X – Y7 CURRICULUM MAP

Curriculum rationale & design	*This curriculum has been developed by the Astrea Maths Central Team, in conjunction with Heads of Maths across Astrea and a dedicated curriculum roundtable. As a team, we have looked at the best practice of several maths curricula, including those used across a variety of MATs (White Rose, United Learning, Ark, OAT maths, Inspiration Trust, Discovering Mathematics) and developed our curriculum based on each of the best features of these. The Astrea curriculum has been divided into five overarching strands: Number (N), Algebra (A), Geometry & Measures (G), Proportional Reasoning (P) and Statistics & Probability (S). Complete coverage would take a student from the start of Year 7 to full coverage of all content at Higher GCSE by the end of Year 11. The curriculum starts to diverge slightly in the second half of the Y10 Spring Term, then more notably towards the end of Y10 and into Y11. This is to ensure all scholars can access all areas of maths and have time to develop their skills before limiting their entitlement to Higher maths. There are 12 weeks per term allocated to allow for 3 flex weeks per year. These flex weeks can be used at any time and the placement of these is for individual schools to decide, based on their school holidays and any calendared events. We have an Astrea Maths Padlet for all schools to access high-quality, freely available resources while developing these booklets. We wish to thank all of these people featured on our Padlet for their amazing, freely available work: https://padlet.com/sandersmaths/astrea-maths*
Curriculum aims	*We strive to deliver a curriculum that is rich in skills and knowledge, and allows scholars to gain fluency, build confidence and develop a deeper understanding of mathematics. Through its hierarchical nature, we:* *• Ensure fluency is achieved, as well as the ability to recall and apply knowledge rapidly and accurately. This is developed through carefully atomising component knowledge, declarative and procedural, using:* *o Procedural variation* *o Deliberate practice* *o Frequent retrieval practice* *• Allow scholars to see that mathematics is an interconnected subject by:* *o Building on prior knowledge to make explicit links and rich connections between topics* *o Providing opportunities for cumulative practice, with interconnecting ideas to allow scholars to work flexibly between different areas of mathematics.* *• Develop conditional knowledge, building competency to solve increasingly sophisticated problems by:* *o Decodifying a problem to identify the mathematics within it (method selection)* *o Reasoning and justifying conclusions, through the use of calculations*

	o Developing resilience in unfamiliar contexts, using pre-requisite known facts, without necessarily knowing the final answer *We believe learning to be a change in long term memory, and thus research and cognitive science has informed our curriculum, which makes particular use of retrieval practice as an aid to learning. We utilise regular low stakes quizzes and formative assessment to enable scholars to retrieve information on a daily basis, as we believe retrieval practice underpins academic success. The curriculum builds on previous knowledge learned at key stage 2, and is sequenced such that new learning is introduced and then consolidated with previous learning being interweaved throughout. Topics that are introduced in key stage 3 are revisited in more depth at key stage 4 to ensure understanding is met. The key stage 4 curriculum equips scholars with the knowledge and understanding to progress onto further mathematical study at key stage 5. Forward-facing methods are considered at all levels to ensure that teaching approaches throughout the key stages contribute to a coherent curriculum.*
Assessment	*Teachers use formative assessment strategies daily to determine the topic depth; mini-whiteboards, cold-call and call and response are used regularly.* *On-going evaluation of scholars' knowledge and understanding is undertaken through regular live marking and frequent low stakes assessments. End of booklet quizzes are completed to allow scholars the opportunity to demonstrate the learning that has taken place, provide teachers with information on the current understanding of students and identify whether there are gaps or misconceptions present.* *Mastery quizzes are completed half-termly. These test the powerful knowledge that the scholars learn in lesson and through their knowledge organisers.* *Formal assessments take place twice a year in KS3, at the end of Y10 and in Autumn and Spring of Y11. The formal assessments in KS3 are cumulative and test the skills and knowledge that have been taught.*

	Autumn 1 and 2	**Spring 1 and 2**	**Summer 1 and 2**
Year 7	*Place Value; Addition Subtraction and their Applications; Multiplication, Division and their Applications; Negative Numbers*	*Negative Numbers (cont'd); Addition and Subtraction of Fractions; Algebraic Manipulation and Sequences*	Angles; Fractions, Decimals and Percentages; Probability and Venn DIagrams
Year 8	Factors and Multiples; Approximation and Estimation; More Percentages; Staistical Graphs, Angles in Polygons;	Circumference and Area of Circles; Volume and Surface Area of Prisms and Cylinders; Algebraic Expressions	Equations and Inequalities; Coordinates and Lines; Number of Patterns; Ratio, Rate and Speed
Year 9	Indices and Standard Form; Factorisation and Quadratic Expressions; Linear Equations in Two	Pythagoras' Theorem; Trigonometry and Bearings; Data Analysis; Probability	Proportion; Non-linear Graphs; Constructions and Loci; Volume and Surface Area

	Variables; Congruence and Similarity		
Year 10	*Number; Statistical Representations; Angles;* ***Circle Theorems***	Fractions; Probability; Linear Expressions; Linear Equations; Pythagoras; **Trigonometry**	*Trigonometry; Perimeter and Area; Transformations; Number Sequences; Percentages;* ***Ratio and Proportion; Measure and Scale; Constructions***
Year 11	Ratio and Proportion; Measure and Scale; Constructions; **Further Trigonometry;** Similarity and Congruence; Volume and Surface Area; Linear Graphs; Quadratic Equations; **Sampling**	Sampling; Simultaneous Equations; Other Graphs; Vectors; **Further Algebra**	Bespoke based on QLA.