

Maths Curriculum Map

Intent – The maths curriculum will cover number, algebra, shape and data including proportion and probability. Pupils will re-visit content regularly and build on prior knowledge, understanding how different areas of maths link together. Pupils will learn to complete processing, reasoning and problem solving tasks and be able to explain how maths is applied in real life scenarios. Pupils will approach questions systematically and logically, and the curriculum is structured in a way that ensures all pupils have a good level of mathematical literacy when they leave in year 11. Content will provide challenge for all pupils and support where needed to ensure all pupils enjoy their learning and feel a sense of achievement in every lesson. The curriculum will prepare pupils to continue their maths education when they leave Conisborough and prepare them for a career in STEM if desired. It is important to us that all pupils enjoy and access maths at Conisborough as it will prepare them for the wider world and give them the ability to understand things like interest rates and taxes. Skills learned in maths are transferrable to many industries and are often sought after by employers, particularly being able to approach a problem in a logical manner, showing procedural fluency and reasoning to reach an appropriate solution.

Implementation – How is the curriculum being delivered? How are ideas, concepts and knowledge sequenced and revisited to ensure that learning is committed to long-term memory? Why are topics taught and why at that point in the curriculum? How do you ensure that Key Stage 3 serves as a preparation for further study but also provides a secure understanding for students who don't continue with individual subjects beyond KS3?								
Term	1	2		3	4	5		6
Year 7	This half term there is a focus on number and an introduction to algebra. The four functions, place value and negative numbers are the main topics for these units. The intent of these topics is to establish a baseline understanding of numeracy for year 7. It is important to introduce algebra here as it is not on the primary curriculum but makes up a large proportion of the secondary curriculum. Many of the rules which apply to number also apply to algebra so a focus on these two subjects enables pupils to draw comparisons between the two areas of mathematics.	This half term continues drawing links between some of the main areas of maths. In this case the links are drawn between number and shape, for example multiplying and dividing can be linked directly to area problems. Real life problems are studied in these units so pupils can apply their learning to real life contexts.	Assessment	This half term takes a deeper look at fractions and introduces pupils to them both as numbers and operators. Pupils spend significant time developing their understanding of applying the four functions to fractions and how to manipulate and compare them. This builds on their understanding of number established in half term 1.	This half term further develops pupils understanding of shape, with a focus on angles rather than area and perimeter. Pupils will learn to identify shapes through their identifying properties. Algebra will be included in some of these lessons to demonstrate to pupils how angles and lengths can be written as expressions or calculated through substitution. This will eventually build in subsequent years to forming and solving equations.	Pupils will focus on an introduction to transformations this half term, with a particular focus on symmetry and reflection. Pupils will be able to pair this knowledge with graph work, using coordinates to complete reflection problems. Pupils will gain a good understanding of coordinates in the four quadrants which will set them up for more detailed graph work in subsequent years.	Assessment	Pupils will be introduced to the first part of the data curriculum which focusses on calculating the mean average. They will also look at how to organise data into diagrams, using the four functions to help calculate missing information. This content will support the wider school curriculum, particularly science where diagrams and averages are studied in year 8.
Year 8	This half term also focuses on number topics and aims to revisit and deepen knowledge established in year 7. Pupils now learn how to identify and manipulate powers, roots and primes. They also learn to apply the four functions to mixed number fractions and negative numbers. Rounding is also developed to include decimal places and significant figures. These skills are crucial in further number work and also apply to algebraic topics too, forming the basic number rules needed to access GCSE level topics.	Pupils deepen their understanding of algebra this half term with a particular focus on equations. Pupils apply rules of number to solve equations. They are also encouraged to draw links between equations and graphs, plotting coordinates and representing data in various graph forms. This is important as it will give pupils skills which are transferrable to subjects like science and geography, ensuring they are able to represent and interpret data effectively.		This half term develops understanding of shape, with a much heavier focus on angles. Pupils explore the relationship between different units of measurement and are introduced to circles and the related formulae. There is a focus on mathematical reasoning where pupils are required to justify answers with angle facts. Angles are used in conjunction with algebra to encourage pupils to form and solve equations. This is important in beginning to link different areas of maths, i.e. shape and algebra, allowing pupils to start to think about topics with wider context.	This half term draws links between number and proportion, encouraging pupils to understand how multiplication and division keep things proportionate to each other. Pupils explore how fractions, decimals, percentages and ratio relate to each other and link them in problem solving questions. These topics have probably the widest range of applications in real life so it is very important for pupils to become fluent in these topics.	It is important to revisit topics often and build on prior learning incrementally so that it is embedded properly in pupils learning. This half term allows pupils to re-visit area of shape and broaden their understanding to include more complicated shapes and formulae. They also further develop their understanding of presenting and interpreting data in the form of graphs and averages. Pupils will make links between averages, graphs and charts to draw conclusions and recognise trends in data. This unit will help to develop pupils reasoning skills.		This half term allows pupils knowledge of shape to progress from 2D to 3D shapes. Pupils focus on understanding how to represent 3D shapes in 2D format including plans, elevations and nets. Pupils also learn to calculate volume of cuboids and prisms which requires revisiting their learning of area. Some of these skills are transferrable to geography, especially plan and scale drawings.

