Curriculum Area:	
	Mathematics GCSE learning plan

Intent

Curriculum Statement:

In Corby Business Academy Maths Faculty, our intent is for the curriculum to be designed to ensure that students receive a high-quality mathematics education. The curriculum will develop students' ability to reason mathematically, help to develop an appreciation of the beauty and power of mathematics and have a sense of enjoyment and curiosity about the subject. The curriculum will enable students to become fluent in the fundamentals of mathematics through varied and frequent practice with increasingly complex problems over time, so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. Our curriculum enables students to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. The curriculum will allow students to solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Students who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material will consolidate their understanding, including through additional practice, before moving on.

Personal development

Mathematics can be enjoyed as a worthwhile activity for its own sake and as a powerful tool in a wide range of applications. Enjoyment stems from the creative and investigative aspects of mathematics, from developing mathematical ways of perceiving the world and recognising underlying structures and connections between mathematical ideas. Mathematics is a subject that empowers students to prove results. Students develop their problem-solving, decision-making and reasoning skills through working on a range of tasks. Mathematics enables students to understand the numerical data related to becoming and staying healthy. Monitoring nutritional intake, blood sugar levels and cardiovascular health are all examples where mathematics assists understanding and can lead to making healthy decisions. By becoming financially capable, young people are able to exert greater control over factors affecting their health such as housing and money management. Strategy games and logic puzzles are an important part of maintaining mental health. Understanding risk through the study of probability is a key aspect of staying safe and making balanced risk decisions. Students learn to understand the probability scale and use it as a way of communicating risk factors. They develop an understanding of how data leads to risk estimates. By understanding probability and risk factors young people are able to make informed choices about investments, loans and gambling. An understanding of mathematics, and confidence in using a variety of mathematical skills, are both key to young people's ability to play their part in modern society. The skills of reasoning with numbers, interpreting graphs and diagrams and communicating mathematical information are vital in enabling individuals to make sound economic decisions in their daily lives. Mathematics skills and habits of mind are highly prized by many employers and mathematics is a gatekeeper to many careers and professions. Having confidence and capability in mathematics allows students to develop their ability to contribute to arguments using logic, data and generalisations with increasing precision. This in turn allows students to take a greater part in a democratic society. Becoming skilled in mathematical reasoning means students learn to apply a range of mathematical tools in familiar and unfamiliar contexts

Year 10- Content		Assessments		CEIAG	Numeracy/Literacy
		Topics	Assessment type		
Term 1	Integers	Ordering positive integers Ordering negative integers Addition and subtraction of positive integers Multiplication and division of positive integers Addition and subtraction of negative integers Multiplication and division of negative numbers Place value: multiplying and dividing by 10 Order of operations Prime numbers, prime factorisation Factors, multiples, HCF and LCM	On-going in class **formative assessment** using FtG assessments **Summative end of term assessment** focusing on the skills learnt this term. It will also include knowledge covered previously.	The ability to understand and manipulate number is necessary in all careers.	Numeracy All topic contents **Literacy** Keywords – Fully explained Checking spelling and correct use of mathematical vocabulary
	Powers and roots	Powers and roots Using standard form Rounding Rounding to significant figures Algebraic expressions Collecting like terms Multiplying and dividing algebra Substitution		A scientist will use powers when working will very small quantities e.g. weights of molecules, atoms etc. Astronomers will use powers to measure large distances	
	Algebraic techniques	Algebra terminology Expanding brackets Factorising expressions Geometric notation Points and lines		Financial officers will use formulae to work out pricing structures e.g. for car hire, gas/electricity pricing.	
	Properties of shapes	Properties of 2D shapes			
Term 2	Decimals	Ordering decimals Ordering fractions Addition and subtraction of decimals Multiplication and division of decimals Addition and subtraction of fractions Multiplication and division of fractions Increasing/decreasing by fractions Fraction problems Angles in parallel lines Collecting data, frequency tables	On-going in class **formative assessment** using FtG assessments **Summative end of term assessment** focusing on the skills learnt this term. It will also include knowledge covered previously.	Decimals are used anywhere money is used. Fractions are used in real life in many different ways, but they are most commonly used in the cooking, construction and science industries. Because fractions describe an object or substance that has been divided into different equal parts, fractions can be found almost anywhere. Pilots will use angles when flying planes to ensure they remain on the correct course Statisticians will use averages/graphs and	Numeracy All topic contents **Literacy** Keywords – Fully explained Checking spelling and correct use of mathematical vocabulary
	Fractions				
	Angles in parallel lines Collecting data				

				probability to analyse results, see patterns in data and plan for the future using probabilities	
	Data analysis	Two-way tables Mode Mean Median Range			
Term 3	Percentages Expressions and Equations Angles in polygons Units	Converting percentages to/from fractions Converting percentages to/from decimals Percentages of amounts Percentage increase/decrease Percentage change Percentage problems Working with money Index laws Changing the subject Linear equations Quadratic expressions Angles in polygons Metric units Units of measure: Length Units of measure: Mass Units of measure: Volume/capacity Units of measure: Time Units of measure: Area	On-going in class **formative assessment** using FtG assessments **Summative end of term assessment** focusing on the skills learnt this term. It will also include knowledge covered previously.	A sports analyst will use percentages to measure performance, compare athletes, track improvement. Someone working in the financial sector will use percentages to calculate investment performance, costs for borrowing and lending money. Business and retail workers will calculate percentage profit, calculate discounts on products Financial officers will use formulae to work out pricing structures e.g. for car hire, gas/electricity pricing	Numeracy All topic contents **Literacy** Keywords – Fully explained Checking spelling and correct use of mathematical vocabulary
Term 4	Ratio Coordinates and graphs	Simplifying ratios Dividing in a ratio Fractions and ratio Coordinates Midpoints Plotting straight line graphs Gradient Linear equations on graphs Simultaneous equations	On- On-going in class **formative assessment** using FtG assessments **Summative end of term assessment** focusing on the skills learnt this term. It will also include knowledge covered previously.	Chefs and others on the hospitality industry will use ratio when scaling recipes Graphs can be used to summarise situations and to model potential outcomes. They can be use in finance, science and STEM pathways.	Numeracy All topic contents **Literacy** Keywords – Fully explained Checking spelling and correct use of mathematical vocabulary

