



Cardinal Heenan Catholic High School

Numeracy Policy

Key staff:	A McCabe/L Tisdale
Key governor:	
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Approved by Governing Body:	<i>A Tremarco</i>
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Numeracy is a key skill in students' learning and all learners are entitled to quality experiences in this area. The teaching of Numeracy is the responsibility of all staff at Cardinal Heenan Catholic High School and this policy further supports the School's drive for consistency in approaches to Literacy and Numeracy across the curriculum. Our aim is to raise the achievement of all learners in the School by seeking to develop their Numerical skills by consistent and accurate application across the curriculum. We believe that Numeracy can be consolidated and enhanced when pupil/students have opportunities to apply and develop them across the curriculum. Poor numeracy skills, in particular, hold back pupil/ students' progress and can lower their self-esteem. To improve these skills is a whole School matter.

Cardinal Heenan Catholic High School is committed to:

- Raising the profile of numeracy within the school;
- Raising standards of numeracy;
- Making numeracy teaching an overt part of every curriculum area.

Cardinal Heenan will:

- Create a positive and attractive environment which celebrates numeracy;
- Provide role models through celebrating the successes of older students;
- Ensure that there are activities in the curriculum to allow pupil/students to learn and practise their range of numeracy skills;
- Display high quality examples of numeracy being applied across the curriculum;
- Provide Professional Development on teaching numeracy as appropriate.

The School Leadership Team will:

- support the development and implementation of the cross curricular numeracy policy and practice;
- monitor the effectiveness of cross curricular numeracy strategy in raising standards of achievement;
- provide Professional Development opportunities and resources for teachers and associate staff as appropriate to further support their own understanding and practical competency in numeracy.

The Leader(s) of Whole School Numeracy will:

- 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 learning walks and book scrutiny;
- evaluate the effectiveness of the strategy and modify it as necessary;
- lead staff Professional Development on common practices and methods to be adopted across the whole school and provide exemplar materials for use in classroom;
- work systematically with Numeracy Links, Subject Teachers and individual staff;
- encourage teachers of Mathematics to provide assistance and advice to other Numeracy

Links and subject teachers so that a consistent approach is used across the whole school

- raise the profile of numeracy across the whole school;
- seek opportunities for topics from other subjects to be used in numeracy lessons;
- publicise mathematical methods to be used consistently across the school;
- ensure that there is constructive communication between the Numeracy Links and the whole School.

The Role of Staff

In order for the cross curricular strategy to be effective, it is important that all staff:

- understand what numeracy is;
- are 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 Numeracy Essentials Guide for guidance.
- Positive attitude to Numeracy

The Role of Heads of Department, Coordinators, Curriculum Leaders, Subject Leaders and Numeracy Links

In order that the policy becomes whole school practice, it is important that Heads of Department, Coordinators, Curriculum Leaders, Subject Leaders and Numeracy Links ensure that:

- schemes of learning have opportunities for numeracy included and identified;
- lesson plans include relevant numeracy learning outcomes;
- each Curriculum Area has a resource of relevant mathematical methods accessible to staff;
- new staff are aware of the Numeracy Policy and its inclusion in the subject area;
- the promotion of numeracy in lessons is included in the regular monitoring of learning and teaching and departmental self-review.

Subject areas will:

Contribute to the raising of numeracy standards within their curriculum area by:

- the provision of high quality exemplar materials;
- the use of ICT and software (Mathwatch, Thinking Blocks, Corbett maths, MyMaths, MS Excel, etc);
- displaying examples of numeracy within curriculum based contexts;
- highlighting opportunities for the use of numeracy within their subject area;
- ensuring that materials presented to students will match their capability both in subject content and in numerical demands;
- ensuring that all staff are familiar with the '**Numeracy Across the Curriculum**' document which supports this policy.

Establishing links between Numeracy and other Subject Areas

Numeracy contributes to subject areas across all key stages within the school and often provides practical applications of skills acquired in Mathematics lessons. It is a good opportunity to apply and use numeracy in real contexts.

The following guidelines summarise the mathematical skills students, of different abilities, should have.

