



Helenswood Academy Numeracy Policy

Vision:

We will inspire confidence in teachers, supported by the subject content of their lessons, to add value to the numeracy of all students in all classes at Helenswood Academy – this will be supported beyond the classroom by building the numeracy skills of adults that play an important part in their lives. This, in turn, will allow students to achieve beyond their targets in mathematics and other subjects so that they can excel in their future lives'

*...while four out of five people would be embarrassed to confess to poor literacy skills, just over half would feel the same about admitting poor maths skills. **'YouGov' poll for the charity National***

*'Without increased (numeracy) skills, we would condemn ourselves to a lingering decline in competitiveness, diminishing economic growth and a bleaker future for all. **Leitch Review of Skills (2006)***

*..... annual costs to the public purse arising from a failure to master basic numeracy skills amounted to £2.4bn. **Research by KPMG auditors***

*National Numeracy wants to challenge a mind-set which views poor numeracy as a "badge of honour – the 'I can't do maths' mind-set". **Mike Ellicock - Chief executive, National Numeracy***

From the national curriculum

Mathematical thinking is important for all members of a modern society as a habit of mind for its use in the workplace, business and finance, and for personal decision-making. Mathematics is fundamental to national prosperity in providing tools for understanding science, engineering, technology and economics. It is essential in public decision-making and for participation in the knowledge economy. Mathematics equips pupils with uniquely powerful ways to describe, analyse and change the world.

From the Programme for International Student Assessment

Numeracy is an individual's capacity to identify and understand the role that mathematics plays in the world, to make well-founded judgements and to use and engage with mathematics in ways that meet the needs of that individual's life as a constructive, concerned and reflective citizen.

From the Ofsted 'outstanding' descriptor

...every opportunity is taken to successfully develop crucial skills, including being able to use their literacy and numeracy skills in other subjects.

1) Rationale

- a) At Helenswood Academy, we believe that:
 - i. It is important that all of our pupils develop the ability to understand and apply numerical skills confidently to solve problems in Academy, outside of Academy and as a foundation to support them successfully in their future lives.
 - ii. The challenges to personal confidence that numeracy and the understanding of mathematics present to young women in particular are addressed assertively and consistently across the entire curriculum.
 - iii. In all aspects of Academy life, both in and out of the curriculum, students are expected to apply numerical thinking to develop their numeracy skills and concepts and to provide opportunities for them to grow their confidence in acquiring a broad and applied understanding of mathematics.
 - iv. The improvement of skills in numeracy raises attainment in mathematics, which, in turn, promotes the aspiration to higher standards in all other areas, both in and out of the curriculum.
- b) This is supported by the following cultural and social associations:
 - i. Children with social, emotional and behavioural difficulties are more likely than other children to struggle with numeracy, even taking into account factors such as home background and general ability.
 - ii. Pupils beginning secondary Academy with very low numeracy skills but good literacy skills have an exclusion rate twice that of pupils starting secondary Academy with good numeracy skills.
 - iii. 14-year-olds who had poor mathematics skills at 11 are more than twice as likely to play truant as those achieving the expected skills at 11.
 - iv. A quarter of young people in custody have a numeracy level below that expected of a seven-year-old, and 65% of adult prisoners have numeracy skills at or below the level expected of an 11-year-old.
- c) People with poor skills in numeracy are also at a disadvantage when they enter into adult life:
 - i. People with poor numeracy skills are more than twice as likely to be unemployed as those competent in numeracy
 - ii. 1 in 4 economically active adults are functionally innumerate
 - iii. every year more than 300,000 sixteen year olds conclude their GCSE Mathematics course unable to numerically function properly in either their work or personal lives
 - iv. Mathematics is more important than ever in the workplace. So, we are putting our economic prosperity in jeopardy unless we develop the culture of numeracy
 - v. Nearly half of students 'fail' GCSE Mathematics (do not achieve grade C or above) and only 15% take Mathematics in some form beyond GCSE

- vi. A child's mathematical Academy career is effectively determined by the age of 11. 90% of those who fail to achieve the SAT target (Level 4) at age 11 will go on to 'fail' GCSE. Conversely, 94% of those who surpass the target (Level 5) will 'pass' GCSE

2) Aims of the policy

This strategy must:

- Promote an increased awareness of the teaching strategies for numeracy used in primary Academics and the mathematical skills acquired by students
- Identify the Numeracy needs of different subjects
- Allow for the provision of accurate and useful data on each student within the Academy
- Increase teacher awareness of how students are taught particular skills in mathematics lessons, so that students can be encouraged to utilise these skills in other subjects
- Increase teacher awareness of differences that exist, in similar topics, between mathematics and other subjects, so that these differences can be explained to pupils to aid understanding
- Develop a consistent approach to learning and Numeracy skills in all subjects - policy
- Increase the awareness of students of the transferability of numeracy thinking skills, so that they can make effective use of the related demands within each subject
- Encourage teachers to work more effectively - increasing the awareness of secondary teachers of the teaching strategies used in primary Academies and the mathematical skills acquired by pupils
- Identify that it is the responsibility of the Mathematics Department to teach basic skills, but by working more effectively with other teachers in the Academy, standards should be raised for all students

