Maths

Curriculum Intent: *"A Love of Maths for all"*

Students are nurtured to have a love of maths. It is a core subject, with every pupil having at least 7 hours of maths a fortnight from Year 7 to Year 11. Maths is a team of 11 fully qualified maths specialists ensuring students receive a curriculum that is created and delivered by experts. As a result, maths is the most popular A level choice at the College and has consistently produced excellent attainment and progress results for GCSE and A Level across the previous 10 years, with many students going onto study maths and related maths undergraduate courses and high level apprenticeships.

The maths curriculum is inclusive and accessible to all students, regardless of starting points and individual needs, and is adapted accordingly to meet need. Students grow in confidence and nurture where attitudes to learning assume an inability to be able to 'do maths' or Maths Anxiety.

In addition, it is supportive of all maths related subjects and is integral to the College's FABRIC. Wider curricular activities enrich the maths experience of students, with success in maths Olympiad competitions and regional maths challenge competitions. As a result, many students apply to study maths at Oxbridge, university and a growing number of higher-level apprenticeships.

How the curriculum fits in to the College's FABRIC?
Focused The maths department is **FOCUSED** on curriculum improvement. We listen to what students say in class, we observe their bookwork and we interpret and feedback the outcomes of their assessments. In 2015 there was the launch of the new National Maths Curriculum. We joined with 20 maths HoDs from across Norfolk to collaboratively develop multiple topic grids that sorted/graded each topic into linear teaching order by consensus. This order of topics is designed to ensure that pupils build on prior knowledge (AO1) and are given the required skills for the next topic. We aim for pupils to achieve mastery in these topics before moving on. Through regular student voice, learning walks, book looks and the review of available research we have continually developed the curriculums. In 2017 we added Problem Solving lessons (AO2, AO3); in 2018 we provided targeted curriculum coverage for SEND pupils; in 2018 we introduced mixed ability teaching groups to share excellent modelling for all. Reflecting the continuous review of the curriculum to meet the needs of students and provide an accessibly curriculum with high expectations. **Appropriate** The maths department uses appropriate assessment strategies at all stages of learning to ensure no student is left behind. Stage 1 - Teachers continuously offer pupils point of learning feedback by assessing their work in the 7/8 maths lessons pupils have every fortnight. One to one questioning, modelling, error correction and a focus on misconceptions are central to understanding where pupil progress.

Stage 2 - To further embed the key skills and knowledge we provide half termly formative assessments that allow the pupils to practice short/mid-term retrieval, reflection and peer to peer support.
Stage 3 - For longer term and cumulative retrieval practice we offer termly summative assessments that will accurately measure the progress of pupils across the 5 year curriculum with additional retrieval reference sheets built into the paper for SEND students.

Broad and balanced

Maths is 12.5% of a pupils' timetable. It is our job to make it enjoyable and we achieve this by helping **ALL** of our pupils take something from their maths experience: Our pupils find a love and respect for maths. Our teachers build relationships and consistently contextualise maths. We understand Maths Anxiety that impact many SEND and Low Achievers and we have a developing narrative and CPD focus. We maximise those that achieve 9-5 grades and those that achieve 9-4 grades. We fully support those with the ability to go on to take A Level Maths. We enable all this to happen by offering UKMT entry to 30% of our pupils; Further Maths GCSE to the top 10% of our pupils; NABOJ, Ritangle and Maths Feast participation to our top achievers; Cypher Club to all; Curriculum Activity Days to all our pupils; 1-1 sixth form maths mentoring to 10% of our Yr 11 pupils; Team Maths Challenge to 10% of SET Secondary school Yr 9 pupils; mixed ability classes to all Year 7 and 8 pupils; CORE Maths to support other A level subjects.

Rigorous

We give **all** pupils **equal** access to a range of quality, qualified maths teachers over their 5 -7 years of maths education. Our ambitious curriculum is consistently delivered by all our team across the department, whilst offering our pupils a range of teaching styles. Performance Management and quality CPD in maths, taps into the research and best practice available from local and national networks to ensure we consistently deliver the latest pedagogy to our pupils. Teaching and planning time of the curriculum is maximised by systemising all our student and teacher support systems. We support our teachers so that they can provide quality teaching to ALL and provide additional/specialized support to SEND and Low Achieving pupils.

Integrated

To ensure **ALL** students attain mastery in MOST topics we will review and progress Number, Algebra, Geometry and Statistic topics every year from Year 7 to Year 11. It is our belief that Number, Ratio and Proportion and Algebra are the Golden Threads that ensure students can access **MOST** of the AO1, O2 and AO3 material. Hence Number and Algebra are the main group of topics revisited and extended every year. We then prioritise Geometry and then Statistics/Probability.

Coherent – there is clear intent about what our students will learn at each stage of their maths journey. In Year 7, 8 and 9 our curriculum will focus pupils on building their AO1 knowledge of Number, Algebra, Geometry and Statistics. In parallel pupils will transition as novice, emergent or proficient with their AO2 and AO3 proficiency. This we observe through their resilience (making sense of a problem), being resourceful (visualise or model a problem), remaining curious and open (make conjectures/support my thinking) and becoming collaborative (achieve more by working with others). In Year 10 and 11 our students will combine their AO1, 2 and 3 knowledge and skills to enable 70%+ of them to access the Higher Paper, which will better support their transition to A level in many subjects. By using Mixed Ability Classes in Year 7-9 we are able to provide outstanding Peer to Peer modelling of these skills for our low achievers and SEND students.

How we assess learning	Key Vocabulary
Stage 1 - Teachers continuously offer pupils point of learning feedback by assessing their work in the 7/8 maths lessons pupils have every fortnight. One to one questioning, modelling, error correction and a focus on misconceptions are central to understanding where pupil progress. **Stage 2** - To further embed the key skills and knowledge we provide half termly formative assessments that allow the pupils to practice short/mid-term retrieval, reflection and peer to peer support. **Stage 3** - For longer term and cumulative retrieval practice we offer twice yearly summative assessments that will accurately measure the progress of pupils across the 5 year curriculum.	Key Vocabulary lists are available in the Year 9- 13 textbooks and are provided by teachers at the beginning of each topic. We have a set of categories for mathematical words: meanings of mathematical terms being context-dependent; meanings having more precise implications; terms holding meanings that are very specific to mathematics; terms having multiple meanings; technical meanings specific to various disciplines; everyday homonyms; words that are related but different; different ways of expressing concepts using informal terms rather than mathematical terms
Enrichment	**Careers Education prepares our students to make informed choices about their futures**
We run the UKMT for over 400 of our Higher Ability students to enable them to develop their mental dexterity under pressure. We run a series of lessons throughout the curriculum that focus on listing outcomes, working backwards, visualisation and mash ups. These skills support the growth Curiosity, Collaboration, Resilience, and resourcefulness in ALL our pupils.	We run a series of monthly “New Careers in Maths” poster campaigns. The idea is to introduce new careers that have emerged over the past 20 years and that rely on people having strong mathematical knowledge and skills.

Our curriculum is underpinned by our values and are expressed through our curriculum
Every half term we will set challenges for a whole class where the standards of the books are assessed as a community and if they are successful, they are all rewarded. **Community Pride** in maths is something we are starting to see as a key factor in our climb to ever higher standards. We believe that **Passion is fired by Challenge** and we are consistently developing ways of Challenging all cohorts in all year groups. We maintain **Positivity in Maths by minimising maths anxiety and maximising maths success** for all our pupils.