CLAYTON HALL
ACADEMY

Policy Title: Numeracy 2023/24

(Statutory Policy)

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NUMERACY POLICY

MISSION STATEMENT

Clayton Hall Academy strives to ensure that all students realise their potential. We believe that numeracy skills are a prerequisite for each of our students to be successful in their lives. A high level of numeracy provides students the ability to cope confidently with the mathematical demands of adult life, further education and employment. The development of high-quality numeracy skills is a basic entitlement for all students; therefore, all students should experience a rich numeracy learning environment.

Rationale

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 competence with numbers and measures. It requires an 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 how data are presented in graphs, diagrams, charts and tables.
[Framework for Teaching Mathematics]

It is important that all students develop the ability to apply numerical understanding and embed the skills to confidently solve problems in a variety of curriculum contexts which will allow them better opportunities to cope with the practical mathematical demands of everyday life. Students with good numeracy skills make better progress which leads to higher self-esteem and improved life chances.

Numeracy is not the sole responsibility of the Mathematics Faculties. All subjects can and must contribute to the development and enhancement of students' numeracy skills including their ability to describe and explain their strategies and reasoning.

All teachers and support staff have a role to play in supporting students' progress in numeracy. Staff will ensure that these key concepts are taught in the same way regardless of the subject so as to ensure consistency and clarity for the students.

Definition

Numeracy is:
"an individual's capacity to identify and understand the role that numeracy plays in the world, to make well-founded judgements and to use and engage with numeracy in ways that meet the needs of that individual's life as a constructive, concerned and reflective citizen". (PISA)

This includes:

- The ability to carry out basic calculations efficiently and accurately, either mentally or with pencil and paper as appropriate.
- The ability to apply knowledge of number to both familiar and unfamiliar circumstances and to use it in the solution of a range of problems.
- The ability to understand and use units of measurement of length, mass, capacity and time.
- The ability to understand and use information presented in mathematical forms, including graphs, tables and charts.

Objectives

Clayton Hall Academy will adopt an approach to numeracy that:

- Raises standards of numeracy by enhancing the quality of teaching and learning.
- Raises the profile of numeracy in the academies in the trust.
- Ensures consistency of practice including methods, vocabulary and notation by developing the cross curricular use of numeracy and by overtly identifying opportunities for numeracy in lessons and schemes of work.
- Provides staff training when necessary to enhance numeracy opportunities in all lessons.
- Builds upon the work done in feeder primary schools.
- Supports students to reach, and exceed, their expected targets in all areas of the curriculum.
- Builds links to numeracy in students' next steps within further education and/ or work-based learning, and adult life.

Raising standards of numeracy.

Our strategy for raising standards of numeracy involves: -

- Increasing teachers' awareness of the teaching strategies used in primary schools and the mathematical skills acquired by pupils.
- Identifying the Numeracy needs of different subjects and providing targeted support with teaching strategies and resources to ensure a consistency of approach.
- Providing information on appropriate expectations of particular groups.
- Increasing teacher awareness of differences that exist, in similar topics, between mathematics and other subjects, so that these differences can be explained to pupils to aid understanding.
- Developing a consistent approach to learning and numeracy skills in all subjects.
- Increasing pupils' awareness of the transferability of skills, so that they can make effective use of their numeracy skills in a range of contexts.

Although it is essential that key numeracy skills are taught in Mathematics lessons, there is a clear intention from the current OFSTED Inspection Guidance for these skills to be reinforced and applied across other subjects. The guidance in the handbook states that inspectors must:

- "ensure progress in **literacy** and **mathematics** are assessed by drawing on evidence from other subjects in the curriculum"
- "ensure the teaching of **reading, writing, communication** and **mathematics** is highly effective and cohesively planned and implemented across the curriculum".

Therefore:

- All schemes of work should include overt references to numeracy where appropriate. This numeracy focus will support what is taught in the lesson.
- Outcomes will clearly show a numeracy focus where relevant and students will be aware of what numeracy skills they will need to apply.
- Key numeracy techniques will be used consistently across all faculties.
- Students should be encouraged to use non-calculator methods where possible and then check their answer on a calculator. If non-calculator method is too onerous to find an exact value, students should estimate the answer instead and then check with the calculator.

Outcomes

The teaching of numeracy is a success if all students:

- Have a sense of the size of a number and where it fits into the number system.
- Read numbers correctly form a range of meters, dials and scales
- Know basic number facts and recall them quickly and confidently
- Use what is known to work answers mentally
- Use calculators and other ICT resources appropriately and effectively to solve mathematical problems.
- Make sense of number problems, recognise the operation(s) needed and are available to work confidently with numbers
- Know when answers are reasonable and give results to an appropriate degree of accuracy
- Are able to manipulate algebraic expressions and simple formulae
- Understand and use correct mathematical notation and terminology
- Are able to explain methods, reasoning and conclusions
- Use units of measurement of length, angle, mass, capacity and time; can suggest suitable units for measuring, make sensible estimates of measurements and measure accurately using a range of instruments.
- Understand and use compound measures and rates.
- Use simple formulae and substitute numbers in them.
- Measure and estimate measurements, choosing suitable units and calculate simple perimeters, areas and volumes.
- Draw plane figures to given specifications and appreciate the concept of scale in geometrical drawings and maps.
- Understand the difference between the mean, median and mode and the purpose for which each is used.
- Collect data, discrete and continuous and draw, interpret and predict from graphs, diagrams, charts and tables.
- Understand probability and risk.

