Departmental Curriculum Statement: Maths

Curriculum Intent Statement

• To develop our students mathematical knowledge and understanding.

We believe that knowing more and remembering more is the key to develop an ever-deepening understand of the world of Maths. Our curriculum is systematically ordered to grow students' knowledge. Through good sequencing of lessons and regular recall our pupils progress rapidly.

• To develop our students mathematical abilities and skills.

We aim to grow our students' maths skills in particular a fluidity in their mathematical thinking, an automaticity for recall of key calculations, a schemata of key vocabulary and a confidence to apply knowledge and solve problems. We aim to improve their ability to understand and interpret mathematical information, to see and use links between different areas of the mathematical curriculum and to consistently progress i.e. know more and remember more.

• To develop our students problem solving abilities.

We aim to develop learners so that they can apply their knowledge and skills to solve problems and to have the ability to analyse and break down complex questions. We take care to take account of our pupils' cultural capital making our lessons real and accessible.

• To develop our students social and communication skills.

We aim to develop articulate learners that can effectively work together, cultivating students who can produce quality written work that communicates their thinking and reasoning. We aim to develop our students' abilities to confidently communicate ideas and concepts. Breadth of vocabulary is a key to success and developing students' vocabulary, particularly that of two-tier words, is a focus of every lesson.

Curriculum Implementation Statement

• To ensure all our learners begin their studies at Cowley at the right level and that recall, new knowledge and progress are implicit in all their lessons.

We keep close ties with our primary colleagues, ensuring our schemes of work follow on from theirs and that a pupil's prior learning is respected and utilised. Schemes of work have been differentiated to ensure all pupils start at an appropriate point and progress at a challenging but achievable pace. Information about SEN learners needs are shared and teachers ensure that needs are met.

• To ensure our pupils follow an appropriate course of study allowing continuity between all year groups

'Developing deeper understanding' is the mantra of our three-year KS3 scheme of work and this comes in the form of our APE tasks, next step marking, vocabulary activities and recall starters. Throughout KS3 we aim to build a platform from which pupils can grow and excel at GCSE. Lessons are not prescribed to teachers, instead we encourage teachers to plan their own lessons and express their expertise through a rich variety of resources that are available and regularly promoted. We expect teachers to incorporate recall activities and vocabulary tasks in every

lesson. We are a close-knit department at Cowley who work collaboratively and sharing ideas is common practice. Curriculum content is largely delivered by the end of year 10 allowing pupils to develop deeper understanding in year 11 through problem solving and through a growing awareness of the interconnectedness of maths and its mathematical applications. Effective use of ICT is a key component of learning at KS4 from online apps such as DESMOS to building calculator skills. Our pupils arrive at KS5 prepared for the step up to A-Level and core Maths. Students follow courses GCSE resits, Core Maths, A Level Maths and A Level Further Maths as appropriate. Students taking GCSE resits are also encouraged to take a course in Functional Skills Mathematics to broaden their mathematical skills and to maintain their enthusiasm towards the subject. Subject expertise is excellent within our KS5 team.

• **To ensure our pupils progress is closely tracked and that intervention is utilized when necessary**

Assessment takes place at regular intervals through the year. Typically our assessments test a pupil's recall of their term's work as well as learning from previous years. Flexibility is allowed in the timings of assessments. Teachers ensure record keeping is accurate and data is analysed from the perspective of the individual pupil, the class, student groups and the department. All assessments are followed up with pupil self-evaluation. Teachers use assessment data to enhance their planning. Where gaps are found interventions take place.

• **To ensure our pupils develop Independent Learning Skills**

Homework is central to what we do. High quality homework is set every week and high expectations are put on pupil participation. Online homework systems are used to set and track pupil's homework in years 7 to 10. Teachers intervene when homework is not done and assistance is given. The main goal of homework tasks is to practice the recall of what has been learnt in lesson. In year 11 homework is focused on exam questions through this next steps are set and pupils are encouraged to learn from, and improve on, mistakes. In school revision sessions are available for all our pupils and resources are provided for out of school revision. In KS5, students are set extensive, weekly homework tasks which consolidate learning from lessons. In addition, students taking A Level Maths and A Level Further Maths are asked to watch a lesson video for every lesson prior to lesson taking place (flip-learning), to ensure rapid progression during actual class time and considerably more time available for practising the skills and methods seen in the videos.

• **To ensure our pupils get regular feedback and are aware of their progress**

At KS3 books are marked regularly through this process pupils are informed of their progress, praise is given, individual recall next steps questions are set and presentation issues are addressed. At KS4 folders are used in order for pupils to organise the components of their learning and finish with an effective revision resources. Folders are marked regularly next step recall questions are set as part of this process. Following assessments pupils complete an analysis exercise, from which they identify areas to work on and then get opportunities to do so. We value our students input into their education and we carry out student voices exercises regularly, using the feedback to inform our curriculum development. In addition each year group now has ten key objectives that they focus on throughout the year. These are assessed at the end of the year giving an extra dimension to our understanding of the progress our pupils have made. In KS5, homework tasks are marked and handed back to students with feedback. Students under-performing on these tasks are expected to do the again and hand them back in for re-marking.

Curriculum In and Beyond the Classroom

Cross-curricular cooperation is very important to us. We have worked with other departments to ensure our schemes of work complement one another and that key maths components are taught in a timely way to allow other subjects to benefit from understanding developed in maths. For example we have developed a unit of work on science formulas. Our lessons involve interleaving, bringing data, formulas, vocabulary and questions from many other subject areas.

We aim to ensure our students broaden their awareness of the applications of maths and its use in the real world and outside the school curriculum. Throughout the school year we run Numeracy Days.

These include…

- the Stock Market Challenge
- Safe Cracking
- Go Racing at Haydock racecourse.
- The 24's game
- Visits from the Happy Puzzle Company
- PGL Maths experience

We encourage excellence through our involvement in the UK Maths Challenge and we regularly attend maths open days at local universities. Students on KS5 courses regularly go to the Liverpool Maths Society lectures to see new maths, above and beyond the KS5 curriculum, in preparation for some of them to go on to mathematically based degree courses.

Subject Expertise

Of the 15 members of the Cowley Maths team, 14 of us are Maths specialists with maths or maths related degrees. We are a close team who enjoy spending time together professionally and socially. Collaboration runs through all we do and we support one another in developing our expertise. In recent years we have focused on questioning, teaching for a deeper understanding, calculator use, whiteboard expertise, marking amongst others coaching. Together we develop resources and share pedagogy. Staff are encouraged to be involved in maths events outside of the school. Staff at Cowley are involved in.

- Maths Hubs
- Local authority networks
- Partnerships with local schools
- Exam marking and roles within exam boards
- Taking a lead role in new initiatives within the area

Destinations

Our ambitions for our students are high. We aim to get all students through GCSE with at least a grade 4 pass and we encourage all students to continue with some form of maths in the 6th form. Approximately 60 of our most able students each year go on to study A-Level Maths either with us or with other providers. We now offer core maths to support students with other maths related A-levels and also enjoy success with our resit programme. Our pass rate is well above the national average. Many of learners go onto study maths or maths related degrees at university and through our programme of university visits for KS4 and KS5 students we encourage this.