Numeracy Policy

Aim of the Trust

One community. Many ideas. Everyone's future.

We aim to provide an exceptional education for every child in the Trust through an ethos of collaboration and high aspirations and through the principles of quality learning using curiosity, exploration and discovery.

Principles

The Langley Academy is committed to raising the standards of numeracy for all its students, so that 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 continuing education, employment and adult life. All teachers and support staff have a role to play in supporting students' progress in numeracy.

Definition of Numeracy

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

Purposes

1. To promote numeracy throughout the curriculum.
2. To raise standards of numeracy, by enhancing the quality of teaching and learning.
3. To develop cross curricular use of numeracy by building opportunities for numeracy into all schemes of work.
4. To raise the profile of numeracy in the Academy.
5. To provide staff training when necessary.

All students should:

- have a sense of the size of a number and where it fits into the number system
- be able to do simple addition, subtraction, multiplication and division using either a mental or written method
- make estimates of measurement and be able to identify different units of measurement
- have knowledge of the times tables either by recall or by adding on

Pupil Premium students should:

- have equal access to resources that develop their numeracy skills
- have access to one-to-one intervention or support outside of lessons to help with the numeracy tasks, if necessary
- be given correct equipment, if required – calculator, compasses, protractor, ruler etc.
- be assigned some additional numeracy tasks or skills to improve and develop their numeracy skills

High ability students should:

- calculate accurately using a variety of strategies both mental and written methods, including two and three digit numbers and decimals
- be able to identify equivalent fractions, as well as their related decimals and percentages
- be able to find the percentage of a quantity with or without a calculator and understand problems, involving percentage increase and decrease
- explain their methods and reasoning for solving a problem using mathematical language
- judge whether their answers are reasonable and have a range of strategies for checking their answers
- explain and interpret charts, diagrams, graphs and tables

The use of Calculators:

- indicate in their schemes of work when and where they are likely to require calculators
- be clear when it would not be appropriate to use a calculator for their calculations

The use of Vocabulary:

- words are consistently used across the STEM subjects that widely require specific numeracy and maths skills, i.e. lines of "best" fit versus curves of "best" fit
- students clearly understand those operative words that can imply numeracy-based tasks or skills, i.e. work out, calculate, measure, or estimate

<u>Roles and Responsibilities</u>

All Staff should:

- understand what numeracy is
- be aware of how they can support the delivery of numeracy within their subject
- ensure that numerical tasks included in their lessons are age and ability appropriate, and used accurately
- consider numeracy in their short and mid term planning, using the Mathematics Department schemes of work
- schemes of work to have opportunities for numeracy included and identified lesson plans include relevant numeracy learning outcomes
- each department has a resource of relevant mathematical methods accessible to staff
- new staff are aware of the Numeracy Policy and its inclusion in the subject
- the promotion of numeracy in lessons is included in the regular monitoring of teaching and learning and departmental self-review

Head of Mathematics should:

- work with the Leadership Team to determine a strategy for dealing with numeracy across the curriculum and to ensure the effective development of the whole school numeracy policy
- monitor the implementation of the whole school numeracy policy through schemes of work
- evaluate the effectiveness of the strategy and modify it as necessary lead staff INSET on common practices and methods to be adopted across the whole school and provide exemplar materials for use in classroom
- work with departments and individual staff
- encourage teachers of Mathematics to provide assistance and advice to other departments so that a consistent approach is used across the whole school
- raise the profile of numeracy across the whole school and on the website
- seek opportunities for topics from other subjects to be used in mathematics lessons publicise mathematical methods to be used consistently across the school
- ensure that there is constructive communication between the Mathematics Department and the School's cluster primary phase schools

Leadership should:

- support the development and implementation of cross curricular numeracy policy at the School through Link work
- determine the role of the Numeracy Champion
- monitor the effectiveness of cross curricular strategy in raising standards of achievement provide INSET opportunities and resources for teachers and support staff as appropriate.

The Numeracy Co-ordinator should:

- accept overall responsibility for the delivery of The Academy's numeracy policy.
- advise the academy director regarding numeracy, and Teaching and Learning on numeracy issues
- lead the determination of whole academy numeracy strategies and their implementation
- establish, monitor and review strategies to assist students and teachers in the implementation of the numeracy programs
- work with the Special Education Needs co-ordinator in whole academy assessment programs including the monitoring of the educational progress of all students in regard to numeracy skills and programs
- meet regularly with HOFs to plan and monitor numeracy needs and develop suitable numeracy strategies for each curriculum area
- work with teachers to plan, monitor and resource numeracy programs
- co-ordinate the numeracy programme within tutor time by liaising with Raising Standards Leaders (RSLs), House tutors and the LRC coordinator
- run Academy CPD workshops as part of ongoing training for staff
- run Parent/Carer Information sessions and write articles for the academy newsletter regarding numeracy
- monitor the impact of the Numeracy Policy on standards of numeracy

The Special Educational Needs Co-ordinator and all support staff should:

- work with the Numeracy co-ordinator in whole academy assessment programs including the monitoring of the educational progress of all students in regard to numeracy skills and programmes
- communicate with all staff about those students who have numeracy difficulties and give advice on what staff can do to help these students in their subject
- ensure that no group is disadvantaged with respect to race, ethnicity or gender
- monitor identified students with numeracy difficulties through IEPs and review meetings

The House Tutor should:

- actively support the Academy's numeracy work in tutor time by encouraging students to progress through the numeracy work books or tasks
- place importance on numeracy and ensure that it has a high profile within the house tutor group
- find opportunities to praise students' achievements and show interest in their numeracy work

<u>Numeracy across the Curriculum</u>

English:

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. Timelines are used to set a piece of work within its historical background and graphs can be used to show changes in the emotions of characters.

Science:

Scientific investigations and experiments require students to use their numeracy skills to classify objects, accurately measure distances and quantities, estimate outcomes and quantities when required, recording results in tables and graphs. In Science, students will order positive and negative numbers, including decimals, calculate means of a set of data and calculate percentages of a quantity. At a higher level students will apply their algebra skills to substitute into formulae and rearrange scientific equations. Choosing an appropriate graph and being able to interpret data and make predictions will also take place in Science lessons.

CAPA:

Students use numeracy in many areas in Art and Design. Many patterns and constructions are based on special ideas and properties of shapes, including symmetry. Designs may need to be enlarged or reduced introducing ideas of ratio and scale factor. In areas of sculpture proportion and measurement are used. When mixing paints and colours students use ratio and proportion to produce different shades and colours from the three primary colours.

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.

Humanities:

Numeracy is used in many aspects of learning in 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.

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.

Modern Foreign Languages (MFL):

Students use numeracy in MFL when learning to tell the time, calculating café bills, handling money, applying currency exchange rates, working on days and dates and doing simple arithmetic calculations involving addition, subtraction and multiplication. Work in MFL offers some students the additional opportunity they need to grasp the fundamentals of number work.

Information and Communication Technology (ICT) and Computer Science:

Students will apply numeracy in a variety of ways in ICT and computer science lessons. These include 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.

Monitoring and Review:

The Leadership Team will monitor and report to the Governing Body on the implementation and effectiveness of the Numeracy Policy and the numeracy strategies introduced across the curriculum to inform review of this policy.

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