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Haslingden High School and Sixth Form

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Rationale

Numeracy is important for the following reasons:

- Numeracy skills enable students to understand and interpret numerical and graphical information. This facilitates improvement in students' abilities to make their own judgements and to draw sensible conclusions from information.
- Almost all subjects depend on students having competence in basic numeracy skills.
- If students numeracy skills are not developed and used they may well be denied the opportunity to develop the level of understanding of some topics or subjects at the level expected for their age.
- People who struggle to use numbers may feel embarrassed by their difficulties, and this can affect their confidence and self-esteem. They may fail to manage their money well or to get the best deals when shopping.
- Employment: people with poor numeracy skills are more than twice as likely to be unemployed as those competent in numeracy.
- Crime: A quarter of young people in custody have a numeracy level below that expected of a seven-year-old, and 65% of adult prisoners have numeracy skills at or below the level expected of an 11-year-old.

Numeracy across the curriculum

- Numeracy is not the sole responsibility of the mathematics Faculty. Most other subjects can contribute to the development and enhancement of students' numeracy skills including their ability to describe and explain their strategies and reasoning.

English **Frequency of words: (eg Shakespeare versus Bacon?)** **Bar charts, pie charts. Surveys Terminology for descriptive writing. Line graphs Mathematical vocabulary**	**Science** **Various arithmetical calculations on decimals and fractions including ratio, use of formulae, percentages. Graphs and charts of all kinds. Shape in 2D and 3D. Golden ratio/ Fibonacci sequence (biology & human biology).** **Use of units.**	**Art** **Islamic art and design; shape in 2D and 3D; simple ratios; perspective; Golden ratio. Escher tessellations. The art of Wassilly Kandinsky, Piet Mondrian, Theo Doesburg and others use geometrical shapes.**	**DT** **Various arithmetical calculations on decimals and fractions including ratio, use of formulae, percentages. Graphs and charts of all kinds. Construction and measure of 2D and 3D shapes. Development costings.**
Geography **Graphs and charts of various kinds. Fractions and percentages, ratios. Population growth. Four-**	**History** **Graphs and charts of various kinds. Percentages, ideas of large numbers, wealth.**	**ICT** **Spreadsheets, databases, algebra, flowcharts. Collect and classify data. Measurement of distance**	**Modern Foreign Languages** **Measures of length/ Distance, time and weight, (angle?) counting,**

figure (or more) grid references. Study of maps, angles and position.	**Measures of weight, length and time.**	**and angle in control systems. Production of graphs and charts.**	**tables, exchange rates. Money/costs, speeds, distance.**
Music **Pythagorean intervals. Fractions, square roots; doubling of frequencies (powers of 2); aleatory music (using dice to compose);** **Golden section eg used by composers Eric Satie, Bartok, Debussy, Schubert**	**PE** **Speed, distance, time, units, weight, graphs and charts, percentages, power/weight ratios. Calculations of energy expended. Symmetry Movement and direction**	**RE** **Shape eg. Pentagon – five pillars of Islam Octagon – eightfold path. Calendar years and years of other faiths.**	**PSHE** **Developing Financial capability through mathematics.** **Eg. Looking after and saving money, spending and saving (bank accounts, loans, credit cards etc.), calculating the cost of a holiday, credit ratings.**

- Here are some examples of the numeracy skills used in subjects other than mathematics

Students in all lessons should:

- Make correct use of mathematical vocabulary when providing oral and written answers or asking questions.
- Present ideas and information they have collected in the form of displays of charts and tables.
- Interpret, describe and explain their work and not simply reproduce graphs, tables and charts or statements concerning percentages and other numerical data.
- Set their work out systematically and with care. Where there are calculations these should always be set out so the method used is clear, working down the page. Where there are graphs these should always show a suitable scale, be correctly labeled and have a title.

Form Teachers should:

- Encourage pupils to discuss the form time numeracy tasks. Form classes are mixed ability so it is a great opportunity for pupils to use their verbal reasoning of their numeracy skills.
  'How did you get to your answer?'
  'Did anyone use a different method?'
  'Could you explain your reasoning?'
- Promote a positive attitude towards the numeracy tasks in class refraining from negative comments associated with Mathematics, please refer to the section below for the Mathematics intent.

Teachers of all subjects should:

- Make reference to the Mathematics departments curriculum intent and promote a positive attitude towards numeracy within their subject as well as numeracy skills required for life after school.

Our primary goal is to make mathematics **enjoyable, exciting, and challenging for all our students. Students will develop the confidence to work individually, collaboratively and to apply logic and reasoning to mathematical problems. This will take place within an environment which is both supportive and inspires a curiosity for mathematics, which in turn builds** resilience, confidence and fluency of practice.

Our curriculum is carefully designed to build on prior learning and equips all students with functional mathematical skills, which enables them to negotiate everyday numerical problems and promotes an interest in a wide variety of linked disciplines where sound mathematical knowledge and skills are required.

- Be aware of any numeracy skills within their curriculum and ensure these are scaffolded correctly.
- Use and explain mathematical vocabulary whenever it will enhance students' knowledge, skills and understanding of the topic. The use of such vocabulary by students should be strongly encouraged.
- Give emphasis to mental calculation when it is sensible to do so.
- Encourage students to estimate when appropriate.
- Use and explain appropriate calculations and data whenever it will enhance students' knowledge and understanding of the topic. The explanation should be in line with whole school policy.
- Choose and use appropriate units of measure correctly.
- Demonstrate how to select a type of graph appropriate to the data provided.
- Correctly label a graph or chart.
- Correctly interpret a graph or chart and make appropriate comparisons where more than one graph illustrates the data.
- Explain the steps in the solution to a problem.
- Discuss and clarify why a particular method of calculation works.
- Use and explain the meaning of appropriate mathematical terms.
- Recognise situations and problems in which numeracy skills and understanding can be used.
- Assess the numeracy skills required to address these situations or problems – selecting the right tools and knowledge is a core part of being functionally numerate.

Departmental schemes of work should:

- have opportunities for numeracy included and identified in them, where relevant.
- All methods of calculations cross referenced with the methods taught in the maths faculty.

Future Aims:

- To analyse the Block Assessments QLA from the maths department and provide form time tuition to those who are below the expected progress one day a week per year group.
- Throughout registration during the first half term of the academic year will be dedicated to those who were below national standard in their KS2 SATS. The data from the KS2 QLA analysis will be used to provide effective catch up lessons.