NUMERACY POLICY

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Review period:	**3 years**
Status:	**Recommended**

1. PURPOSE

Farmor's School recognises that numeracy and literacy are essential and complementary skills that need to be acquired by all its students.

Farmor's School is committed to raising the standards of numeracy of all of 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 further education, employment and adult life.

1.1 THE IMPORTANCE OF NUMERACY

Numeracy is a key skill in students' learning and all students are entitled to quality experiences in this area. The teaching of numeracy is the responsibility of all staff and the school's approaches should be as consistent as possible across the curriculum. Numeracy skills can be consolidated and enhanced when students have opportunities to apply and develop them across the curriculum. Poor numeracy skills, in particular, hold back students' progress and can lower their self-esteem. To improve these skills is a whole-school matter. Each department should identify the contribution it makes towards numeracy and other numerical skills so that students become confident at tackling Numeracy in any context.

1.2 AIMS

- to develop, maintain and improve standards in numeracy across the school;
- to ensure consistency of practice including methods, vocabulary, notation, etc.;
- to indicate areas for collaboration between subjects;
- to raise students' own expectations of achievement, thus raising standards.
- to assist the transfer of students' knowledge, skills and understanding between subjects.
- to develop students' confidence and ability to express themselves numerically.

2. RELATIONSHIP TO OTHER POLICIES

The numeracy of students is implicitly linked to a wide range of other policies but particularly to the Literacy Policy.

3. ROLES AND RESPONSIBILITIES

Mathematics Teachers: provide students with knowledge, skills and understanding they need to use numeracy effectively.

Teachers across the curriculum: all staff are responsible for creating a positive view of numeracy and to avoid the negative stereo type that it is acceptable to be poor at numeracy. Staff should ensure that the importance of numeracy is understood by all students and to develop numeracy where opportunities exist and to reinforce learning.

Assistant Headteacher (Inclusion): in cooperation with the Head of Mathematics, should identify and assess students with numeracy difficulties. Students identified in year 7 and 8 should receive intervention to support the student's progress with mathematics. Further support from Y9-Y11 will be agreed as the need demands.

Heads of Department / Faculty: should feature numeracy considerations in the schemes of work for their subjects. If necessary, Heads of Department should seek guidance about calculation methods and any graphs and charts used in their subjects.

Heads of Year and tutors: should raise any concerns about a student's progress with numeracy and particularly where students don't possess the knowledge expected of a student of their age. For example, where a student is not able to identify the number of days in a month or year and the ability to tell the time. In addition, they are encouraged to include elements of numeracy in tutor time.

Parents: encourage their children to use the range of strategies they have learnt to improve their levels of numeracy. To communicate with their child's mathematics teacher if they have a concern or would like guidance over how they can support their child's numeracy. Parents should also try and avoid passing a negative view of maths to their child.

Students: take increasing responsibility for recognising their own numeracy needs and making improvements.

SLT: The Senior Leadership Team is responsible for providing resources necessary to implement this Policy and for monitoring its use throughout the school, with the support of the Mathematics Department.

All Departments should:

- Where numeracy or maths skills are used in their subjects, liaise with the maths department to ensure that it is appropriate with the pupil's capability for that age.
- Liaise with the Learning Support and the Mathematics Department when appropriate in order to support their teaching of numeracy.
- Provide opportunities for students to: handle number and measurement competently, mentally, orally and in writing; use calculators accurately and appropriately; interpret and use numerical and statistical data represented in a variety of forms.
- Review schemes of work and teaching plans to identify opportunities for structured approaches to student numeracy
- Make explicit the links between their subjects and the use of mathematics skills.
- Use the modelling process to make explicit to students how to use numerical skills.
- Ensure that any calculations follow the schools' calculation guidance. See Guidance for more information on calculation.

4. **MONITORING, REPORTING AND EVALUATION**

   This policy's implementation is the responsibility of all staff. Its use and effectiveness will be supported and monitored by the Senior Leadership Team on behalf of the Governors.

   This policy will be reviewed by the Governors at least every three years.

