

# Numeracy Policy



*Believe, Succeed, Together*

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## 1.0 Introduction

At Eastwood we believe that numeracy skills are absolutely fundamental for each of our pupils to be successful in their lives. Numeracy provides an ability to cope confidently with the mathematical demands of adult life, further education and employment. The development of numeracy skills is a basic entitlement for all pupils. All pupils should experience a rich numeracy learning environment, regardless of perceived 'ability'.

Numeracy involves the application of knowledge, skills and understanding essential for personal and social development, in this way the school supports the life-long learning of its pupils.

Competent numeracy promotes self-confidence and therefore staff will endeavour to deliver their lessons in a manner that builds pupil belief both in them and to improve the application of numerical skills by all pupils across the whole range of appropriate subjects.

The point of numeracy is to make sure that all pupils have the skills to confidently cope with the mathematical needs within the school curriculum and also in their future adult lives. The policy is here to reinforce each pupil's understanding of mathematical methods, vocabulary and notation when they meet mathematics in other subjects. If there is not consistency between subjects then pupils can get easily confused due to conflicting methods. This can only have a negative effect on pupil performance across subjects.

## 2.0 Definition

Numeracy, in very simple terms, is 'the ability to understand and work with numbers'.

To this end, pupils should:

- Be able to select the appropriate method for solving problems.
- Be able to recall number facts.
- Use methods they have been taught in Mathematics lessons.
- Use calculators efficiently and recognise when these are inappropriate tools.
- Be able to communicate effectively their chosen method and approach.
- Be able to estimate and judge the reasonableness of their solutions.
- Be able to present ideas and data in the form of charts, graphs and tables.
- Be able to interpret, describe and discuss their work and use this to support their conclusions and make appropriate predictions.
- Be able to use mathematical vocabulary correctly in both oral and written work to explain their strategies and methods.
- Adopt a systematic approach to problem solving.

## 3.0 Policy Aims

- Adopt a whole-school approach to numeracy across the curriculum.
- Ensure that a consistent approach to numeracy is adopted by all staff to keep pupil confusion to a minimum and avoid re-learning or un-learning numeracy methods.
- Enable all pupils to attain at least minimum expected standards by age 16 in the key numeracy skills.

- Support the development of numeracy skills throughout the curriculum
- Raise staff awareness of key numeracy strategies through INSET, meetings, weekly literacy tips and the dissemination of good classroom practice.
- Encourage staff to take responsibility for the development of numeracy in their subject areas through the inclusion of appropriate schemes of work and lesson planning.
- Support the development of numeracy through the deployment of a range of resources in the school e.g. Library, ICT suites etc.
- Identify specific roles and responsibilities within the Academy with regard to the development of numeracy work.
- Establish procedures for monitoring numeracy across the curriculum.

## 4.0 Curriculum Mapping of Numeracy

The following codes are used in schemes of work to map numeracy-based skills.

Code	
Number and Algebra	
<b>N1</b>	Understand place value and order numbers up to 100
<b>N2</b>	Know when to add or subtract when solving problems
<b>N3</b>	Recognise odd and even number
<b>N4</b>	Read and write numbers in figures and words, up to a million
<b>N5</b>	Round numbers to the nearest 10, 100 or 1000
<b>N6</b>	Use <, >, <=, >= and = symbols
<b>N7</b>	Mental addition and subtraction of 2 digit numbers
<b>N8</b>	Written addition and subtraction of three digit numbers
<b>N9</b>	Multiplication tables – 2, 3, 4, 5 and 10 and associated division facts
<b>N10</b>	Use simple fractions and recognise when two simple fractions are equivalent
<b>N11</b>	Use decimal notation – money
<b>N12</b>	Recognise and use negative numbers in context
<b>N13</b>	Multiplication tables up to 10 X 10 and associated division facts
<b>N14</b>	Multiply and divide whole numbers by 10 and 100
<b>N15</b>	Written addition and subtraction of whole numbers
<b>N16</b>	Short multiplication and division of whole numbers
<b>N17</b>	Add and subtract decimals to two decimal places
<b>N18</b>	Order decimals to three decimal places
<b>N19</b>	Recognise and use simple percentages
<b>N20</b>	Use simple formulae expressed in words
<b>N21</b>	Use co-ordinates in the first quadrant
<b>N22</b>	Multi[p]ly and divide decimals by 10, 100, 1000
<b>M23</b>	Order, add and subtract negative numbers in context
<b>N24</b>	.+, -, X, ÷ with up to 2 decimal places
<b>N25</b>	Calculate fractions of quantities
<b>N26</b>	Use simple ratio and proportion
<b>N27</b>	Long multiplication
<b>N28</b>	Long division
<b>N29</b>	Check answers using inverse operations
<b>N30</b>	Estimate and check answers using approximations
<b>N31</b>	Construct simple formulae
<b>N32</b>	Use co-ordinates in four quadrants

