

Mathematics Across the Curriculum Policy

Rationale and definition

The development of mathematical skills across the curriculum is essential to equip our pupils with the necessary transferable skills in order to facilitate learning in other subjects and therefore regarded as the responsibility of all teachers.

Mathematics is...

... much more than just knowing about numbers and number operations. It requires practical understanding and encourages the inclination to problem solve. Mathematics develops and enhances an analytical approach in dealing with, managing and responding to the mathematical demands of life..

Key Principles at SHS

Mathematics should be

- functional
- about identifying and addressing ‘missed opportunities’
- about using **correct** rather than **consistent** methods

An effective Mathematics across the Curriculum Policy will:

- ensure that students receive positive messages about mathematics when used across the curriculum
- develop, maintain and improve standards of mathematics across the school
- ensure usage of correct methods, vocabulary and notation
- indicate areas for collaboration between subjects and facilitate that collaboration
- assist the transfer of pupils’ knowledge, skills and understanding between subjects
- provide a basis against which progress can be judged

Priorities and intended outcomes

- Complete a subject audit for mathematics across the curriculum
- To identify missed opportunities within subject areas and address these
- Provide appropriate training for staff
- Provide practical ideas for incorporating mathematical skills into teaching
- Liaise with the mathematics department in establishing ideas and events to promote mathematics
- Ensure that opportunities for mathematics are identified in all schemes of work

Assessment

- Where appropriate, departments will comment on mathematical skills demonstrated by pupils as part of on-going formative and summative assessment. Relevant success criteria will be made explicit to pupils.
- Where appropriate, departments will take pupils’ mathematical skills into account when giving feedback to parents
- Where appropriate, assessment of pupils’ mathematical skills will be part of future planning

Monitoring and evaluation

Senior Leaders will monitor progress regularly and will report back to staff, parents, pupils and governors. The following methods will be used:

- line management meetings including scrutiny of DDP
- observations and learning walks
- pupil interviews
- data analysis

Responsibilities

SLT will:

- lead on mathematics across the curriculum and ensure it has a high profile
- establish a mathematics coordinator
- liaise with the above when monitoring impact

The mathematics coordinator will:

- work with SLT and head of mathematics to audit current provision, determine priorities and plan strategy
- ensure effective development of whole school policy and practice
- establish communication and liaison between curriculum areas and opportunities to develop and share good practice
- monitor and evaluate the effectiveness of mathematical work across the school with the SLT
- facilitate CPD in liaison with Assistant Head with CPD responsibility

Departments and teachers across subject areas will:

- ensure that they are familiar with correct mathematical language, notation, conventions and techniques, relating to their own subject, and encourage students to use these correctly
- be aware of appropriate expectations of students and difficulties that might be experienced with mathematical skills
- provide information for mathematics teachers on the stage at which specific mathematical skills will be required for particular groups
- provide resources for mathematics teachers to enable them to use examples of applications of mathematics relating to other subjects in mathematics lessons.

Teachers of mathematics will:

- be aware of the mathematical techniques used in other subjects and provide assistance and advice to other departments, so that a correct but not necessarily consistent approach is used in all subjects
- provide information to other subject teachers on appropriate expectations of students and difficulties likely to be experienced in various age and ability groups [*See appendix 1*]
- through liaison with other teachers, attempt to ensure that students have appropriate mathematical skills by the time they are needed for work in other subject areas
- seek opportunities to use topics and examination questions from other subjects in mathematics lessons.

Parents will:

- encourage their children to use the range of strategies they have learned

Pupils will:

- take increasing responsibility for recognising their own strengths and areas for development, identifying next steps for improvement

APPENDIX 1

Across the curriculum Key Stage 3 pupils should have the opportunity to:

- build a sense of the size of number and where it fits into the number system
- recall mathematical facts
- calculate accurately and efficiently, both mentally and with pencil and paper, drawing on a range of calculation strategies
- use proportional reasoning to simplify and solve problems
- use calculators and other ICT resources appropriately and efficiently to solve mathematical problems, and select from the display the number of figures appropriate to the context of a calculation
- use simple formulae and substitute numbers into them
- measure and estimate measurements, choosing suitable units, and reading numbers correctly from a range of meters, dials and scales
- calculate simple perimeters, areas and volumes, recognising the degree of accuracy that can be achieved
- understand and use measures of time and speed, and rates such as £ per hour or miles per litre
- draw plane figures to given specifications and appreciate the concept of scale in geometrical drawings and maps
- understand the difference between the mean, median and mode, and the purpose for which each is used
- collect data, discrete and continuous, and draw, interpret and predict from graphs, diagrams, charts and tables
- have some understanding of the measurement of probability and risk
- explain methods and justify reasoning and conclusions, using correct mathematical terms
- judge the reasonableness of solutions and check them when necessary
- give results to a degree of accuracy appropriate to the context

A Policy on the Use of Calculators

- Pupils should have the required skills to use the basic facilities of a calculator effectively, for example, the order in which keys are used the use of the constant and memory facilities etc.
- Pupils should preferably become familiar with their own calculator, for example, how it handles the input of multi-step calculations.
- The school expects each pupil to bring and use their own scientific calculator.
- Pupils should be encouraged to estimate the approximate answer first and then use the calculator to check the reasonableness of their answer.
- Pupils need to interpret calculator answers sensibly.
- Calculators may be used when working with real data, possibly involving very large, small or decimal numbers, which might otherwise restrict their progress in a lesson.
- In all areas of the curriculum the use of calculators can be encouraged where they enhance the learning taking place, however, it is important that pupils do not develop a reliance on the use of a calculator to solve problems where mental and/or written methods can be used.
- This general rule should be followed: BRAIN, PEN, CALCULATOR

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