Aims:

- a) To promote numeracy thinking skills of all Helenswood Academy students and those studying at Parkwood 6th form by openly developing the following skills across the entire curriculum through:
 - i. Problem solving
 - ii. handle number and measurement competently, mentally, orally and in writing;
 - iii. Lateral thinking
 - iv. Analyse interpret and use numerical and statistical data represented in a variety of forms
 - v. Assessing risk and finding safe solutions
 - vi. Creating links between concrete and abstract concepts
- b) To raise progress and attainment in mathematics at KS3-5
- c) To encourage all faculties to use the content/techniques/styles of mathematics used by Helenswood's mathematics faculty
- d) To allow the 'teaching of mathematics' to meet the Ofsted national standard of 'outstanding' in all classrooms
- e) To promote a 'can do' ethos towards numeracy in all stakeholders

3) Stakeholders are defined as:

- a) Students
- b) Teachers
- c) Adults in Academy
- d) Parents and carers

4) The numerate student

- a) Numerate students can:
 - i. Have a sense of the size of a number and where it fits into the number system.
 - ii. Read numbers correctly from a range of meters, dials and scales.
 - iii. Know basic number facts and recall them quickly and confidently.
 - iv. Use what is known to work answers mentally.
 - v. Use calculators and other ICT resources appropriately and effectively to solve mathematical problems.
 - vi. Make sense of number problems, recognise the operation(s) needed and are available to work confidently with numbers.
 - vii. Know when answers are reasonable and give results to an appropriate degree of accuracy
 - viii. Are able to manipulate algebraic expressions and simple formulae.
 - ix. Understand and use correct mathematical notation and terminology.
 - x. Are able to explain methods, reasoning and conclusions.
 - xi. Use units of measurement of length, angle, mass, capacity and time; can suggest suitable units for measuring, make sensible estimates of measurements and measure accurately using a range of instruments.
 - xii. Understand and use compound measures and rates.
 - xiii. Use simple formulae and substitute numbers in them.
 - xiv. Measure and estimate measurements, choosing suitable units and calculate simple perimeters, areas and volumes.
 - xv. Draw plane figures to given specifications and appreciate the concept of scale in geometrical drawings and maps.
 - xvi. Understand the difference between the mean, median and mode and the purpose for which each is used.
 - xvii. Collect data, discrete and continuous and draw, interpret and predict from graphs, diagrams, charts and tables.
 - xviii. Understand probability and risk.
 - xix. "Distinguish between common words used in Maths and those used in other subjects".

5) Within the Academy

- a) Each faculty will endeavour to provide examples of how numeracy thinking skills are developed. It is an expectation that all staff in each faculty will demonstrate the development of these skills in each lesson.
- b) Each faculty will develop a bank of appropriate resources to help develop students numeracy skills.
- c) It is expected that
 - i. All adults understand the importance of 'can do' attitudes to mathematics and numeracy

- ii. All adults will understand the risk to standards that negative attitudes to perceived ability in mathematics or numeracy can create.
 - iii. No adult will speak negatively about theirs or others' perceived ability in mathematics or numeracy.
 - iv. All adults will challenge negative attitudes relating to the perceived ability in mathematics or numeracy by
- d) At faculty level, the 2ic (Assistant HOFs) of each faculty will be responsible for
- i. The sharing of relevant information to the faculty.
 - ii. Ensuring that numeracy thinking skills are being developed in accordance with the policy
 - iii. Reporting concerns and relevant information to the HOFs.
- e) At faculty level, the HOF of each faculty will be responsible for
- i. Meeting with the faculty 2ic.
 - ii. Commissioning support in delivering numeracy for teachers where appropriate.

6) Outside of Academy

- a) Every effort will be made to engage parents, carers and other adults who have a significant influence over students at Helenswood Academy and Parkwood Sixth form. These will include:
- i. Fostering a positive, 'can do' attitude towards mathematics and numeracy outside of Academy.
 - ii. Using Academy events, including parent/carers evenings, performances, sporting events to promote numeracy.
 - iii. Regular communication with parents/carers about the importance of numeracy
 - iv. Visits from outside speakers.
 - v. Parent/carers numeracy sessions.

7) Monitoring the impact – how will we know that our whole-Academy strategy is making a difference?

- a) Assessment of progress data from the mathematics faculty
- b) Outcomes in maths at KS3, 4 and 5
- c) Student voice:
 - i. In mathematics – recorded on FRAP
 - ii. In other subjects – recorded on FRAP
- d) Formal lesson observations and drop-ins, both faculty and whole-Academy
- e) The impact will be measured every two terms (three times per year)

8) Staff responsible

- a) Mathematical content and advice – HOF mathematics
- b) Policy strategy adviser on KS2 numeracy – 2ic maths
- c) Maintaining the policy and faculty level – faculty 2ic
- d) Overseeing the policy – AP Teaching and Learning)
- e) Assessing the impact on standards – VP standards
- f) Assessing its impact in lessons – VP: QA/AP T&L

9)

Appendix 1

Examples of numeracy thinking skills from each faculty (attached)

