

Intent:

The OCL Maths Curriculum is designed in conjunction with Mathematics Mastery. This means that pupils are given a “thorough understanding of mathematical concepts, rather than a set of techniques or routines to get to the right answer

Knowledgeable students

We want our students to be curious learners who can apply their knowledge to the real world. To do this we enable them with the fundamental knowledge that allows them to acquire fluency in crucial mathematical procedures. This means they can master and retain key concepts which in turn will result in all students fulfilling their academic potential in maths.

Knowledgeable teachers.

We want to ensure that our teachers, at all stages of their career are confident in their subject knowledge. We want all teachers to feel empowered to deliver a carefully planned mastery curriculum with crystal clear explanations.

Knowledgeable leaders

We want to enable our curriculum leaders to be experts in curriculum delivery – able to develop the pedagogy of their teams through effective CPD observations and feedback. We also want to ensure that they are confident in tracking progress of their students, identifying gaps in knowledge and underachievement. This includes being able to compare the progress of students across a range of schools – and not simply at GCSE.

There are three active ingredients in the OCL Maths Curriculum:

- ✓ Use of “The Knowledge organiser” and regular knowledge quizzing (a one page document containing consistent definitions of all content needed for a half term to ensure pupils are fluent in key mathematical concepts)
- ✓ A “Fast Five” at the beginning of every lesson (five interleaved and questions that recall prior learning from the previous lesson, week and half term)
- ✓ A content driven assessment cycle (daily exit tickets and fortnightly low stakes reviews that are completed from memory, marked formatively and acted upon instantly)

Sequencing:

We have ensured that the core skills of number, algebra, geometry, ratio and proportions, probability and statistics are embedded throughout the year and the 5 years at OAA. We interleave topics throughout the year and there is a repeated focus on all of these five strands of mathematics all the way through to Year 11 in order that students are able to master and retain key mathematical concepts. There is a clear sequencing of topics taught throughout the years, with the topics becoming more and more complex as the years unfold.

Assessments:

Rationale

1. Ensure retention of knowledge and skills in all pupils over time
2. Find out knowledge gaps and misconceptions and act on them through re-teaching (have purposeful data)
3. Know how pupils compare to their targets so all stakeholders can engage in the data (pupils, parents, staff, HODs, SLT)

At the end of every half term there is a formal assessment comprising of 70% current content and 30% prior content. These assessments are interleaved and written in the same format as the AQA GCSE papers. Assessments are based on exam questions from AQA GCSE papers.

Term	Knowledge and skills covered	Skills students need to master:	Framed task
Autumn 1	Knowledge and skills covered: Unit 1 – sequences Unit 2 – forming and solving algebraic equations Unit 3 – forming and solving inequalities	To represent positive and negative integers on a number line To order and compare negative numbers To add/subtract negative integers To use inequalities to compare calculations To multiply negative numbers To divide negative numbers To describe and continue a number sequence To find an expression for the nth term To generate a sequence from a rule To use letters to represent numbers To substitute into an expression To simplify expressions To solve linear equations with one unknown To form linear equations To translate real-world problems into algebraic equations	Fortnightly reviews Autumn 1 Post assessment

		To solve simple problems involving perimeter	
Autumn 2	Unit 4 – linear graphs Unit 5 – accuracy and estimation	To plot coordinates To plot straight line graphs To know the equation of a straight line $y = mx + c$ To calculate the positive and negative gradient To recognise perpendicular graphs To Round to decimal places To Identify significant figures To Round numbers to significant figures To Use rounding to estimate calculations	Fortnightly reviews Autumn 2 Post assessment
Spring 1	Unit 6 - ratio review Unit 7 - real life graphs Unit 8 – proportionality	To express a ratio as part of a whole To simplify and compare ratios To use ratios to share into unequal quantities To express ratio as a rate of a change To represent real life context as linear relationship To represent and interpret piecewise relationships To interpret positive and negative gradients To sketch flow rate and non-linear relationships To interpret ratios To relate ratios to fractions To divide quantity into a ratio To use ratio with golden ratio To use and apply ratios To find the rate and inverse proportionality To use proportional reasoning in rate (DST) To apply DST to solve problems To use DST graphs to solve problems with DST	Fortnightly reviews Spring 1 Post assessment
Spring 2	Unit 8 – univariate data (construct and interpret charts and graphs, mean, mode, median, range) Unit 9 – bivariate data (scatter graphs)	To identify types of data To collect data in a tally chart To write an unbiased questionnaire with response boxes To collect discrete data in a two way table To collect data in a pictogram To collect discrete data in a bar chart To use inequalities to collect continuous data in a grouped frequency chart To present continuous data in a grouped frequency chart To present continuous data in a pie chart To interpret and compare grouped data graphs and charts To find the mean of a set of data To find the mode and median of simple data sets To find the mean from a frequency table To use approximation To apply and upper and lower bounds in calculations	Fortnightly reviews Spring 2 Post assessment
Summer 1	Unit 11 – angles in parallel lines and polygons Unit 12 - bearings	To identify same angles in parallel lines To use corresponding, alternate angle facts To find missing angles in parallel lines To justify missing angles using angle facts To calculate interior angles of polygons To calculate exterior angles To Solve problems with polygons To Introduce conventions for drawing and measuring bearings	Fortnightly reviews Summer 1 Post assessment

		<p>To Plot and measure the position of an object on a given bearing and distance from a specified point</p> <p>To Solve problems involving bearings using angle rules from previous units</p>	
Summer 2	<p>Unit 13 – circles and composite shapes (area, circumference, area and perimeter of composite shapes)</p> <p>Unit 14 – volume of prisms (cubes, prisms and composite solids)</p> <p>Unit 15 – surface area of prisms (cubes, prisms and composite solids, nets)</p>	<p>To round numbers to decimal places</p> <p>To round numbers to significant figures</p> <p>To recognise and label parts of a circle</p> <p>To find the circumference of a circle</p> <p>To find the perimeter of semi-circles and quarter circles</p> <p>To solve problems with perimeter and compound shapes including circles</p> <p>To find the area of a circle</p> <p>To find the area of semi-circles and quarter circles</p> <p>To solve problems with area and compound shapes including circles</p> <p>To build and name 3D shapes</p> <p>To identify faces, vertices and edges of 3D shapes</p> <p>To identify plans and elevations of 3D shapes</p> <p>To I can recognise nets of 3D shapes</p> <p>To find volume by counting cubes</p> <p>To understand volume and capacity</p> <p>To find the volume of prisms and cylinders</p> <p>To find the volume of more complex compound shapes</p> <p>To solve problems using volume</p>	<p>Fortnightly reviews</p> <p>Summer 2 EOY Examination</p>