



**Stockport School
Numeracy Policy**

Developing Numeracy for Learning across the Curriculum:

A Strategy for Success

Policy Context

Stockport School strives to ensure that all students realise their potential. We believe that numeracy skills are absolutely fundamental for each of our students to be successful in their lives. Numeracy provides an ability to cope confidently with the mathematical demands of adult life, further education and employment. The development of numeracy skills is a basic entitlement for all students. All students should experience a rich numeracy learning environment, regardless of perceived 'ability'. Numeracy involves the application of knowledge, skills and understanding essential for personal and social development, in this way Stockport School supports the life-long learning of its students. Competent numeracy promotes self-confidence and therefore staff will endeavour to deliver their lessons in a manner that builds student belief both in themselves and to improve the application of numerical skills by all students across the whole range of appropriate subjects. All teachers and support staff have a role to play in supporting students' progress in 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.

Our main objective is

To increase pupils' abilities to develop confidence and competence in the way that they approach and solve problems.

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 are gathered by counting and measuring and presented in graphs, diagrams, charts and tables.

We do not suggest that all pupils should use the same method to solve any particular problem – as to be numerate does not mean the ability to perform standard algorithms.

Pupils, when faced with a problem should be equipped with the skills to tackle it. The initiatives that follow in the next section are aimed at giving pupils access to these skills and increasing their abilities to address the following questions when approaching a problem

- Can I solve it mentally?
- If not, can I make some jottings to help me?
- Can I employ a method?
- Can I approximate my answer?
- Is my answer reasonable?

If pupils can start to address these questions it will bring us closer to realising our main objective.

Policy Aims

The aims of the Numeracy Policy are to:

- Secure high standards of numeracy across the school through developing a whole school Numeracy Policy which enables all staff to access support and guidance.

- To raise the profile of numeracy and to secure high standards of numeracy across the school and to promote numeracy throughout the curriculum.
- To develop, maintain and improve standards in numeracy across the school by enhancing the quality of teaching.
- To ensure consistency of practice including methods, vocabulary and notation by developing the cross curricular use of numeracy and by identifying opportunities for numeracy in lessons and schemes of work.
- To ensure an effective cross-curricular approach to the development of numeracy and to promote cross-curricular opportunities for this, indicating and facilitating areas for collaboration.
- To assist in the transfer of students' knowledge, skills and understanding of numeracy between subjects.
- To ensure students are aware of what is expected of their numeracy skills.
- Embedding confidence in teachers so that they are aware of where numeracy appears in their curriculum and can teach it consistently according to the numeracy policy.

Policy Outcomes

This policy seeks 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 solve a problem
- Calculate accurately and efficiently, both mentally and with a pencil and paper, on a range of calculation strategies
- 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 calculation
- Use formulae and substitute numbers for them
- Measure and estimate measurements, choosing suitable units and reading numbers correctly from a range of meters, dials and scales and to be able to carry out conversions between measurements
- Calculate simple 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
- 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, discrete and continuous and draw, interpret and 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
- Judge the reasonableness of solutions and check them when 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.

Numeracy within the Curriculum Subject

	Contribution to the development of numeracy skills
Art	Many paintings, patterns and constructions are based on ancient rules and properties of shapes, including the Golden Section and the Fibonacci series. Designs may need to be enlarged or reduced introducing ideas of ratio and scale. Proportion, ratio scale and measurement are widely used in planning the size and scale of art work. The drawing of measured linear perspective also requires a concise, mathematical approach.
Business Studies	Students use numeracy in both the creation and interpretation of graphs, charts and tables. Percentages are widely used in data comparisons. Students need to be able to estimate using mental calculations but they also need to be confident in the use of a calculator. Skills of analysis are involved when looking at primary and secondary data and in the scrutiny of questionnaire results. Students also use Excel spreadsheets.
English/Drama	Numeracy is not actively used in English, but will come up in activities associated with texts e.g. contextual work on wages in past times.
Geography	Scale, direction, ratio and distance are used in map reading. Graphs and charts are used in the interpretation of patterns and trends. Students generate, analyse and present data through fieldwork investigations.
History	Numeracy is used in the interpretation and construction of timelines and chronology and when analysing numerical sources, for example, the military strength of countries at the start of World War One. Students use statistics when looking at economic changes. Graphs and tables are used in the presentation of evidence.

<p>ICT</p>	<p>Students will apply numeracy in a variety of ways in ICT This includes collecting and classifying data and entering it into software, producing graphs and tables, interpreting and explaining their results. When students use computer models they will use their ability to interpret numbers and identify patterns and relationships. When designing power point presentations or websites, students will use proportion and their knowledge of shape and space as well as an understanding of enlargement when changing the size of an object. Other numerical skills are used when using formula and formatting within Excel spreadsheets. Students will use problem solving skills in much of their project work and will frequently be in charge of time management, setting goals and meeting deadlines.</p>
<p>Mathematics</p>	<p>Among the many skills and abilities developed in Mathematics, Numeracy is imperative to students' progress and a top priority of the Mathematics Department. Numeracy is essential to the study of Mathematics, and the development of proficiency with number is a central theme running throughout all lessons, with emphasis in early years on developing confidence and familiarity with handling, manipulating and operating with number. Key Stage 3 sees our students studying Mathematics from four key strands, "Number", "Algebra", "Shape, Space & Measure" and "Handling Data".</p>
<p>PE</p>	<p>Athletic activities require measurement of height, distance, time and speed, while ideas of time, symmetry, movement, position and direction are used extensively in music, dance, gymnastics and ball games. The key to making the most of these opportunities is to identify the mathematical possibilities across the curriculum at the planning stage. You should also draw children's attention to the links between subjects by talking frequently about them, both in Mathematics and in other lessons.</p>

<p>Science</p>	<p>Scientists need to be numerical. The ability to handle different types of number: integers, decimals, fractions and standard index form is essential when reading instruments or interpreting data to draw conclusions. Scientists must also be able to manipulate numbers: calculating mean averages, percentages and using them correctly in a formula. In addition, scientists must appreciate the significance of a number, for example, estimating answers from a calculation and evaluating the quality of data.</p>
<p>Technology</p>	<p>Measuring is used extensively in all areas of technology, involving the use of both metric and imperial units. When making models or constructions students work in millimetres and are required to measure accurately using this unit. The need for plans requires students to be able to produce scale drawings and be able to draw 2D representations of 3D shapes. Identifying and drawing plans and elevations of 3D shapes are also used when planning project work. In Food Technology students require an understanding of proportion when working with and adapting recipes. Students also use percentages when identifying the nutritional content of different foods. In Textiles shape and measurement are used when designing and making different items. 2D shapes and tessellations are used in some designs.</p>

Review

This Policy will be reviewed in line with the priorities of the School Development Plan and within a period of no more than 3 years.

Review date - March 2018

Next Review date - March 2021