

**NHESC
Mathematics Policy
Key Stage 3 & 4**

Aims

- To ensure that all students achieve qualifications in this area of the curriculum in Year 11.
- To create an environment where students feel secure and confident answering questions, reading aloud from texts and writing on the board.
- To develop students' familiarity with appropriate mathematical concepts, principles, methods and vocabulary.
- To allow all students to experience a sense of achievement.
- To develop, maintain and stimulate students' curiosity, interest and enjoyment in mathematics.
- To develop students' understanding of mathematics in its widest context and to see how it relates to themselves outside school.
- To enable independent and group work for all students.
- To encourage students to work collaboratively effectively and to support each other's learning.
- To foster and support the quality of written communication (QWC). QWC is now a marked element in all GCSE Mathematics examinations.
- To develop numeracy skills for all students in accordance with the requirements of Key Stage 3 & 4 Mathematics National Curriculum.
- To build upon, and extend students' existing achievements and successes in mathematics in order that we maximise the potential of every student.
- To encourage students to develop transferable skills and informed opinions about their mathematics and to be able to support them by reasonable arguments.
- To identify and support students who are not making progress and to place them on the Mathematics Intervention Plan to fast-track their learning in a very focussed way.

Teaching Approaches

- Staff will follow the Teaching Approaches Policy as agreed by the Centre.
- We endeavour to provide a variety of experiences and activities within each unit of study and where possible within a lesson. These can include; practical work, observation, talking and listening, sharing ideas and explanations, exploration and investigation, reflection, reading and writing. We aim to regularly ensure challenge is included as a recognised motivator.
- We aim to teach in a meaningful context whilst providing opportunities for the students to use their skills creatively through problem solving and investigation.
- The OCR Mathematics B GCSE Course, the OCR Entry Level Course and the Entry Level Functional Skills qualifications are generally offered as and where it is deemed appropriate.
- Our groups of mixed ability and mixed age makes individual work the most appropriate and successful way of working for many lessons. The more able will benefit from the intensity of such work and the less able and less confident student will benefit from the privacy. Students will therefore be able to develop their independent working methods and increase their individual progress.
- We recognise the importance of group work also, as it enables students to learn from and interact with each other in a positive, work related context. Therefore Group Work topics will also be taught as part of many normal maths lessons through lessons starters and plenaries. (See Yearly Overviews Years 1 and 2).

- Following the mock examinations, individual papers are analysed to identify and target topics for revision. Individual work packs are sent home with all students to address gaps in their learning and further prepare them for the examinations proper. Furthermore a group analysis is carried out thus identifying overlap of need and whole group lessons are prepared for these topics and delivered where appropriate.
- Students are encouraged to recall and apply their knowledge and skills in familiar and unfamiliar situations and to follow both verbal and written instructions with accuracy.
- Open-ended investigations are used which are appropriate to the student's level of attainment and experience and are also a necessary part of the GCSE syllabus. This will be increasingly relevant with the new GCSEs.

Expectations of Learning

- We expect all Key Stage 3 students to follow the Mathematics National Curriculum. (See *Key Stage 3 Scheme of work*).
- We expect the majority of Key Stage 4 students to undertake the OCR Mathematics B GCSE. This is a two-year linear course that can be undertaken in one year if necessary. Most students will take the Foundation level, this comprises clearly defined levels: Foundation Initial, Foundation Bronze, Foundation Silver and Foundation Gold. We are also resourced so that more able students can be offered the Higher Tier qualification which is defined in a similar pattern. (This year (2015) three students are being considered for the Higher Tier Paper).
- A minority of Key Stage 4 students, for whom the GCSE is not appropriate, will undertake the Entry Level Certificate in Mathematics. This consists of a series of targets accessible to students who find mathematics more challenging. The examinations can be attempted when an individual student is ready. The students' work is 100% teacher assessed in-house, enabling rapid feedback to students. There are 3 levels: Entry Levels 1, 2 and 3 (3 being the highest level).
- Entry Level Functional will be offered to all students. For the GCSE this is recognised as an 'insurance' measure should things go badly at the time of the GCSE examinations. For those not taking the GCSE, Entry Level Functional Skills qualifications demonstrate a higher level of skills, knowledge and understanding.
- Students who are achieving a Grade G in their GCSE mock are automatically entered for the Entry Level 3 qualification as an insurance measure which guarantees at least one qualification is gained by every student attending the NHESC.

