

NUMERACY POLICY

1. Principles

The aims of our policy are:

- to raise standards of numeracy and mathematics for all students throughout the college
- to ensure that students do not experience any discontinuity from subject to subject, either in the way certain mathematical methods and strategies are taught or in relation to the level of difficulty of mathematics expected of them
- to promote a positive attitude towards mathematics amongst all students
- to promote a positive attitude towards mathematics amongst all staff and for all staff to actively promote its development across the curriculum
- to ensure that all staff are aware of what numeracy is and what the National Numeracy Strategy's approach to calculation is
- to ensure that all staff, but particularly those in key departments (e.g. Science, Geography, Technology, ICT and possibly P.E. and History), are aware of the range of mathematical skills that students bring to their lessons
- to ensure that staff in key departments are aware of the mathematical demands of their own subject in order that this is reflected in schemes of work
- to ensure that staff in key departments provide opportunities for students to develop and apply their mathematical skills in their own subject
- to promote a common approach to the teaching of key mathematical ideas and processes in all subjects which require them.

2. Procedures

2.1. What is numeracy and what makes a numerate student?

2.1.1. Numeracy is a proficiency, which involves confidence and competence with numbers and measures. It requires an understanding of the number system, a repertoire of computational skills and an inclination and ability to solve number problems in a variety of contexts. Numeracy also demands practical understanding of the ways in which information is gathered by counting and measuring, and is presented in graphs, diagrams, charts and tables.

2.1.2. Numeracy includes:

- The ability to make sense of more than just number
- Developing mental strategies as well as pencil and paper methods
- A confidence and competence in using and applying mathematics, recognising that skills are transferable across different subject areas and in a variety of contexts.
- The ability to use the correct mathematical language. (See Appendix 3 – 'Maths Department Policy on Numeracy')

2.2. **Our approach to teaching**

(See Appendix 1 - 'How to teach sums')

2.2.1 All teachers have a part to play in promoting numeracy skills in their students.

2.2.2. As teachers we strive to:

- Be aware of the range of mathematical attainment that students bring to our lessons.
(Notes - Just because they are in, for example, the top set for our subject doesn't mean that they will be in the top set for mathematics.)
- Build students' confidence when they are struggling with a calculation.
(Notes – Encourage the students to make sense of the numbers involved, to take a step back and consider what is needed to answer the question before diving in with a set method. Encourage short cuts based on mental strategies if possible).
- Encourage students to understand the methods that they are using.
(Notes – Be wary of teaching tricks which have no meaning for the student. For example, rules like “to multiply by 10, add a nought” or when transforming formulae, “change the side, change the sign” can be very helpful if used by students who understand the mathematics behind these mnemonics. However, if they don't relate to any understanding on the students' part they will be half-remembered and mis-used.)
- Use mathematical language accurately and consistently within the department and across the college.
(Notes – The exclusive use of “times” for multiply and “take-away” for subtraction can subtly limit students' understanding of important concepts.)
- Value students' different methods for calculation and regularly ask “How did you do that?” and “Did anyone do that a different way?”
(Notes – It is important to encourage students to see calculation as an act of problem-solving something that they can think about and make their own decisions about regarding the most appropriate and efficient method for them to use, rather than blindly rushing to a set pencil and paper procedure).
- Use mathematical displays correctly for data and information (see Appendix 2 – 'Types of Graph')

2.2.3. We encourage students to:

- See mental calculation as the first resort when faced with any calculation.
(Notes – It is not uncommon for students to reach for a calculator or a rote learnt pencil and paper procedure for calculation that they could, with a little thought, do in their head. If all teachers are working together to discourage this whenever it arises in lessons; this will do much to encourage students' numeracy skills).
- Explain any calculation they have done by showing all their working out. Encourage the idea that “show your working” does not necessarily mean the standard pencil and paper method. It could mean any writing or other type of jotting which genuinely describes how they have arrived at the answer.

- Estimate before a calculation is done whenever possible.
- Consider the reasonableness of their answers after a calculation has been done.
- Know how to use all the relevant buttons on their calculator efficiently and effectively when it is appropriate and to be able to interpret the display sensibly.
- Use appropriate mathematical language confidently.
(Notes – In the same way that we want students to “show their working” in their writing, we want them to “show their thinking” in their talk. Teachers need to create regular opportunities for students to explain how they make calculations that arise in their lessons in order to encourage this use of language).

3. Arrangements for monitoring and reviewing the policy

- 3.1. The Mathematics Department has the key role in supporting and monitoring the implementation of this policy.
- 3.2. As part of the Science and Maths College bid, there is a rolling programme of cross-curricular liaison between Mathematics and other departments. A key focus of this work is identifying the main Mathematical demands of each subject and working in partnership to ensure that colleagues in the focus departments are aware of the methods for teaching the required mathematical concepts. This process may involve demonstration lessons, observation of colleagues from the Maths Department or team teaching.
- 3.3. Schemes of Work are reviewed to ensure that concepts where numeracy is required are highlighted.
- 3.4. The Numeracy Policy as a whole is reviewed on an annual basis by the Learning Committee of the Governors.

Appendix 1: How to Teach Sums; Appendix 2: Types of Graph; and Appendix 3: Maths Department Policy on Numeracy are available on request or via the College Website.

**Ratified by the Governing Body
11th December 2003**