Subject Name: GCSE (9-1) Mathematics

Department Vision & Ethos

INTENT

KS3/4

It is our intent to:

● provide evidence of students' achievements against demanding and fulfilling content, to give students the confidence that the mathematical skills, knowledge and understanding that they will have acquired during the course of their study are as good as that of the highest performing jurisdictions in the world

● provide a strong foundation for further academic and vocational study and for employment, to give students the appropriate mathematical skills, knowledge and understanding to help them progress to a full range of courses in further and higher education. This includes Level 3 mathematics courses as well as Level 3 and undergraduate courses in other disciplines such as biology, geography and psychology, where the understanding and application of mathematics is crucial

● provide (if required) a basis for schools and colleges to be held accountable for the performance of all of their students.

● provide a correct scope and sequence that a broad content covered under the curriculum is fully coherent and balanced enabling students of different abilities to:

- develop fluent knowledge, skills and understanding of mathematical methods and concepts
- acquire, select and apply mathematical techniques to solve problems
- reason mathematically, make deductions and inferences, and draw conclusions
- comprehend, interpret and communicate mathematical information in a variety of forms appropriate to the information and context.

KS5

It is our intent to enable students to understand mathematics and mathematical processes in ways that promote confidence, foster enjoyment and provide a strong foundation for progress to further study, extend their range of mathematical skills and techniques, understand coherence and progression in mathematics and how different areas of mathematics are connected, apply mathematics in other fields of study and be aware of the relevance of mathematics to the world of work and to situations in society in general. We intend to enable students to use their mathematical knowledge to make logical and reasoned decisions in solving problems both within pure mathematics and in a variety of contexts, and communicate the mathematical rationale

for these decisions clearly, reason logically and recognise incorrect reasoning, generalise mathematically, construct mathematical proofs, use their mathematical skills and techniques to solve challenging problems which require them to decide on the solution strategy, recognise when mathematics can be used to analyse and solve a problem in context and represent situations mathematically understanding the relationship between problems in context and mathematical models that may be applied to solve them. We intend to help students to draw diagrams and sketch graphs to help explore mathematical situations and interpret solutions, make deductions and inferences and draw conclusions by using mathematical reasoning, interpret solutions and communicate their interpretation effectively in the context of the problem, read and comprehend mathematical arguments, including justifications of methods and formulae, and communicate their understanding, read and comprehend articles concerning applications of mathematics and communicate their understanding, use technology such as calculators and computers effectively, and recognise when such use may be inappropriate and take increasing responsibility for their own learning and the evaluation of their own mathematical development.

Trustworthy & Honourable	Taking responsibility for their own learning and developing good habits both in lessons and with homework. Considering both sides to any situation and making a decision based on evidence. Examples: - Constant challenge in class and homework / Differentiation -
Positive & Resilient	Arriving at every lesson ready to learn and expecting to achieve. Demonstrating the ability to continue when it becomes difficult. Examples: - A consistent approach to build students' resilience through the use of AfL reflection sheets enabling students to review and reflect on their own performance following each assessment taken.
Competitive & Driven	Aiming to improve themselves in every area, each and every lesson. Pushing themselves to go to the next step in their learning and being able to bridge any gaps in their learning. Challenging themselves to be the best they can. The drive to achieve excellence in everything that they do. Examples: - UK Maths Challenge – entered at all levels - TTRS - Homework

	- Interventions – to challenge all ability students within each key stage
Courteous & Compassionate	Understanding that different students learn in different ways and at times the structure of learning will change to accommodate this Helping each other to achieve in lessons and develop the skill needed to succeed. Being able to learn from one another as part of a two-way process Manners and respect Examples: - Teacher/ student mutual respect - Peer assessment tasks build into each lesson
Aspirational & Self-Motivated	Wanting to be the best that they can be in each and every area of the subject Being prepared to try in every lesson and looking at how they can learn and develop from the experiences they have in the classroom Extra-Curricular experiences to support learning Examples: - UK Maths Challenge – entered at all levels - TTRS

IMPLEMENTATION

How the curriculum is implemented?

