



Governors' Committee Responsible:	Curriculum Committee
Nominated Lead Member of Staff:	Deputy Headteacher
Status and Review Cycle:	Non Statutory
Document Version Control:	V 1.0 March 2017

Aims

The **AIM** of this policy is to:

- highlight what is meant by *numeracy* and those skills that a *numerate pupil* should possess
- outline key principles associated with a whole-school numeracy policy
- highlight the important role that each member of staff plays in the promotion of numeracy
- offer general guidance to enhance the teaching and learning connected with numeracy and enable staff to have consistent expectations of pupils' skills

Definitions of Numeracy

It is important that the whole staff share an understanding of what is meant by 'numeracy'.

The following are commonly used definitions taken from key documents:

"...an 'at-homeness' with numbers and an ability to cope with the mathematical demands of everyday life... An ability to have some appreciation and understanding of information which is presented in mathematical terms, for instance, graphs, charts or tables or by reference to percentage increase or decrease." (Cockcroft Report, 1982)

"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" (National Framework for teaching Mathematics, 1999)

The list below identifies skills that a numerate pupil should possess:

- have a sense of the size of a number and how it fits into the standard number system
- know the multiplication table up to 12 x 12 and use these facts flexibly to perform mental arithmetic
- use correct mathematical terminology when explaining their ideas
- resort to using a calculator only when it is appropriate to do so
- can use a calculator efficiently
- perform calculations accurately using appropriate strategies: these include mental methods and pen + paper methods (without the aid of a calculator)
- make estimates
- interpret word problems and decide upon the operations/approaches required to solve them
- use appropriate units when measuring
- collect data efficiently

- choose appropriate diagrams/graphs/charts to display data
- interpret the information displayed in diagrams/graphs/charts
- analyse data critically using appropriate statistical techniques (e.g. averages)

All staff aim to:

- promote numeracy as an important life skill and recognise its development as a basic entitlement for every pupil.
- identify opportunities within department for developing numeracy. Each member of staff should encourage and develop students' numeracy skills as they arise naturally in their curriculum area. Promoting numeracy skills will strengthen learning in all subject areas.
- promote numeracy throughout all areas of the curriculum in a consistent and coherent manner.
- encourage clear and accurate presentation of solutions to problems as it supports logical thinking.
- project high expectations of pupils' numeracy skills, and aim to challenge and stretch pupils of all abilities.
- use ICT to support pupils' numeracy skills.

General Guidance

Below is a list of general points to consider when addressing numeracy issues within curriculum areas. Whilst the list is not exhaustive, it is intended to highlight the different methods and approaches that can be used to promote numeracy and thinking skills. Further strategies can be found in the numeracy across the curriculum booklet in every department

Number and Calculations

- Try to use the correct mathematical terminology associated with calculation.
- Pupils should make estimates for the required answer before attempting to find the accurate answer, particularly for more complex calculations.
- Pupils should have opportunities to discuss the various methods of tackling problems.
- Pupils will have a variety of methods for performing basic calculations. Therefore, when a pupil encounters difficulty:
 - (i) determine the method the pupil is using
 - (ii) try to put right the method the pupil is using
 - (iii) try other approaches (see 'Numeracy skills' booklet)
- Pupils should be encouraged to work mentally when tackling simple calculations. (Give them time to think).
- Pupils should be encouraged to show their methods in multi-step calculations.
- Pupils should be encouraged to check if their answer makes sense, particularly where units and decimals are involved.
- Pupils should be encouraged to think about the accuracy required in all calculations.

Use of Calculators

- It should be recognised that there are many calculations where the use of a calculator is the only reasonable way of approaching the problem. However, it should also be recognised that many pupils reach for a calculator before exploring other methods. Therefore, pupils should be encouraged to work as much as is reasonable without a calculator.
- The use of the calculator function on mobile phones should not be accepted.

Measurement

- Estimation should be the first step to all measurement.
- There should be opportunities for pupils to select the measuring equipment appropriate to the task and learn to make accurate measurement.
- A clear link should be made between decimal notation and measurement.
- Pupils should be encouraged to question the degree of accuracy required.
- The use of correct units should be emphasised when pupils record measurements.

Handling Data

Pupils should have opportunities to:

- (i) identify the type of data required
- (ii) collect data using frequency tables or questionnaires

Teaching should assist pupils when:

- (i) collating data
- (ii) selecting and drawing appropriate graphs/diagrams/charts
- (iii) giving reasons for the selected diagram
- (iv) evaluating the appropriateness of their chosen diagram

Data/techniques used should be evaluated as to whether they have met the objectives

Conclusion

The role of the Mathematics Department is to ensure that the explicit teaching of basic numeracy and mental arithmetic skills, including those of number, calculations, measures and handling data are securely embedded in the Year 7 to 11 schemes of work. These skills are consolidated at whole class and individual pupil level by having the opportunity to apply these skills when solving real-life problems.

Each member of staff is responsible for promoting numeracy skills when they arise naturally within their subject. A whole-school commitment to numeracy will enhance the teaching and learning process in all areas of the curriculum.