

041 Numeracy

Responsibility: CT
Date: May 2017
Next Review: May 2019

The purpose of the Numeracy at Holmfirth High School is to inspire pupils to enjoy developing their Numeracy skills. We endeavour to foster a love of Mathematics and develop creative thinking problem solving students. Our goal is to enthuse students about their numeracy and build their confidence in applying these skills to real life situations throughout their lives.

A definition of Numeracy:

Numeracy is a proficiency which is developed mainly in Mathematics but also in other subjects. It is more than an ability to do basic arithmetic. It involves developing confidence and competency with numbers and measures. It requires understanding of the number system, a repertoire of mathematical techniques, and an inclination and ability to solve quantitative or spatial problems in a range of contexts. Numeracy also demands understanding of the ways in which data is gathered by counting and measuring, and presented in graphs, diagrams, charts and tables.

(Framework for Teaching Mathematics – DfES)

A numerate pupil is one who has the ability to cope confidently with the mathematical needs of adult life. There is an emphasis on the wider aspects of numeracy and not purely the skills of computation.

(Cockcroft report)

Aims

Holmfirth High School is committed to raising the standards of numeracy of all its students, so they develop the ability to use numeracy skills effectively in all areas of the curriculum and the skills necessary to cope confidently with the demands of further education, training, employment, and adult life. The main aims of numeracy at Holmfirth High school are to

- Secure high standards of numeracy across the school through developing and embedding a whole school numeracy policy that enables all staff to access support and guidance.
- Raise the profile of numeracy across the school and to promote numeracy throughout the entire school curriculum.
- Develop, maintain and improve the standards of numeracy across the school by enhancing the quality of teaching.
- Ensure the consistency of practice including methods, vocabulary and notation by developing cross curricular use of numeracy and by identifying opportunities for numeracy in lessons and schemes of work.
- Ensure an effective cross-curricular approach to the development of numeracy and to promote opportunities for this, indicating and facilitating areas for collaboration
- Assist in the transfer of students' knowledge, skills and understanding of numeracy between subjects.
- Ensure students are aware of what is expected of their numeracy skills

Numeracy across the curriculum

At Holmfirth High School numeracy is viewed as a key basic skill and is necessary for providing students with the tools required for independent learning and future opportunities. We believe that numeracy is the responsibility of all teachers and that subject areas across the curriculum provide important contexts for developing basic numeracy skills.

Through numeracy across the whole curriculum we endeavour to enable students to;

- Have a sense of the size of a number and where it fits into the number system
- Be able to recall mathematical facts confidently and to select the appropriate method to be able to solve a problem
- Calculate accurately and effectively, both mentally and with a pencil and paper, on a range of calculation strategies.
- Use calculators and ICT resources appropriately and efficiently to solve mathematical problems and select from the display the number of figures appropriate to the context.
- Use formulae and be able to substitute into them accurately applying the correct order of operations
- Measure and estimate measurements, choosing suitable units and reading numbers correctly from a range of meters, dials and scales including converting between units
- Calculate perimeters, areas and volumes, recognising the degree of accuracy that can be achieved
- Understand the use of measures of time and speed and rates such as £per hour or miles per litre for example.
- Draw plan figures to given specifications and appreciate the concept of scale in geometric drawings and maps.
- Understand the difference between mean, median and mode and the purpose for which each is used.
- Calculate and convert fractions, decimals and percentages
- Collect data, both discrete and continuous, and draw / interpret / predict from graphs, diagrams, charts and tables.
- Have some understanding of the measures of probability and risk.
- Explain methods and justify reasoning and conclusions using correct mathematical terms and notation
- Judge the reasonableness of the solutions and check them where necessary
- Give results to a degree of accuracy appropriate to the context
- Interpret, describe and discuss their work and use this to support their conclusions and make appropriate predictions

Consistency

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 and consistent approach is used in all subjects.
- Provide information and guidance to other subject teachers on appropriate expectations of students and difficulties likely to be experienced in various age and ability groups – including the needs of pupils with difficulty grasping basic numerical concepts
- 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 subject areas in mathematics lessons.

Teachers of other subjects will;

- Ensure they are familiar with correct mathematical language, notation, conventions and techniques, relating to their own subject.

- Ensure that correct mathematical language, notations, conventions and techniques are taught to and used by students correctly
- Be aware of the appropriate expectations of students and the difficulties that might be experienced with numeracy skills
- Provide information to mathematics teachers on the stage at which specific numeracy skills will be required
- Provide resources for mathematics teachers to enable them to use examples of applications of numeracy relating to the other subjects within mathematics lessons
- Give emphasis to correct written and mental methods when applicable
- Demonstrate how to select an appropriate type of graph for displaying data. Correctly label, plot, interpret graphs, charts and diagrams.
- Liaise with the mathematics department to ensure that they have the confidence to deliver and coach student in the correct mathematical processes.

Department	Possible numeracy content
Art	Symmetry , Paint mixtures as a ratio, scale drawings
Food	Recipies as ratios,proportion, reading scales
Geography	Representing/interpreting data, map scales, conversion of units, use of spreadsheets
History	Timelines, sequencing events and dates
ICT	Representing data, use of spreadsheets, algorithms
MFL	Dates, counting in other languages
Music	Sequencing, addition of fractions
PE	Collection of real data, timings and measures
RE	Interpretation/comparison of data from secondary sources
Science	Calculating with formulae, representing and interpreting data, standard form, measures and accuracy, analysing data etc
Technology	Scale, practical equipment and measurement, proportion
Business studies	Data analysis, representing/interpreting data. Interpretation and comparison of data from secondary sources.

The underpinning foundations of good numeracy across the curriculum are a growth mindset in all subjects about students abilities to be able to calculate mathematically with correct support and guidance.

Departmental handbooks should

- Contain a copy of the whole school numeracy policy
- Identify topics/areas requiring numeracy skills
- Provide guidance to staff concerning approaches to the use of numeracy skills and correct mathematical terms and conventions within their subject

The staff in the mathematics department are always willing to provide support and guidance on all numeracy related matters.