This will mean that:

- Achievement in aspects of the curriculum which involve the use of basic numeracy skills will be raised.
- The ability of all students to work correctly and confidently with mathematics in a variety of contexts will improve.
- Students leaving school will be better prepared for further education and employment and able to deal more confidently with the mathematical demands of adult life.

Monitoring and Evaluation

Clayton Hall Academy will monitor and evaluate the impact of the numeracy policy as follows:

- The quality of numeracy provision will be evidenced in each Academy SEF and through the individual faculty SEF.
- The implementation strategies for numeracy will be evidenced in each individual Academy Improvement Plan and individual faculty Team Improvement Plans.
- An annual trust-wide numeracy audit will be conducted to assess the current provision, collate best practice and inform future developments.

Mathematics Faculties should:

- Carry out an audit of numeracy requirements/provision in all areas of study, including tutor time sessions.
- Identify training needs of staff in relation to numeracy and ensure that these are met.
- Establish procedures to monitor and evaluate numeracy provision for all pupils.

All Heads of Faculty should:

- Develop cross-curricular integration of numeracy.
- Ensure the use of numeracy is evident across schemes of work.
- Ensure specific numeracy vocabulary is adhered to within schemes of work and lesson planning.
- Provide information for maths teachers and the Mathematics Faculty on the stage at which specific numeracy skills will be required.
- Monitor the use of numeracy and application of skill to provide feedback to the Mathematics Faculty.

Supporting Numeracy across the Curriculum

Senior Leadership Team

- Support the development and implementation of the numeracy policy within the academy.
- Monitor the effectiveness of the implementation of the numeracy policy in raising standards of achievement.
- Provide INSET opportunities for teachers and support staff as appropriate.
- Publicise mathematical methods to be used consistently across the school.

Mathematics Faculty

- Ensure pupils meet the required expectations for their age.
- Provide resources for tutor-time activities to fill gaps in pupils' basic mental calculation strategies and also to empower them with the numeracy skills and fluency required.
- Provide relevant intervention for pupils who require it including those who are eligible for numeracy catch-up funding.
- Seek opportunities to use topics and examination questions from other subjects in
- mathematics lessons.
- Be aware of the mathematical techniques used in other subjects and provide guidance and training to other departments so that a sound, coherent and consistent approach is used in all subjects, using preferred methods.
- Provide information about common misconceptions and errors which may occur during teaching of specific topics.
- Provide guidance to other departments on what numeracy skills pupils are expected to have acquired by any given stage, so that teachers know whether a skill needs teaching for the first time or reinforcing.
- Provide INSET and resources for teachers and support staff as appropriate.
- Publicise mathematical methods to be used consistently across the school.

All faculties

- Create a positive and attractive environment which celebrates numeracy.
- Ensure that they are familiar with correct mathematical language, notation, conventions and techniques relating to their own subject and encourage pupils to use these correctly.
- Be aware of appropriate expectations of pupils and difficulties that might be experienced with numeracy skills.

Transfer of Skills:
"It is vital that as the skills are taught, the applications are mentioned and as the applications are taught the skills are revisited."

The Mathematics team will deliver the National Curriculum knowledge, skills and understanding through the Numeracy Strategy Framework using direct interactive teaching. They will make references to the applications of Mathematics in other subject areas and give contexts to many topics. Other curriculum teams will build on this knowledge and help pupils to apply them in a variety of situations.

Liaison between curriculum areas is vital to pupils being confident with this transfer of skills and the Maths team willingly offers support to achieve this.

Subject areas are more aware of the underlying maths skills and approaches that go with the applications that they use.

Some Examples of Transferable Skills:

ART – symmetry; use of paint mixing as a ratio context.
ENGLISH – comparison of 2 data sets on word and sentence length.
FOOD TECHNOLOGY – recipes as a ratio context, reading scales,
GEOGRAPHY – representing data, use of Spreadsheets.
HISTORY – timelines, sequencing events.
IT – representing data; considered use of graphs.
MFL – dates, sequences and counting in other languages; use of basic graphs and surveys to practice foreign language vocabulary and reinforce interpretation of data.
MUSIC – addition of fractions
PHYSICAL EDUCATION – collection of real data for processing in Maths
RELIGIOUS EDUCATION – interpretation and comparison of data gathered from secondary sources (internet) on e.g. developing and developed world.
DESIGN TECHNOLOGY – measuring skills, units of area and volume.
SCIENCE – calculating with formulae, 3-way relationships.
DRAMA – scale, practical equipment, proportion.