To ensure high quality implementation of the curriculum with fully comprehensive delivery across each key stage we have ensured the following:

- SOW strongly embedded within each key stage – CL carries quality assurance of the SOW and the curriculum to ensure the coherence, a well-balanced and broad Maths education under a very coherent curriculum.
- Collaboration in curriculum design is absolutely vital, involving ML, CL, SLT, teachers.
- At KS3/4 the Mathematics curriculum students are set in ability groups, there are 2 tiers within the scheme of work providing a differentiated structure so that all levels of ability can access the new curriculum. Providing stretch to different ability students preparing them for the rigors of the higher and foundation GCSE and beyond. Whilst also preparing and supporting learners in building their confidence in using mathematical

techniques, problem solving and reasoning. Assessments are done at the end of each unit of work and termly to get students used to consolidating their knowledge and solving problems individually.

- At KS3 students use Times Table Rockstars to encourage them to put the essential building blocks in place. Students are encouraged through a variety of competitions in school to improve their ability to recall their times tables, thus aiming to remove one barrier students face when tackling more complex mathematical problems.
- ActiveLearn subscription available for both teachers and students, allowing both accessing high quality new specification resources and tools to help improving learning (used for homework and independent study).
    - Resources available allow teachers sharing lesson planning to ensure high quality lessons planned across the department and consistency of its delivery across all key stages. CL provides quality assurance to ensure the coherence.
    - Interactive questions – students can access thousands of differentiated activities that help them progress at their own pace and level. With on screen hints and instant targeted feedback that motivate learners to work independently, work out where they have gone wrong, try again and discover what to try next.
    - Students can access support when they need it with 'Learning aids' and 'Help me solve this' features built into ActiveLearn interactive exercises. Interactive worked examples also guide students through questions by breaking them down into simple step.
    - Students can access explanatory videos to help them tackle tricky questions, showing how to plan, solve and display an answer (used for homework and independent study).
    - Teachers can receive accurate reports and evidence of learning against lesson learning objectives, and then feedback to groups or individual student. And as the student's progress is tracked over time, further reports can be generated and shared with colleagues or parents.
- MathsWatch subscription available for both teachers and students, allowing both accessing high quality new specification resources and tools to help improving learning (used for homework and independent study).
- KS5 - ATM website used regularly to set more posing problems which the students can take part in
- KS5 - Senior Maths challenge poses more difficult questions to stretch students’ learning.

IMPACT

What can be expected by the end of each key stage (for KS4 this will the end of course)

By the end KS3 students will be familiar with key mathematical skills that they will need to be successful at GCSE and beyond. Students will begin to be able to problem solve through a variety of methods to come up with solutions and be able to reason their answers. Students will develop a deeper understanding of the links between topics and not see them as individual entities. This will be done throughout the year as units will refer to topics taught previously to recap and develop their understanding between the links in Mathematical content. Through this and students being given the opportunity to reflect on their progress and review where area of weaknesses may be. Students will become more skilled Mathematicians able to identify areas they need to work on in KS4.

By the end of KS4 students would have achieved the following aims and objective of the Pearson Edexcel Level1/Level 2 GCSE (9-1) in Mathematics. They would have developed fluent knowledge, skills and understanding of mathematical methods and concepts; acquired, selected and applied mathematical techniques to solve problems; reasoned mathematically, made deductions and inferences, and draw conclusions; they would have mastered how to comprehend, interpret and communicate mathematical information in a variety of forms appropriate to the information and context.

By the end of KS5 students should be able to use and apply standard techniques, select and correctly carry out routine procedures and accurately recall facts, terminology and definitions. They should be able to reason, interpret and communicate mathematically and be able to solve problems within mathematics and in other contexts. Students will be able to progress from this qualification to a range of different, relevant academic or vocational higher education qualifications, employment in a relevant sector or further training.