



The Castle Partnership Trust
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NUMERACY ACROSS THE CURRICULUM POLICY

MARCH 2018

Lead Person: Numeracy Lead

Definition of Numeracy

There are a number of definitions. This is what we believe are the most appropriate

“Numeracy is a proficiency, which involves confidence and competence with numbers and measures. It is more than an ability to do basic arithmetic requiring an 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”. (National Numeracy Strategy)

“Mathematical literacy is an individual’s capacity to identify and understand the role that mathematics plays in the world, to make well-founded judgements and to use and engage with mathematics in ways that meet the needs of that individual’s life as a constructive, concerned and reflective citizen”. (PISA)

Context

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

Both schools within the trust have formed working parties to develop numeracy within their particular settings. As a consequence tutor time has been redesigned to ensure that there is a numeracy element of the tutorial time for all years. Work is in progress with feeder primary schools to ensure there is continuity between year 6 and year 7.

Aims

The Castle School Partnership Trust is committed to raising the standard of numeracy of 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. Numeracy will be consolidated and enhanced through opportunities to apply and develop numeracy skills across the curriculum. Poor numeracy skills hold back students’ progress and can lower their self- esteem. All teachers and support staff will have a role to play in supporting students’ progress in numeracy.

Objectives

The Castle School Partnership Trust will adopt a whole school approach to numeracy

- to promote opportunities for numeracy throughout the curriculum
- to raise standards of numeracy by enhancing the quality of teaching and learning
- to develop cross curricular use of numeracy by building opportunities for numeracy into all schemes of work both curricular and pastoral
- to raise the profile of numeracy in the school
- to provide staff training when necessary
- To build upon the work done in feeder primary schools
- To ensure that students reach and exceed their expected targets in all areas of the curriculum

Delivery of Numeracy

Although it is essential that key numeracy skills are taught in Mathematics lessons, there is a clear intention from the recent OFSTED Inspection handbook 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”.

All schemes of work should include specific numeracy objectives. These objectives will inform what is taught, how it is taught, what is learnt and how it is learnt.

Roles and Responsibilities

It is the Role of the School Leadership Team to:

- support the development and implementation of cross curricular numeracy policy at the School
- determine the role of the Head of Numeracy
- evaluate the effectiveness of the cross curricular strategy in raising standards of achievement
- provide INSET opportunities and resources for teachers and support staff as appropriate.
- Provide finance for material resources

At The Castle School it is the Role of the Head of Numeracy to:

- work with the School 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.
- Communicate with the School’s governing body to summarise the impact of the whole school numeracy policy
- Evaluate the implementation of the whole School numeracy policy through Schemes of Work
- evaluate the effectiveness of the strategy and modify it as necessary
- evaluate the implementation of the whole School numeracy policy through departmental and pastoral learning walks and work scrutiny
- 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
- 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
- develop a common language and provide guidance on mathematical methods to be used consistently across the School
- develop and coordinate whole school numeracy activities
- develop and coordinate tutor group numeracy activities
- organise cross curricular numeracy activities and focus days as appropriate
- ensure that there is constructive communication between The Castle School and the feeder primary schools
- lead work with parents to help them support their children

At Court Fields School it is the role of the Numeracy Group, led by the Numeracy Co-ordinator to

- provide INSET resources for teachers;
- provide opportunities for effective communication between departments, particularly Maths, Science, DT, ICT and Humanities;
- ensure students have a coherent learning plan so that there is understanding across these faculties;
- support and encourage staff involvement in promoting Numeracy within the school;
- work with SLT to determine a strategy for dealing with numeracy across the curriculum and to ensure the effective development and implementation of the numeracy policy;
- establish and maintain line of communication to ensure there is constructive liaison between Mathematics teachers and teachers of other subjects;
- establish lines of communication and ensure there is constructive liaison between Mathematics teachers and feeder primary schools;
- monitor and evaluate the implementation of the Numeracy Policy;
- facilitate amendments to the numeracy strategy in light of evaluation and curriculum change

The Role of the Mathematics Department

It is essential that Mathematics teachers provide students with knowledge skills and understanding they need to access other areas of the school curriculum with confidence.

The Role of Teachers and Teaching Assistants

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.
- ensure that they are familiar with correct mathematical language, notations and techniques relevant to their subject and encourage students to use these effectively

The Role of Heads of Faculties and Heads of Departments

In order that the policy becomes whole School practice, it is important that Heads of Faculties and Departments ensure that:

- schemes of work have opportunities for numeracy identified and included
- 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 evaluation of teaching and learning and departmental self-review
- the Head of Numeracy is informed of the stage at which specific numeracy skills will be required for particular groups
- Mathematics teachers are provided with resources which will enable them to include applications of numeracy relating to other subjects in mathematics lessons

The Numerate Student

The following guidelines taken from the National Numeracy Strategy summarise the numeracy skills students, of different abilities, should have.

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
- be able to find a simple percentage of a quantity
- 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

At The Castle School Partnership Trust we aim to develop numeracy skills in section c above with **all** students thus not putting a ceiling to achievement.

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. Where there

are graphs these should always show a suitable scale, be correctly labelled and have a title.

Evaluation

The Numeracy Policy will be monitored and reviewed through:

- The School Development Plans;
- Lesson observations;
- Sampling of students' work;
- Discussion with staff, parents and governors;
- Reviewing planning;
- Analysing assessment data;
- Discussion of students and with students.

Whole School Policy on Use of Calculators

Some students are over-dependent on the use of calculators for simple calculations. Wherever possible, students should be encouraged to use mental or pencil and paper methods. It is, however, necessary to give consideration to the ability of the student and the objectives of the task in hand. In order to complete a task successfully it may be necessary for students to use a calculator for what you perceive to be a relatively simple calculation. This should be allowed if progress within the subject area is to be made. Before completing the calculation students should be encouraged to make an estimate of the answer. Having completed the calculation on the calculator they should consider whether the answer is reasonable in the context of the question.

The school expects all students to bring their own scientific calculator to every lesson.

In deciding when students use a calculator in lessons we should ensure that:

- Students' first resort should be mental methods;
- Students have sufficient understanding of the calculation to decide the most appropriate method: mental, pencil and paper or calculator;
- Students have the technical skills required to use the basic facilities of a calculator constructively and efficiently, the order in which to use the keys, how to enter numbers as money, measures, fractions, etc;
- Students understand the four arithmetical operations and recognise which to use to solve a particular problem;
- When using a calculator, students are aware of the processes required and are able to say whether their answer is reasonable;
- Students can interpret the calculator display in context (eg 5.3 is £5.30 in money calculations);
- We help students, where necessary, to use the correct order of operations – especially in multi-step calculations, such as $(3.2 - 1.65) \times (15.6 - 5.77)$.