Sequences and Statistics
Thinking Hard	1.Perform calculations with standard form 2. Simplify and perform calculations including surds 3. Substitute with negative numbers into complex	Calculate surface area of 3D shapes, including prisms and cylinders Calculate density, mass and volume where units need converting	Recognise and calculate with reciprocals Calculate probability using probability trees	Form equations from worded, real-life situations Use inequality notation for error intervals Use inequality notation for error intervals.	Calculate interior and exterior angles in polygons. Calculate the number of sides in a polygon using interior and exterior rules	Calculate the nth term of quadratic sequences Critique data collection methods and graphs/charts Calculate averages from grouped data.

Spring term

Summer term

3. Calculate using repeat percentage change.

3. Calculate averages from grouped data

3. Use algebra to set up proportional formulae

Maths

Year 7

Autumn Term

formula, such as the quadratic formula

3. Form equations where expanding brackets are

required

Developing Character	Self Control: Making real life connections with abstract concepts	Self-Assurance: A systematic approach to solving equations. Mathematics teaches students to be disciplined and obey the rules.	Mindfulness: Looking at the fraction and probability of their lives e.g. access to clean water, being literate etc	Gratitude: How proportion can be used to interpret the value of the things we can buy.	Mindfulness: Accuracy of drawings, measuring etc. Promotes mindfulness exploring geometric art	Curiosity: Creating a statistical enquiry and becoming aware of how statistics can be manipulated.
Understanding Diversity	Awareness of where you live: naval references of sea level and temperature. Mary Rose. Our climate is temperate, however, in other parts of the world the "negative" temperatures can be more extreme.	Respecting human rights: What is inequality? How do we balance out inequalities?	Being a world citizen: Life chances depending on where in the world you live	No limits to your destination: rules of algebra, universal language and problem solving tool.	Understanding mental and physical diversity: Cultural applications of geometric art around the world, including crop circles. BQ: Why are there 360 degrees in a full turn? (Blame the Babylonians!)	Understanding democracy: Understanding the influence and impact of data analysis on government, politics, media, and decision making
Literacy Reading, Oracy	Reading 1: What is it about bees and hexagons? Reading 2: For these artists, Maths is their muse	Reading 1: Less is more: The quest for minimal surfaces Reading 2: How to make the world's roundest football	Reading 1: How hard is it to scramble a Rubik's cube? Reading 2: How many hairs are there on a human head?	Reading 1: Why do we use the letter x? Reading 2: Why bother calculating pi to 86.8 trillion digits	Reading 1: Inside the race to find the first billion- digit prime number. Reading 2: Why do science fiction writers like primes?	Reading 1: Worried about shark attacks or terrorism? Reading 2: England's crop circle controversy
Gatsby, Careers	Meteorologist, Engineering, construction, finance	Engineering, construction, STEM opportunities	One of the fastest growing industries. Data Science, Social Media analytics, Business, Politics, Media, Government, Academic and Scientific Research	Travel international business. Science, chemistry, STEM opportunities Finance, construction, pharmaceuticals	Engineering, design, art - how to become a aircraft engineer (bitesize)	Data analyst, Big Data, Marketing (SEO), Business (financial/sales data), Actuary, Academia/Research, Research and Development, Scientific Research, Small Business Owner, Media, Politics, Civil Servant, Data Scientist, Project Manager