5. **GUIDANCE**

5.1 Numeracy and Mathematics across the school

Numeracy is a life skill. Being numerate goes beyond simply "doing sums". It means having the confidence and competence to use numbers and think mathematically in everyday life.

Mathematics includes all the contents from numeracy and additionally covers more abstract concepts such as Calculus; Quadratic equations; Algebraic manipulation; functions. These are skills required for studying scientific subjects at a more advanced level but are not necessary for everyday living. They do however develop areas of the brain needed for problem solving, creativity and logical thinking.

Numeracy and Maths skills are also key to in other subject areas including the sciences, geography, business and economics. In order to support students beyond 16, if they are not studying A-level Mathematics, Core Maths is available to support to students in furthering their numeracy skills and their use of mathematics across subjects.

Examples of numeracy
- Being able to critically assess statistics used by the media.
- Being able to manage family budgets; credit cards; offers at supermarkets; travel offers; energy tariffs etc.
- Being able to estimate in all kinds of situations. E.g. journey speed, time and distance; roughly how much a bill will be; or expected bank balance at end of month.

5.2 Opportunity to include Numeracy

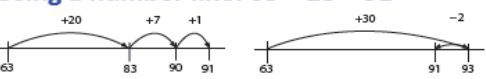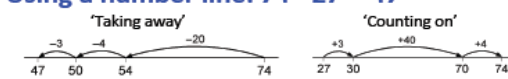|	
Dates of birth/death	Lord Byron 1788 − 1824 What age was he when he died? How long ago did he live?
Estimate numbers	How many plays did Shakespeare write? How many words in a play? How many UK servicemen served in Afghanistan
What ifs?	If the spectators who watched the Olympic athletics lined up side by side how many motorways would they fill?
	How many pound coins would you need to create a stack as high as the Eiffel Tower.
Page numbers	If you use page numbers rather than give chapter or section or other way to describe where in book students must look then give a clue to the number rather than the number itself.

5.3 Other Calculation guidance

Use of $=$	Only use one $=$ on a line.
	Aim to make the $=$ line up under each other. Mathematics sentences such as
	$2 \times 4 + 5 = 2 \times 4 = 8 + 5 = 13$ should be written as
	$2 \times 4 + 5 = 8 + 5$
	$\qquad\qquad = 13$
Multiplication	Use of a calculator is acceptable for say 124 x 47 but if no calculator available then two methods acceptable. "Traditional" column method or "Grid Method"

Traditional 124   Grid   100   20   4
         47   4   4000   800   160   4960
     4960   7   700   140   28   868
      868   5848
    5848

Most students will be familiar with the traditional method as it is now a requirement at KS2. However, the grid method can be very effective with students who struggle with long multiplication.

Estimating   Even if a calculator is to be used make an estimate of the solution first

	Example 23.5 x 115 approx 20 x 100 = 2000 actual is 2702.5
Digits after the decimal point	37.19 must be spoken as thirty seven point one nine. Not thirty seven point nineteen.

5.4 Terminology

Calculations	By calculations we mean the four operations – addition, subtraction, multiplication and division. These four operations can be used to calculate with positive and negative numbers, fractions and decimals, numbers in standard form and indices.
Operations	These are addition, subtraction, multiplication, division. If a calculation has more than one operation involved then they must be done in a pre-defined order; often referred to as BIDMAS.
BIDMAS	**BIDMAS** stands for Brackets, Indices, Division and Multiplication, Addition and Subtraction. 'Indices' are just powers (eg 2^3 or 4^2 etc.) So the order you should do your calculations in is: Brackets. Indices.
Positive and Negative numbers	Numbers greater than zero should be called positive. Numbers less than zero should be called negative. "Minus" is an operation meaning subtraction it is not an adjective.
Bar Charts	If charting discrete data (e.g. colours, shoe size etc.) in a bar chart then there should be gaps between the representations of each bar.
Histograms	When charting continuous data (e.g. speed, distance or time,) then the bars should touch each other. Bar charts and histograms are often confused with each other.

5.5 Calculation