Baseline Assessment and Assessment for Learning

On entering the Centre data all students will complete assessments as soon after starting as is appropriate. Information from previous educational provision and baseline assessment data will also be taken into consideration and recorded in their in daily records and on STEPS Database. Additionally assessments from the following will be used:

OCR Mathematics B GCSE Foundation Initial, Foundation Bronze, Foundation Silver or Foundation Gold assessment papers.

Mathematics APP Assessment Criteria (National Strategy) for each of the five strands will also be referred to.

The above measures will provide an indication of the level upon which to start the student with their GCSE or Entry level work.

Summative Assessment

At the end of Key Stage 3 QCA Key Stage 3 SATS are used ensuring that relevant information is available for their transition to NHESC KS4 Programme or an alternative educational setting.

Marking

The purpose of marking is seen to include the following:

- To enable the students to know whether or not they have the correct answer to a problem, however, crosses are not used to indicate an incorrect answer, a © is used instead. (The © means check, correct or change.)
- To express teacher interest in the work done.
- To confirm progress, express praise and encouragement.
- To draw students' attention to errors arising from carelessness or misuse of symbols.
- To enable teachers to assess the degree of learning that has taken place.
- To set targets for further progress.
- To extend the student's learning.

Students' work will be marked during the lesson or as soon as possible after being completed. Students also have access to answer books and sheets so that they can mark and monitor their own work if appropriate. Assessment styles will include all of the following: formative assessment to progress learning providing scaffolding prompts and much positive reinforcement. Peer assessment to foster collaborative learning. Students will be encouraged to conduct self assessment.

Summative assessments will also be conducted to assess learning at each stage. Materials will include: Mathematics B GCSE Foundation Initial, Foundation Bronze, Foundation Silver or Foundation Gold assessment papers, past Modular and Terminal GCSE papers, Entry Level papers and Entry Level Functional assessments and Mathematics APP Assessment Criteria (National Strategy) for each of the five strands.

Cross Curricular Links (incl. use of ICT and promotion of Literacy and Numeracy)

All learning that fulfills the criteria of cross curricular links is identified in maths schemes of work thus: e.g. [CCLinkGeography](#).

The use of ICT is an integral and important aspect of the teaching and learning of Mathematics at the NHESC and is used to reinforce and support individual and group learning in lessons.

We use software packages including interactive tutorials covering most of the GCSE syllabus. Furthermore the new OCR GCSE Mathematics B qualification materials include CDs with consolidation exercises at every level.

The Mathematics Room is furnished with an InterActive Whiteboard; this versatile tool enhances teaching and motivates students. We use website resources, videos and worksheets many of which are identified and hyperlinked in the Schemes of Work for the new OCR GCSE Mathematics B qualification. The process of adding interlinks to resources into the Schemes of Work is complete however, by its very nature, will be ongoing.

OCR GCSE interactive tutorials, Maths Base and Living worksheets are subscribed to and are available to use with the IWB, on all desktops and for individual students to use.

There is a natural cross-curricular link with ICT; all students will use and develop the skills learnt in their ICT lessons in the mathematics lessons.

Furthermore we make use of the many excellent resources available online especially on the TES website.

Links with Mainstream School

We have established a link with a North Herts Secondary school mathematics department, namely The Highfield School. We meet termly, at least, and alternate the venue. Our discussions are valuable and cover a range of topics.

Health and Safety

All scissors and drawing compasses are kept in a locked cupboard when not in use.

Two Yearly Overview

See enhanced Overviews 2014 -2015 which detail opportunities for group work, which will take place as part of Maths lessons.

Development Plan

- Curriculum Lead has attended courses dealing with the new qualifications.
- The maths budget is used to purchase resources to support all students to gain appropriate qualifications.
- A bank of maths teaching resources is in place to enable non-specialist teachers to deliver maths programmes/lessons.
- Grade descriptors are in place for the new GCSE.

Resources

A list for maths resource books and maths equipment is in place and regular stock checks are completed. Some redundant maths' resources have been passed to Bridge 29 and the ESMA service.

Some new replacement textbooks are being purchased for the OCR GCSE Mathematics B syllabus. Mathematical dictionaries and replacement textbooks for Entry Level have been purchased for both sites.

At each centre there is a bank of all resources including Student Record Sheets, Schemes of Work, Speed up Sheets, Revision Exercises for each stage of the Foundation Tier, namely, Initial, Bronze, Silver and Gold.

The Functional Skillbuilder series which includes teacher books (including worksheet banks) for the study of functional mathematics is working well and being well used. These are available to use for all students including those studying for GCSE and Entry Level since functionality is embedded into these qualifications.

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