	Transformations	Translations Reflections Enlargements Rotations Describing transformations			
Term 5	Probability	Probability scale Probability of single events Experimental probability Multiple event probability Frequency trees (Construct and complete) Listing systematically Calculating perimeter	On-going in class **formative assessment** using FtG assessments **Summative end of term assessment** focusing on the skills learnt this term. It will also include knowledge covered previously.	Statisticians will use averages/graphs and probability to analyse results, see patterns in data and plan for the future using probabilities Decorators will need to calculate them amount of paint required to paint a wall or a fence Statisticians will use averages/graphs and probability to analyse results, see patterns in data and plan for the future using probabilities	Numeracy All topic contents **Literacy** Keywords – Fully explained Checking spelling and correct use of mathematical vocabulary
	Perimeter and area	Calculating area Circles Circumference Circle area Bar charts			
	Representing data	Pictograms Pie charts Stem and leaf diagrams			
Term 6	Proportion	Direct proportion Recipes Currency conversion Conversion graphs	On-going in class **formative assessment** using FtG assessments **Summative end of year assessment**. This will take the form of a set of 3 papers and will cover all content covered so far	Bakers might use proportion to scale recipes or staffing schedulers may use this to calculate staffing requirements Cryptographers need to recognise and summarise patterns Designers/engineers need to know exact areas/volumes when designing buildings	Numeracy All topic contents **Literacy** Keywords – Fully explained Checking spelling and correct use of mathematical vocabulary
	Sequences	Linear sequences Other sequences (Geometric and Fibonacci, not quadratics)			
	Volume	Properties of 3D shapes Nets of 3D shapes Volume of cuboids Volume of prisms and cylinders			
	Scatter diagrams	Scatter diagrams			

Year 11- Content	Assessment		CEIAG	Numeracy/Literacy
	Topics	Assessment type		

Term 1 Percentages in context
 	
Real life graphs
 	
Proportion
	Calculating with standard form
	Reverse percentages
	Simple interest
	Estimating answers
	Money problems
	Financial statements
	Income and rates of pay
	Profit and loss
	Best buys
	Distance-time graphs
	Sketch quadratic graphs
	Inverse proportion
	Proportion graphs
		On-going in class **formative assessment** using FtG assessments
		
		Summative end of term assessment focusing on the skills learnt this term. It will also include knowledge covered previously.
			A sports analyst will use percentages to measure performance, compare athletes, track improvement. Someone working in the financial sector will use percentages to calculate investment performance, costs for borrowing and lending money. Business and retail workers will calculate percentage profit, calculate discounts on products
			Graphs can be used to model real life situations.
			Proportion graphs can be used to model direct and inversely proportional relationships.
				Numeracy
				All topic contents
				
				Literacy
				Keywords – Fully explained
				Checking spelling and
				  correct use of mathematical
				  vocabulary

Term 2 Congruence and similarity
 	
Bearings
Venn diagrams
 	
Data analysis
	Congruence
	Similar shapes
	Bearings
	Listing elements in a set
	Venn diagrams
	Probability from Venn diagrams
	Choosing averages
	Averages problems
		On-going in class **formative assessment** using FtG assessments
		
		Summative assessment. This will take the form of a formal PPE/ mock exam. 3 x full assessments.
			Statisticians will use averages/graphs and probability to analyse results, see patterns in data and plan for the future using probabilities
			Bearings are used by pilots and sailors to ensure they remain on course
			
			Statisticians will use averages/graphs and probability to analyse results, see patterns in data and plan for the future using probabilities
				Numeracy
				All topic contents
				
				Literacy
				Keywords – Fully explained
				Checking spelling and
				  correct use of mathematical
				  vocabulary

Term 3 Pythagoras' Theorem
 	
Trigonometry
	Pythagoras' Theorem
	Applying Pythagoras' Theorem
	Converse of Pythagoras' Theorem
	Trigonometric ratios and acute angles
	Trigonometry – unknown sides
	Trigonometry – unknown angles
	Applying trigonometry
		Revision and exam question practice focusing specific areas identifies. This will be informed by PPE/ mock exams, formative assessment and class work.	Sailors might use Pythagoras/trigonometry to calculate distances between different places, bearings to travel on.
			
			Surveyors/architects will use trigonometry to calculate angles/length etc
				Numeracy
				All topic contents
				
				Literacy
				Keywords – Fully explained
				Checking spelling and
				  correct use of mathematical
				  vocabulary

Term 4 Revision and exam preparation
 	
Term 5
 	
    Exam series
		Revision and exam question practice focusing specific areas identifies. This will be informed by PPE/ mock exams, formative assessment and class work.		Numeracy
				All topic contents
				
				Literacy
				  Keywords – Fully explained
				  Checking spelling and
				    correct use of mathematical

Term 6	Exam series			