The Albany Academy Traded Pathway Curriculum Policy – Maths

The aim of the Mathematics curriculum across all sites within the Raedwald Trust is to ensure that all learners develop their mathematical fluency, are able to reason using this fluency and apply their knowledge to solve a wide range of practical/functional problems.

As an alternative provision, we believe that all students should have the same opportunities that mainstream students would experience so we cater for students working at Entry Level up to the GCSE Higher Tier. The skills developed within the curriculum is also meets the needs of students studying functional skills specifications if the home school chooses to enter them for these qualifications.

Students that work within our sites have all experienced a varied education. Many students have experienced interrupted education both short and long term. A large investment of time is spent reviewing and improving gaps in knowledge.

In addition to consolidating subject content from Key stage 3, the statutory areas that are covered across our curriculum are:

- Number
- Algebra
- Ratio, proportion and rates of change
- Geometry and measures
- Probability
- Statistics

Baselining

Many students have missed large gaps in their education and students also join us at various points across the academic year. All students will complete a Baseline assessment that we use to understand pupils confidence with 28 core mathematical skills across the 6 themes of mathematics. We use this information to capture what the students know within each subject and most importantly any gaps in their knowledge. We use this information to inform future planning to ensure students make progress within each subject. We track topic understanding from the baseline assessment. The information also helps to inform the numeracy target set on the Individual learning plan. Lessons are adapted to develop their understanding against the numeracy target.

Entry Level

We can support the delivery of the Entry Level Certificate to students that need to develop and gain confidence within the core strands of mathematics. The Entry level

specification is co-teachable with our programme of study. Students can be extracted for specialist 1-2-1 support to aid understanding of the 8 core modules.

GCSE Mathematics

The Programme of study allows students to gain a wide breadth of the GCSE content. A focus on functional understanding, number and ratio is deliberate to allow students these core skills. These topics make up 56% of the course. The scheme is designed to allow enough time to allow topics to be reviewed to improve memory recall.

The Albany Academy Traded Pathway Curriculum Policy – Maths

Term 1		Term 2		Term 3	
Continual review of understanding to improve sticky memory with a focus on Number and Ratio.					
Number	HCF and LCM Equivalent fractions, decimals and percentage +,-, x and / Fractions, Fractions of a quantity, rounding and estimating.	Ratio, proportion, rates of change	Repeated percentage change, calculating percentage change	Geometry and measures	Trigonometry,
Geometry and measures	Perimeter, area,	Geometry and measures	Area of a trapezium and parallelogram. Surface area and volume Circles	Algebra	Linear equations Forming expressions and equations Linear graphs y=mx+c
Ratio, proportion, rates of change	Simplify ratio, Sharing in a given ratio, Increase/decrease, Percentage change	Probability	Probability scale, Relative frequency, Tree diagrams, laws of probability, Sample spaces, Venn diagrams	Number	Standard form Fractions review Four operations Upper and lower bounds
Algebra	Collecting like terms, substitution, Linear equations, Brackets and factorising.	Geometry and measures	Reflection, Rotation, Translation and Enlargement.	Ratio, proportion, rates of change	Percentage review
Statistics	Representing data- Bar charts, Pie charts, Pictograms and Scatter diagrams, Averages	Algebra	Sequences,	Statistics	Average review
Functional mathematics	Responding to functional skills questions. 2 week block incorporated within the term	Geometry and measures	Angles, Angles in polygons, Bearings Loci and construction Pythagoras' theorem	Probability	Probability review
		Mock exam	2 week block dedicated to mock examinations and feedback	Geometry and measures	Circles
				Functional mathematics	Responding to functional skills questions. 2 week block incorporated within the term

The Programme of Study aims to deliver the wide breadth of the demanding GCSE specification but has been refined to address the fractional nature of a placement on Springboard pathway. Due to this, identified topics will not be explored in depth. These topics are vectors and volume of cones/pyramids.

For those students identified as performing at Higher GCSE level, we will adapt our lessons for students to extend their knowledge within topics. Students can complete additional topics alongside the main scheme of work. This can be achieved through additional 1-2-1 sessions and targeted resources supported from mainstream school.