<b>N33</b>	Calculate a number as a fraction of another
<b>N34</b>	Calculate a number as a percentage of another
<b>N35</b>	Understand and use fraction, decimal and percentage equivalence
<b>N36</b>	Add and subtract fractions
<b>N37</b>	Calculate using ratios
<b>N38</b>	Solve linear equations
<b>N39</b>	Use co-ordinates for geographical representation
<b>N40</b>	Calculate percentages of quantities
<b>N41</b>	Use simple formulae
<b>N42</b>	Use significant figures
<b>N43</b>	Multiply and divide fractions and decimals
<b>N44</b>	Use a calculator efficiently and appropriately
<b>N45</b>	Use proportional change
<b>N46</b>	Solve simultaneous linear equations graphically
<b>N47</b>	Solve simultaneous linear equations algebraically
<b>N48</b>	Solve simple inequalities
<b>N49</b>	Calculate power and roots
<b>N50</b>	Use standard form
<b>N51</b>	Use formulae involving fractions, decimals or negative numbers
<b>N52</b>	Calculate the original quantity given the result of proportional change
<b>N53</b>	Solve problems involving repeated proportional change
<b>N54</b>	Interpret graphs modelling real life situations
<b>N55</b>	Draw graphs modelling real life situations
<b>N56</b>	Transform formulae
<b>N57</b>	Solve inequalities in two variables
<b>N58</b>	Determine the bounds of intervals
<b>N59</b>	Find formulae that approximately connect data and express general laws in symbolic form
<b>N60</b>	Use direct proportion
<b>N61</b>	Use indirect proportion
<b>N62</b>	Use the rules of indices
<b>N63</b>	Solve problems using intersections or gradients of graphs
<b>Shape, Space and Measure</b>	
<b>S1</b>	Mathematical names for 2-D and 3-D shapes
<b>S2</b>	Understand angle as a measure of turn
<b>S3</b>	Recognise right angles
<b>S4</b>	Understand reflective symmetry
<b>S5</b>	Use metric units of length, capacity, mass and time
<b>S6</b>	Solve problems involving time or timetables
<b>S7</b>	Make simple 3-D models from nets
<b>S8</b>	Draw 2-D shapes in different orientations
<b>S9</b>	Understand rotational symmetry
<b>S10</b>	Reflect simple shapes in a mirror line
<b>S11</b>	Measure and read scales using appropriate units and accuracy
<b>S12</b>	Find perimeters of simple shapes
<b>S13</b>	Find areas by counting squares
<b>S14</b>	Measure and draw angles
<b>S15</b>	Know the angle sum of a triangle
<b>S16</b>	Know the sum of angles at a point
<b>S17</b>	Identify all the symmetries of 2-D shapes
<b>S18</b>	Convert one metric unit to another