Mental and Physical Well-being	Development in understanding the applications of number and time spent to reduce number anxiety	· · ·	Intakes of certain food groups as a fraction of their recommended daily allowance. Probability of life events and how to improve them.	Understanding food/cosmetics and day to day processing. Calculations in relation to healthy diets and exercise	Enjoyment of art to promote mental well-being	Better understanding of statistics given in news and advertising allowing for better informed decisions and less anxiety from understanding.
Cross-Curricular Links	Science, Geography, Business Studies	Engineering, Science, Geography	Science, Geography, Engineering, Food prep	Science. Understanding of proportion, the value of labour	Art introduces colour wheels and geometric tools. Links to Engineering by introducing compass work which can be used for detailed schematics involving curves. Looking at geometric art from across the world	Displaying data - links to sustainability and climate change (Geography/science)
Extra-Curricular Links	Exercise - counting reps and tracking weight loss/gain	Construction, trades skills involving measuring	Games of chance, diet and exercise, investments	Cooking, scale drawings, model making	Orienteering, navigation, woodworking, snooker/pool	The ability to reason and understand data allows for a more well rounded worldly understanding, debate club
Precise Learning Endpoints Students will learn/ be able to:	1. Calculate factors, multiples and primes (including HCF/LCM) 2. Simplify expressions using laws of indices 3. Calculate perimeter and area of 2D shapes. 4. Perform calculations with directed numbers	Calculate volume of 3D shapes Calculate surface area of 3D shapes Calculate using compound units (SDT/MDV) Solve equations to find unknow values	Round numbers to a given degree of accuracy Solve problems using ratio and proportion	Manipulate algebraic expression Add, subtract, multiply and divide fractions Calculate the probability of events happening	Find missing angles using angle facts Calculate percentages of amounts Calculate percentage change	Continue numerical and diagrammatical sequences Describe sequences using nth term Display data using charts and graphs Calculate averages, including from tables
Maths	Autumn Term		Spring term		Summer term	
Year 9	1	2	3	4	5	6
Topic Summary	Coordinates and Graphs and Perimeter, Area, Volume	FDP, Pythagoras and Trigonometry, and Compound Units	Transformations	Proportion and Averages	Equations and Probability	Angles and Money
Thinking Hard	Developing Literacy: focusing on Mathematical names and properties of shapes. Acquiring knowledge by seeing the historical evolution of Shape names, formula, and Mathematicians (eg.: Pythagoras).	Being creative: Enjoying the links between Pythagoras's Right Hand Triangles and building, seeing how Euclid's Golden Ratio is all around us in real life.	Acquiring knowledge: Architects use geometry to study and divide space as well as draft detailed building plans. Builders and engineers rely on geometric principles to create structures safely.	Development of Literacy: Development of new terminology and the etymology of the words. Reading of recipes to form and manipulate ratios.	Mastery of learning: Creating diagrams from worded questions to help find probabilities.	Acquiring knowledge: Understanding of financial systems that they have access to. Deeper understanding of interest and deposits to improve financial understanding and competency
Developing Character	Mindfulness: Building confidence by knowing when and how to apply previously learned formulae and how they link with different shapes.	Grit: Developing Calculator skills for tough trigonometry topics.	Mindfulness: Creating repeated patterns using reflection systematically - linking to interior and textile design.	Kindness: how and when could sharing amounts in a given ratio be more fair than sharing equally?	Self Assurance: How creating an equation can help us solve problems systematically. Understanding how sequences follow patterns. Mathematics teaches students to be disciplined and oboy the rules.	Gratitude: Being aware that we live in a developed country with financial stability