The Albany Academy Traded Pathway Curriculum Policy – Maths

Through collaborative work with the dual school it is hoped that students can receive support to aid understanding from mainstream teachers. The variety of topics that can be covered are listed below:

Autumn	Spring	Summer
-Mensuration extended -Ratio and proportion -Surds -Statistics	-Algebra inc solving, factorising, simultaneous and quadratics -Indices -Graphs of equations/functions	- Geometry inc Trigonometry - Data presentation including cumulative frequency and Histograms-Probability
-Further algebra -Extended Trigonometry -Growth and decay -Direct and inverse proportion	-Graphs -Functions -Geometry inc Circle theorems	-Gradients and rates of change *Consolidation of topics through targeted revision programme

***Although the Higher paper is demanding on time and coverage it is achievable through differentiated resources and additional sessions provided by both schools.**

Improving recall

Topics are revisited at the start of lessons that review and recap knowledge from last lesson, last week and last month. The EDI framework used within lessons explicitly focusses on recall of previous knowledge. The framework structure is based around Rosenshine's Principles of Instruction and focusses on students improving their 'sticky memory'. We also ensure that lessons place a high emphasis on fractions, decimals, percentages and ratio as these topics are fundamental topics that are tested within many other topic areas.

The lessons are planned to follow a concentric model that allows us to build up student's skills through constant revisiting and interleaving. In line with the Research Government Review series (2021) lessons are planned with:

- Frequent low stake testing
- Learners are given a variety of tasks that focus on rehearsal of facts, methods and strategies alongside developing their understanding.
- Opportunities for students to develop proof and reasoning skills.

Assessment in Mathematics

We assess pupils for three key reasons:

a. To find out what they do and do not know so that we can plan next steps in their learning journey.
b. To understand their patterns of progress.
c. To make judgements about their progress towards key markers in their education.

Ultimately, good assessment will add value to pupil outcomes by helping teachers and leaders to understand what is having good impact and what needs to be refined or addressed for individual pupils.

Progress and attainment information from our planned micro-assessments is regularly reported back to the referring school. At the end of selected topics, there is a macro assessment. The assessments mirror the level of challenge that they will face when they reach their final examinations.

Teachers will assess daily learning objectives taught through a RAG rating system which will measure progress over time. Assessment is used to inform future planning and teaching. Pupils who may require extra support are identified quickly. Pupils self-assess each lesson, against the objective, to enable them to develop an understanding of their own knowledge progression.

All teaching will be adapted to support students' individual needs, according to their starting point. We work closely with mainstream settings during induction to identify starting points and any specific strengths or difficulties.

Mathematics and the wider curriculum

Cultural Capital
Within the Trust we believe that it is important for all students to develop cultural skills, knowledge and behaviours that will allow them to thrive in society and the world of work. The Mathematics curriculum sets out to develop our learners' cultural capital to make them ready for their next stage in their lives. This is achieved in many ways including teaching real life skills related to reading timetables, budgeting, finance, recipes, speed/distance, etc.

The Albany Academy Traded Pathway Curriculum Policy – Maths

SMSC

Mathematics enables students to make sense of the world around them and we strive to enable each of our students to explore the connections between their numeracy skills and every-day life. Students are provided with opportunities to use their maths skills within real life contexts, applying and exploring the skills required in solving various problems.

Problem solving skills and teamwork are fundamental to mathematics through creative thinking, discussion, explaining and presenting ideas. Students are always encouraged to explain their understanding to each other and support each other in their learning. Through teamwork, students are able to gain confidence which should lead to them becoming independent learners.

Within the curriculum we look at various approaches to Mathematics from around the world and use this to discuss their origins. This includes different multiplication methods from around the world and also the origins of Pythagoras' theorem. We try to develop an awareness of both the history of maths alongside the realisation that many topics we still learn today have travelled across the world and are used internationally.

British values

The Mathematics curriculum promotes the British values of tolerance and resilience each lesson through problem solving and understanding of complex concepts. Students are encouraged to learn from mistakes and are supported to improve their understanding. Within the statistics modules students are encouraged to evaluate data and look for bias.

Careers

Within lessons pathways for future study of STEAM subjects is promoted. When looking at topics students are encouraged to see how these might be used in the real world and within vocational contexts. Lessons are linked to developing vocational and functional understanding of IT, Construction, Cooking, Sport, Science, Transport planning, Finance, etc. Staff will make every attempt to link mathematics into the vocational interests of individual students.

**The Curriculum Overview and Medium Term Plan help to set out how the mathematics curriculum has been planned to develop understanding of the wider curriculum*

The Albany Academy Traded Pathway Curriculum Policy – Maths

Reading

Every opportunity is taken within the classroom to allow students to develop their reading. Many forms of text are actively shared with students to prepare them for independence within society including reading menus, timetables, recipes, advertisements, construction plans, etc.

Students are actively encouraged to read and are supported to understand key words. Shared reading and choral reading often occurs when looking at texts as a class.

We explicitly teach key vocabulary each lesson to allow students to make connective learning and recall the meaning behind command words.

Within lessons staff promote high standards of literacy, articulacy and the correct use of standard English. Displays engage students to support them with the understanding of key command words.