From Key Stage 2 onwards

a. 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 a knowledge of the times tables either by recall or by adding on.

b. More able students should:

- be able to use mental methods to perform calculations involving addition, subtraction, multiplication and division of numbers including simple decimals;
- be able to convert between metric units;
- have a knowledge of simple equivalent fractions, decimals and percentages ($\frac{1}{2}$, 0.5, 50%, etc.);
- be able to find a simple percentage of a quantity (10%, 25%, 50% and 100%);
- be able to perform simple fractions by cancelling common factors;
- be able to read information from simple diagrams, charts and graphs (bar charts, pictograms and pie charts);
- make sense of number problems and be able to identify the operations required to solve the problem.

c. 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.

English

Numeracy lessons help to develop literacy skills by teaching mathematical vocabulary and technical terms and by requiring learners to read and interpret problems and identify the numeracy necessary to solve the problem. It also requires learners to explain their methods and strategies to others and present their findings and conclusions. English lessons may provide non-fiction texts in which mathematical information in the form of graphs, tables or charts may need to be interpreted and explained.

Science

Almost every scientific experiment or investigation is likely to require some mathematical skills in classifying, counting, measuring, calculating, estimating, and recording in charts, tables or graphs. Science will provide a wide range of situations in which numeracy skills will be required in real life contexts.

Art, Design and Technology

All of these areas rely quite heavily on the learner being able to measure and use spatial skills and the properties of shapes including the use of symmetry and tessellations. Designs may require enlarging or reducing and the use of ratios and proportions may be required in the context of modifying recipes. Both metric and imperial measurements and conversions may be taught and used. The need for plans in D&T requires students to be able to produce scale drawings and be able to draw 2D and 3D shapes and elevations as well as scale work.

Business Studies and Economics

Numeracy is an important part of all Business Studies and Economics courses. Learners use numeracy in both the creation and interpretation of graphs, charts and tables. Percentages are widely used in data comparisons. Learners need to be able to calculate 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. Learners also use Excel spread sheets.

Humanities and Religious Studies

In History and Geography learners may collect data by measuring or counting and record results in the form of charts, tables or graphs. They will also need to interpret data presented in the form of charts or graphs. Historical ideas require an understanding of time and time lines similar to the number line. Map skills require the understanding of coordinates and ideas of angles, directions, position, scale and ratios, height, length movement. In Religion pupils will be using the time line for for before and after Christ. Also the understanding of the order of Roman numerals in the different contexts through religious aspects.

Information Technology/Computer Science

Learners will be able to use skills of collecting, classifying and representing data by using data handling software and produce graphs and tables and interpret their results. They may use computer models and simulations that will require their ability to manipulate numbers and identify patterns and relationships. When using control software they require the ideas of angle, measurement and distance.

The key to making the most of these opportunities is to identify the mathematical possibilities across the curriculum at the planning stages. Students' attention should also be drawn to the links between subjects both in numeracy lessons and when using mathematical skills in other areas of the curriculum.

Modern Foreign Languages (MFL)

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

Ensuring a Consistent Approach to Numeracy across the Curriculum

It must be recognised that not all learners in a particular group will have the same numerical skills and where you are unsure of the capabilities of particular students a member of the Mathematics department should be consulted.

All subject teachers will discourage students from writing answers only and encourage them to show numerical working within the body of their work.

All teachers will encourage the writing of mathematically correct statements.

All teachers will encourage the use of estimation.

It must be recognised that there is never only one correct method and learners will be encouraged to develop their own strategies and methods where appropriate and will not necessarily be taught *set* ways.

Wherever possible learners will be encouraged to vocalise their numeracy so that full understanding can be promoted - this may be an essential step for some learners.

All learners should be helped to understand the method they are being asked to use or being taught - they are then more likely to be able to transfer this method and remember it rather than learning by rote.

Using and Applying Numeracy

In 'Using and Applying numeracy' to solve problems, students use a variety of thinking skills which should be transferable to other subject areas. These include:

- breaking the problem down into more manageable parts;
- logical deduction;
- hypothesising;
- predicting and testing.

Numeracy across the Curriculum

The 'Numeracy Essentials Guide contains practical hints and guidance on developing the Numerical skills of students through consistent and accurate application across the curriculum. This booklet is accessible to all subject areas via the shared area of the school network, and is also shared with parents through the annual Year 6 induction meetings for parents. This is also accessible through the school website.