

NEWPORT GIRLS' HIGH SCHOOL ACADEMY TRUST



NUMERACY POLICY

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Introduction

At Newport Girls' High School our aim is develop students who are equipped not just to succeed in lessons or examinations but also to thrive outside of school. Our students will be able to think logically and reason mathematically when faced with any challenges. This policy ensures that we have a whole school approach to supporting the development of the students' numeracy needs.

Purpose

- To develop and improve the standards of numeracy across the school
- To ensure consistency of practice including methods, terminology, notation etc
- To improve students' reasoning and problem solving
- To assist the transfer of pupil's knowledge, skills and application between subjects

A numerate student should:

- Be confident at solving problems that require numerical skills
- Be able to solve problems in various contexts applying knowledge and skills in different subject areas
- Think logically and are able to reason their preferred method

Consistency of practice

Teachers of mathematics should:

- Be aware of the mathematical techniques used in other subjects and provide support and advice to other departments so that a correct and 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.
- Through liaison with other teachers, attempt to ensure that students have appropriate numeracy 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.

Teachers of other subjects should:

- 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 numeracy skills will be required for particular groups.
- Provide resources for mathematics teachers to enable them to use examples of applications of numeracy relating to other subjects in mathematics lessons.

In order to reflect our vision effectively, the following areas of collaboration are consistently encouraged.

Mental Arithmetic Techniques:

All departments should give every encouragement to students using mental techniques but must also ensure that they are guided towards efficient methods and techniques when a written or calculator method is required.

Written Calculations:

Written methods that pupils are encouraged to use include:

Long multiplication e.g.

$$\begin{array}{r} 34 \times 528 = \\ \times \quad 5 \quad 2 \quad 8 \\ \times \quad 3 \quad 4 \end{array}$$

Percentages e.g.

$$13\% \text{ of } 43 = 0.13 \times 43$$

Increase £720 by 24% \Rightarrow (24% = 20% + 4%) Find 20%, 10%, 1%, 4% etc or with calculator 1720×1.24

Use of calculators:

- Students should be encouraged to try mental methods first;
- Students have sufficient understanding of the calculation to decide the most appropriate method: mental, pencil and paper or calculator;
- Students understand the four arithmetical operations and recognise which to use to solve a particular problem;
- Students have the technical skills required to use the basic functions of a calculator constructively and efficiently, the order in which to use keys, how to enter numbers as money, measures, fractions, etc;
- When using a calculator, pupils are aware of the processes required and are able to say whether their answer is reasonable;
- Students can interpret the calculator display in context (e.g 5.3 is £5.30 in money calculations).

Vocabulary and terminology

The following are all important aspects of helping pupils with the technical vocabulary and terminology of mathematics.

- Use of display of key words.
- Using a variety of words that have the same meaning e.g. add – sum, product - multiply, difference - subtract.
- Discussions about words that have different meanings in mathematics from everyday life e.g. product, regular etc.
- Students should become confident that they know what a word means so that they can follow the instructions in a given question or interpret a mathematical problem.
- Using correct and consistent terminology across all subjects

To assist the transfer of pupils' knowledge, skills and application between subjects

It is vital that as the skills are taught, the applications are mentioned and as the applications are taught the skills are revisited. The mathematics department will deliver the curriculum, knowledge, skills and understanding through the schemes of work. They will make references to the applications of mathematics in other subject areas and give contexts to many topics. Other curriculum teams will build on this knowledge and help pupils to apply them in a variety of situations. Liaison between

curriculum areas is vital to pupils being confident with this transfer of skills and the mathematics team willingly offers support to achieve this.

Whole school plans:

- Use of the form time programme to allow students to practise their numeracy skills
- Learning overviews for mathematics to be shared with all staff to provide guidance as to when topics will be covered which will allow more opportunity for cross curricular links
- All teachers will be able to share resources with the mathematics department in the T:drive to help provide opportunities to solve cross curricular problems

Opportunities for enrichment to further develop numeracy skills:

- Lunchtime support clubs
- Individual junior/intermediate/senior mathematics challenges
- Team mathematics challenges
- Curriculum enrichment week
- Trips