Year 9	Pupils once again revisit number and further develop their understanding of powers, primes and place value. Pupils are required to calculate using these skills, developing an understanding of estimation, highest common factors, lowest common multiples and calculations using directed number, decimals and fractions. Pupils will be taught how to use specific functions on the calculator to find answers, ensuring they are fluent in both calculator and non-calculator methods. These are important topics as they will be presented in context of real life situations, e.g. preparing food for a party that comes in different sized packages.	This half term is dedicated to more detailed algebraic study. Pupils learn to apply index laws to algebraic terms, manipulating expressions to expand, factorise and substitute. At this point pupils have enough of a foundation in algebra that they are ready to access the KS4 GCSE curriculum. The skills reinforced in this half term embed the processing skills for algebraic manipulation that can then developed into more problem solving tasks in KS4.		This half term pupils revisit proportion and percentages and explore how those topics link to probability. Pupils are taught how to use calculators to complete percentage calculations. Calculator fluency is important at this point in KS3 as it prepares pupils for GCSE content. These units aim to help pupils calculate probabilities and distinguish the difference between theoretical and experimental probabilities and where they can be found in real life.	Pupils re-visit linear equations and link them with linear inequalities. This half term also introduces pupils to sequences and Pythagoras Theorem, both of which require pupils to be confident in solving equations, reinforcing their learning from year 8. This unit further solidifies the link between shape and algebra in the maths curriculum, allowing pupils to become familiar with manipulating formulae algebraically and forming and solving equations.	Pupils re-visit their learning on angles from year 8 and transformations from year 7. They learn to apply angle facts and reasoning to justify answers and use formulae to calculate missing angles. Pupils will learn to draw transformations and also how to describe them. This half term is vital in encouraging pupils to give worded explanations, conclusions and justifications to summarise their calculations and links to the reasoning element of the GCSE.		Pupils explore a different area of the shape this half term, revisiting 3D shapes including plans and elevations, circles and surface area. Pupils will use prior learning of formulae from year 7 and 8 to find area of shapes as part of surface area. Pupils now have a secure grounding in all areas of maths and are able to progress to KS4 with a strong foundation knowledge.
Term	1	2		3	4	5		6
Year 10	Both higher and foundation pupils will spend the vast majority of year 10 studying the number and algebra topics of the GCSE. The rationale for this is that these two areas of maths make up over 50% of the GCSE curriculum and therefore need the greatest amount of time dedicated to it. Foundation and higher pupils focus will be on linking their understanding of equations with graph work, plotting lines, finding the equations of given lines and manipulating formulae. As part of the manipulation of formulae pupils will also study compound measures, learning the relationship between speed, distance and time, mass, volume and density and force, pressure and area.	This half term continues the work of the previous term, with focus on non-linear graphs and simultaneous equations. Higher pupils also study more algebraic manipulation, building further on their prior learning of quadratic equations.		This half term draws together pupils number and proportion knowledge. Probability and standard form are both studied in detail by higher and foundation pupils. Higher pupils will also study capture/recapture amongst other higher proportion topics. These topics all build on prior knowledge of fractions, decimals and percentages.	This half term continues the focus on proportion with pupils studying percentages and ratio, including interest, growth and decay. Higher pupils also examine recurring decimals and fractions. Number and proportion topics are closely linked and make up a large part of the GCSE exam – these units ensure pupils have a thorough understanding of number and proportion to ensure they can access this portion of the exam. They are also the most applicable topics to real life situations so it is important pupils develop fluency.	Foundation pupils begin a revision programme in preparation for their mock exams. Higher pupils now begin to focus on some of the most challenging higher topics, including statistical diagrams and analysis, and developing their knowledge of powers, roots and rounding to surds and bounds.		Foundation pupils continue revision, take their mock exams and begin to close gaps in their understanding identified in the exams analysis. Higher pupils focus is on higher shape topics, using formulae and algebra to solve trigonometric problems, study similar shapes and sequences.
Year 11	Foundation pupils focus on shape content this year. In the first half term pupils work with triangles, studying Pythagoras theorem and	Foundation pupils study further shape content in the form of transformations, learning how to both draw and describe them.	Mock 1	Foundation pupils conclude their learning for the GCSE curriculum this half term. They focus	Mock 2	Foundation pupils begin a revision programme in preparation for their GCSE exams. The focus will be	Both higher and foundation pupils are revising for their final GCSE exams with a revision programme based around their mock analysis.	