and obey the rules.

Understanding Diversity	Understanding environmental diversity: Looking at graphs and diagrams of different locations	Being a world citizen: Did Pythagoras really discover the theorem?	Acquiring Cultural Capital: Explore uses of tessellation - Fashion, Interior design. Buildings (e.g. the Gherkin, Temple of Kandariya), Traditional African Fabrics	Awareness of where you live: Conversion graphs - different currencies. Exploring maps, (understanding of scale). Exploring maps, (understanding of scale). Using a map of Cowplain & relating distance & size to London.	No limits to your destination: rules of algebra, universal language and problem solving tool.	Respecting human rights: Financial systems across the world. Bank accounts, mortgages, welfare and allowances.
Literacy Reading, Oracy	Reading 1: Is Mathematics real? Reading 2: Fantastic fractals	Reading 1: How is trigonometry used in Architecture? Reading 2: New Pythagoras Proof	Reading 1: Why do clever people get things wrong? Reading 2: Steven Hawking's article on artificial intelligence	Reading 1: How old is your dog? Reading 2: If I drop a feather and a football, which hits the ground first?	Reading 1: How many tennis balls are used at Wimbledon Reading 2: Crime fighting maths	Reading 1: A complete guide to cybersecurity Reading 2. Why do we pay tax?
Gatsby, Careers	Navigation, Fashion industry, Architecture, graphic design, Engineering, Architecture, Product Design	Design, architecture (linked to reading 1), animation, games development. Employability skills - following a process to get a successful outcome. Inputting data into a calculator.	Illustration and media, technical drawings and architecture, engineering	Finance, construction, pharmaceuticals	Risk management, insurance, finance, pharmaceuticals	Animation , architecture, fashion design Economist, financial advisor
Mental and Physical Well-being	Confidence in problem solving and construction.	Learning effective methods of problem-solving useful as a framework for solving real-life problems.	How environmental design can have an impact on our wellbeing. Ensuring we are surrounded by pleasing architecture.	Calculations in relation to healthy diets and exercise. Best buy calculations for money savviness	Understanding risk and reward and how to balance it to achieve the best in life	Teaches systematic approach to problem solving in mathematics which can be transferred into interpersonal issues of wider life. Financial responsibility
Cross-Curricular Links	Science, Engineering, Art	Art, Graphics, Engineering	Art, Media, Graphics	Food Tech when baking and altering recipes. Links to engineering with scale drawings. Will link to science looking at what affect the increase of one variable may have.	Science, business studies (risk and reward)	Engineering, Business studies
Extra-Curricular Links	Engineering - construction constraints/requirements, data analysis	Illustration, Design - Fashion - Graphics	Illustration, Design - Fashion - Graphics	Shopping, Baking, Modelling	Games of chance, investments, solving puzzles, crosswords, logical problem solving	Design - architecture, theme parks
Precise Learning Endpoints Students will learn/ be able to:	Plot coordinates in all 4 quadrants Plot linear graphs Identify equations of linear graphs Calculate perimeter and area of 2D shapes Calculate volume and surface area of 3D shapes	Calculate percentage change Convert FDP Find missing sides in right-angled triangles Calculate using compound units (SDT/MDV)	Perform transformations of shapes Describe transformations of shapes	Use the unitary method to solve problems using direct and inverse proportion Calculate averages and decide which average is the best for a given scenarios	Solve equations to find unknown values Calculate probabilities of independent and dependent events	1. Find missing angles in shapes 2. Use a pair of compasses to construct shapes/bisectors from a given description 3. Calculate with money 4. Understand how money is used in real life
Maths	Autumn Term		Spring term		Summer term	
Year 10 Topic Summary	1 Indices, Standard Form, Surds, Triangles, Graphs	Congruency Similarity and Number	3 Equations and Ratio and Proportion	Circles and Statistics	5 Simultaneous Equations, Algebraic Manipulation	6 Probability and Transformations
Thinking Hard	Creating independence: Interleaved unit of all number from previous years. Literacy being tested, and high standards of oracy needed.		Creating independence: Linking to real world situations i.e. baking in bulk, best buys, purchasing. Using recipes from around the world as examples when teaching proportional reasoning.	Changing the world: Understanding the influence of statistics in the real world	and Vectors Being creative: Simultaneous Equations. Using abstract thinking to solve real life problems. Describing movement. Vectors working in abstract. Formulas to learn and remember	Being creative: Architects use geometry to study and divide space as well as draft detailed building plans. Builders and engineers rely on geometric principles to create structures safely.
Developing Character	Optimism: Working on and improving mental arithmetic skills with different types of numbers.	Curiosity: use of estimation to approximate calculations. Different systems of measurements used around the world and their origins	Self Assurance: How creating an equation can help us solve problems systematically. Understanding how sequences follow patterns. Mathematics teaches students to be disciplined and obey the rules.	Mindfulness: Building on previous skills by creating effective data collection, representation and interpretation.	Self-Control: Finding solutions to difficult multi- step problems using algebraic techniques.	Grit: Having a deeper understanding of probability. Using our knowledge of Number, Geometry and Algebra to conjecture, prove and reason.
Understanding Diversity	Acquiring cultural capital: abstract study of surds	Being a world citizen: The laws of shapes are universal. Explore how different cultures have used these throughout history	Awareness of where you live: Conversion graphs - different currencies. Exploring maps, (understanding of scale). Exploring maps, (understanding of scale). Using a map of Cowplain & relating distance & size to London.	Understanding democracy: Understanding the influence and impact of data analysis on government, politics, media, and decision making	No limits to your destination: Algebraic thinking, developing logical and analytical thought processes throughout the modern world	Acquiring Cultural Capital: Explore uses of tessellation - Fashion, Interior design. Buildings (e.g. the Gherkin, Temple of Kandariya), Traditional African Fabrics