<b>S19</b>	Know rough metric/imperial equivalence of common units
<b>S20</b>	Estimate measures
<b>S21</b>	Know and use the formula for the area of a rectangle
<b>S22</b>	Draw and interpret simple scale drawings
<b>S23</b>	Recognise 2-D representations of 3-D shapes
<b>S24</b>	Know and use properties of quadrilaterals
<b>S25</b>	Use angle and symmetry properties of polygons
<b>S26</b>	Use angle properties of intersecting and parallel lines
<b>S27</b>	Devise instructions for a computer to generate and transform shapes
<b>S28</b>	Use the formula for the circumference of a circle
<b>S29</b>	Use the formula for the area of a circle
<b>S30</b>	Find the areas of plane rectilinear figures
<b>S31</b>	Use the formulae for the volume of a cuboid
<b>S32</b>	Enlarge shapes by a positive whole number scale factor
<b>S33</b>	Use Pythagoras' Theorem in 2-D
<b>S34</b>	Calculate lengths and areas in plane shapes
<b>S35</b>	Calculate volumes of prisms
<b>S36</b>	Enlarge shapes by a fractional scale factor
<b>S37</b>	Determine the locus of a moving object
<b>S38</b>	Understand the limitations of accuracy of measurements
<b>S39</b>	Understand and use compound measures
<b>S40</b>	Understand and use similarity and congruence
<b>S41</b>	Use trigonometry in 2-D
<b>S42</b>	Distinguish between formulae for perimeter, area and volume by considering dimensions
<b>S43</b>	Use Pythagoras' Theorem in 3-D
<b>S44</b>	Use trigonometry in 3-D
<b>S45</b>	Calculate lengths of circular arcs
<b>S46</b>	Calculate areas of sectors
<b>S47</b>	Calculate surface area of cylinders
<b>S48</b>	Calculate volume of cones and spheres
<b>Handling Data</b>	
<b>H1</b>	Sort and classify objects by more than one criterion
<b>H2</b>	Record results in simple lists, tables and block graphs
<b>H3</b>	Interpret simple tables and lists
<b>H4</b>	Interpret pictograms
<b>H5</b>	Draw pictograms
<b>H6</b>	Interpret bar graphs
<b>H7</b>	Draw bar graphs
<b>H8</b>	Collect data and record them using frequency tables
<b>H9</b>	Understand and use the mode, the median and the range of a set of data
<b>H10</b>	Group collected data into equal class intervals
<b>H11</b>	Draw frequency diagrams using grouped data
<b>H12</b>	Interpret line graphs
<b>H13</b>	Select and use appropriate scales for axes
<b>H14</b>	Draw line graphs
<b>H15</b>	Understand and use the mean of a set of data
<b>H16</b>	Use averages and ranges to compare two sets of data
<b>H17</b>	Interpret pie charts
<b>H18</b>	Understand and use the probability scale from 0 to 1
<b>H19</b>	Find probabilities using equally likely outcomes or experiment

<b>H20</b>	Create frequency tables with equal class intervals to record continuous data
<b>H21</b>	Draw frequency diagrams
<b>H22</b>	Draw pie charts
<b>H23</b>	Draw scatter diagrams
<b>H24</b>	Understand simple correlation
<b>H25</b>	Use two-way tables to record all the possible outcomes of two events
<b>H26</b>	Use the fact that the total probability of all mutually exclusive outcomes of an experiment is 1
<b>H27</b>	Specify and test hypotheses using appropriate methods and taking account of variability and bias
<b>H28</b>	Find modal class of grouped data
<b>H29</b>	Estimate the mean, median and range of grouped data
<b>H30</b>	Use averages and ranges and frequency polygons to compare two sets of data
<b>H31</b>	Draw a line of best fit on a scatter diagram
<b>H32</b>	Use relative frequency to estimate probability
<b>H33</b>	Interpret cumulative frequency tables and diagrams
<b>H34</b>	Construct cumulative frequency tables and diagrams
<b>H35</b>	Estimate the median, quartiles and inter-quartile range from a cumulative frequency diagram
<b>H36</b>	Interpret histograms with unequal class intervals
<b>H37</b>	Understand and use sampling
<b>H38</b>	Draw histograms with unequal class intervals
<b>H39</b>	Use Spearman's coefficient of correlation