



HGS MATHS

Curriculum

INTENT, IMPLEMENTATION AND IMPACT

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HGS MATHS

Vision:

We aim to help students gain the knowledge, mathematical strategies and fluency to master curriculum content. Moreover to become mathematical thinkers who both enjoy and confidently approach novel problems as life long learners

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INTENT	IMPLEMENTATION	IMPACT
Carefully sequenced curriculum which takes into account: - hierarchical nature of subject - links between topics – <i>creation of schema</i> - sequencing pre-requisite knowledge <i>adding to this schema</i> - interleaving of knowledge <i>reinforcing schema/contrasting knowledge</i>	Booklet curriculum Sequencing based on WRM / DrF / research blogs and our own experience Sharing this with all stakeholders through website and booklets	Consistency in pedagogical approach throughout dept. Students always have required knowledge to begin new topics
Making explicit teaching the corner stone of our instructional design	Example problem pairs	New topics introduced in small steps High frequency of checking for understanding
Mastery I – fluency and intelligent practice variation in action	Use of tools such as drfrostmaths.com / sequences of questions (variation theory)	Examples/tasks are carefully designed to build a schema of thinking around new ideas Students are given ample opportunity (both in school and outside of lessons) to access independent practice
Mastery II – interconnected ideas/method selection	SSDD, goal free problems and synoptic exam Qs	Students are given opportunity to independently make decisions and method/strategy select (problem solve)
Retrieval practice to make learning stick over time – helping students embed knowledge and strategy into long term memory	Building of PR courses Quizzes DEPT CPD – USE OF MCQS / DO NOW ROUTINES	Students are better at retrieving and knowing when to use mathematical knowledge and strategy when looking at novel problems as well as routine ones
Responsive teaching and checking for understanding	Diagnostic questions Mini WBs – WHOLE DEPT TRAINING / EXTERNAL CPD Entrance/exit tickets	Curriculum booklets are centrally planned and so teachers are ‘freed’ to put their time and effort into being responsive in terms of entrance/exit ticketing, developing pedagogy around how to check for understanding and effectively question
Making mathematical thinking visible	Use of multiple representations Thinking section of example problem pairs	Making explicit strategies and habits of mathematicians

Curriculum Design

- KS3 – refined version of previous SoL based on teacher feedback
- KS4 – an adapted version of WRM Year 9 - 11 based on team agreeing best sequencing of topics
- **KS5 – TOTAL RE-WRITE OF SoW BASED ON RESEARCH TO BEGIN IN SEPT 2023**
- All of the above informed by consideration of pre-requisite knowledge required for topics, links between topics (to allow interleaving) and spacing of topics for retrieval

Dept. CPD

- Informed by research books – we have a substantial library
- HoD has attended conferences (ResearchEd and MathsConfs)
- Online CPD purchased (C. Barton's podia)
- Dept. meetings and TWLs – our approach is to only meet to discuss, all other aspects of meetings done online using Teams/Emails etc.

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- A one stop website which hosts all of our booklet curriculum
- SoL course calendars
- Links to resources for examination groups
- Easiest way to engage parents with their children's education

Where next...

- Began Sept 2021 with new booklet curriculum years 7-9. Individual staff using resources with other year groups with the intent to fully resource all key stages over the next 3 years.
- Booklets are in the main the work of deputy HoD with some input from HoD. Over time they need to be a better reflection of all of the dept.
- Embedding retrieval practice formally
- Moving away from KS3 and KS4 split to a 5 year curriculum
- Research mainly undertaken by HoD and deputy – look to help team access benefits themselves

Assessment

- Test only, no book marking!
- Use of entrance/exit tickets
- Low stake quizzes and retrieval practice
- DrFrost online platform for use in class and homeworks (uploaded courses that match SoL to work through)
- Common assessments taken after each unit (i.e. booklet)

Booklet Curriculum

- Making DI the heart of how we all deliver our lessons through example problem pairs, examples non-examples, careful variation
- Work on how we deliver in detail using best of CLT, Rosenshines principles and TLAC
- Freeing up teacher workload for more *RESPONSIVE TEACHING* – follow up tasks to consolidate or extend

Mastery

- No time frames or lesson allocation to topics/units/booklets
- Teachers given autonomy so that they can be *RESPONSIVE* to students' needs
- Time can be used for checking pre-requisite knowledge, re-teaching where required, formative assessment tools (MCQs, mini-WBs, quizzes, etc.)

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