Literacy Reading, Oracy	Reading 1: Paralympic games Reading 2: Ineligible to serve - getting a job		Reading 1: Celebrating a new pie record Reading 2: Gauss the most brilliant Mathematician of his time	Reading 1: How are circles used in real life? Reading 2: Statistical illiteracy isn't a niche problem. During a pandemic, it can be fatal.	Reading 1: F1gur471v3ly 5p34k1ng (how your brain can read words made of numbers) Reading 2: Football statistics	Reading 1: Probably magic Reading 2: Luck and statistics
Gatsby, Careers	STEM - science/physics/engineering, Financial Analysis (sequences, indices)	STEM - science/physics/engineering (bounds,	STEM - Science/engineering. Construction and pharmaceuticals, inventory management and purchasing, currency conversions	Data Science, Social Media analytics, Business, Politics, Media, Government, Academic and Scientific Research	Design, architecture, animation, games development. Employability skills - following a process to get a successful outcome. Inputting data into a calculator.	Data scientist, quantitative analysis, biostatistics, market research
Mental and Physical Well-being	Natural maths - the maths of the world around us	of number and time spent to reduce number	Learning effective methods of problem-solving useful as a framework for solving real-life problems. Calculations in relation to healthy diets and exercise. Best buy calculations for money savviness	Tracking health data, sleep analysis	Learning effective methods of problem-solving useful as a framework for solving real-life problems	Enhancing decision making by promoting rationa thinking about uncertainty and improves problen solving. Understanding of risk and resilience
Cross-Curricular Links	Scientific notation in Science, graphs used in subjects such as PE, geography, history and others	Engineering, Art, Media	Science, food studies, business	Geography, Psychology (central tendency), Business. SMSC - Social understanding how statistics can be manipulated	Physics, Engineering, Computer Science.	Computer Science, Science, Art, Media
Extra-Curricular Links	Market analysis, data collection, engineering/construction, star gazing	Animation, architecture, design, fashion, graphics	Games of chance, investments, solving puzzles, crosswords, logical problem solving, shopping, Baking, Modelling	News, current affairs, video game statistics, sports	Game design and development, coding and problem solving, illustration	Games of chance, investments, art and media
Precise Learning Endpoints Students will learn/ be able to:	Simplify using laws of indices Write numbers using standard form Calculate using surds (H) Find missing lengths of triangles using Pythagoras' Theorem Find missing lengths and angles using trigonometry Plot graphs and find equations of lines	Understand and apply the rules of similarity and congruency Round numbers to a given degree of accuracy S. Estimate solutions to a problem Calculate using compound units	Solve equations to find unknown values Calculate proportions using ratios Use the unitary method to calculate direct and inverse proportion	Calculate the area and circumference of circles Calculate the volume and surface area of cylinders, spheres and cones 3. Find missing angles in circles (H) Display data using the most appropriate methods Analyse data using averages	Manipulate expressions confidently. Find next term and nth term of sequences Solve simultaneous equations graphically and algebraically Translate shapes using vectors Use vector notation to solve problems	Calculate probabilities of single events. Calculate probabilities of multiple events. Transform shapes from a given instruction Describe the transformation of a shape
Maths Year 11	Autumn Term		Spring term		Summer term	
Topic Summary	Number, Algebra and Geometry	Ratio and Proportion, Statistics and Probability	Number, Algebra and Geometry	Ratio and Proportion, Statistics and Probability	5	6
Thinking Hard	Development of literacy: Talking like a mathematician. Knowing and using the correct terminology	Development of literacy: Talking like a	Development of literacy: Talking like a mathematician. Knowing and using the correct terminology	Development of literacy: Talking like a mathematician. Knowing and using the correct terminology		
Developing Character	Self-Control: Finding solutions to difficult multi- step problems using mathematical techniques.	equations, formulae, inequalities and functions and how to manipulate them.	Self-Assurance: Using our knowledge of Number, Geometry and Algebra to conjecture, prove and reason.	Grit: Keep on going - nearly there!		
Understanding Diversity	Acquiring cultural capital: Real life applications	Acquiring cultural capital: Real life applications	Acquiring cultural capital: Real life applications	Acquiring cultural capital: Real life applications		
Literacy Reading, Oracy	Reading 1: Maths in a minute Reading 2: Will the world be over within this century?	Reading 1: The golden ratio Reading 2: A universal equation for the shape of a perfect egg	Reading 1: Too big to write but not too big for Graham Reading 2: The Calculated shortcut	Reading 1: How clubs approach transfers Reading 2: The colourful mathematician who helped design the atomic bomb		
Gatsby, Careers	Finance, business management, construction industry	Statisticians (Office for National Statistics), Marketing and Sales	Finance, business management, construction industry	Statisticians (Office for National Statistics), Marketing and Sales		

Learning effective methods of problem-solving useful as a framework for solving real-life

problems

STEM

Confidence in problem solving.

STEM

STEM

Mental and Physical Well-being

Cross-Curricular Links

Sometimes our emotions can rule our reasoning.
Using our intelligence to understand our feeling and our reasoning to help us stay calm.
Understanding how physical well being can have a positive effect on mental well-being in order to be able to revise more effectively.

STEM

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