	trigonometry. These topics both require pupils to revisit their algebraic manipulation knowledge, particularly rearranging. Higher pupils will focus on advanced algebra topics including proof, algebraic fractions, quadratic simultaneous equations and inequalities.	Angles are also revisited in this half term, this time showing pupils how to prove congruence with angle facts. Higher pupils also focus on angles topics this half term, particularly circle theorems, further trigonometry and bearings.		on the last shape topics including similar shapes, vectors and construction. Higher pupils also study shape this half term, including many of the same topics as foundation pupils but to a greater depth, for example vectors include proof rather than simple representation of magnitude.		dictated by an analysis of topics from their mock exams. Higher pupils study topics which link shape and graphs, such as graphical transformations including trigonometric graphs.		
--	---	---	--	--	--	---	--	--

Impact:

How is progress measured? What difference is the curriculum making to student learning? How can you measure whether your curriculum intent has been achieved? What do students do outside of school/lessons to show their engagement in your subject? Do they engage in extra-curricular programmes related to your subject? Do they read books, watch documentaries or go to museums related to your subject?

- Progress will be measured primarily through half termly assessments throughout KS3 and year 10 which will focus on half term learning and assess pupils on processing, reasoning and problem solving. Written feedback will be given for these assessments and a score will be provided (but no grade). The reason for this is to ensure pupils are focussed on how to improve moving forward, rather than just what they have achieved until now. The aim of these assessments is to guide staff on re-teach topics for catch up teaching weeks.*
- Year 11 pupils will complete practice GCSE exams every three weeks which will inform teachers what topics to revisit. Mock exams provide detailed analysis of pupil strengths and areas for development.*
- In class assessment for learning such as mini-whiteboards and targeted questioning allow staff to assess pupils in the moment they have been taught. This is vitally important for pupils to make adequate progress as misconceptions can be addressed immediately, ensuring learning is purposeful at every step of the way.*
- Homework will also measure how effectively pupils have learned the curriculum content by assessing if they can complete questions independently.*
- Success will also be measured by pupil pathways once they leave Conisborough, how many pursue STEM subjects at A-level and beyond.*
- Book looks will assess pupil engagement in class and give an indication of pupil pride in their work.*
- Attendance to masterclasses, clubs and extra curricular activities will also indicate whether pupils are positively engaged with the subject.*
- Year 7 and 8 pupils will complete the Junior Maths if they are able to, encouraging positive engagement from higher ability pupils in particular and offering stretch and challenge at KS3 level.*