
YEAR 7

NNS Key Objective	MEP Reference	
	YEAR	Unit
Recognise the equivalence of percentages, fractions and decimals.	7	17
Know and use the order of operations.	7	8
Extend mental methods of calculation to include decimals, fractions and percentages.	7	17
Multiply and divide three-digit whole numbers; extend to multiplying and dividing decimals with one of two places by single-digit whole numbers.	7	6
Break a complex calculation into simpler steps, choosing and using appropriate and efficient operations and methods.	7	6
Consider whether a result is of the right order of magnitude.	throughout	
Use letter symbols to represent unknown numbers or variables.	7	7,13,16
Know that algebraic operations follow the same conventions and order as arithmetic operations.	8	8
Generate co-ordinate pairs that satisfy a simple linear rule and plot these on a co-ordinate grid.	7	3
Identify parallel and perpendicular lines; know the sum of angles at a point on a straight line and in triangles.	8 and 7	11 5
Convert one metric unit to another.	7	19
Read and interpret scales on a range of measuring instruments.	7	19
Compare two simple distributions using the range and one of the measures of average.	7	18
Understand and use the probability scale from 1 to 1; find and justify probabilities based upon equally likely outcomes in simple contexts.	7	12
Solve mathematical problems and puzzles in a range of contexts.	7	1, 3, 4, 6
Explain and justify methods and conclusion.	7	1, 7, 13
Understand the significance of a counter-example when looking for generality.	7	1

YEAR 8

NNS Key Objective	MEP Reference	
	YEAR	Unit
Add, subtract, multiply and divide integers.	7	4, 6, 8
Use the equivalence of fractions, decimals and percentages to compare proportions; calculate percentages and find the outcome of a given percentage increase or decrease.	8	7, 9
Divide a quantity in a given ratio; use the unitary method to solve simple word problems involving ratio and direct proportion.	8	7
Use standard column procedures for multiplication and division of integers and decimals, including by decimals such as 0.6 or 0.06; understand where to position the decimal point by considering equivalent calculations.	8	4
Simplify or transform linear expressions by collecting like terms; multiply a single term over a bracket.	8	8
Substitute integers into simple formulae, including examples that lead to an equation to solve.	8	12
Plot the graphs of linear functions, where y is given explicitly in terms of x ; recognise that equations of the form $y = mx + c$ correspond to straight-line graphs.	8	14
Identify alternate and corresponding angles; understand a proof that: the sum of the angles of a triangle is 180° and of a quadrilateral is 360° .	8	15
Understand and use the language and notation related to enlargement; enlarge 2-D shapes, given a centre of enlargement and a positive whole-number scale factor.	8 and 9	19 7
Use straight edge and compasses to do standard constructions.	8 and 9	11 12
Deduce and use formulae for the area of a triangle and parallelogram, and the volume of a cuboid; calculate volumes and surface areas of cuboids and compound shapes made from cuboids.	7	9, 22
Decide which data to collect to answer a question, and the degree of accuracy needed, and identify possible sources.	7 and 8	11 20
Draw and produce, on paper and using ICT, a range of graphs and charts; identify which are most useful in the context of a problem.	8	5, 20
Find and record all possible outcomes for single events and two successive events in a systematic way, using diagrammatic and tabular forms of presentation.	8	10
Identify the necessary information to solve a problem; represent problems in algebraic, geometric or graphical form.	8	1, 9, 13, 17, 18
Present and interpret solutions, justifying inferences and explaining reasoning.	8	1, 17, 18, 20

YEAR 9

NNS Key Objective	MEP Reference	
	YEAR	Unit
Use efficient methods to add, subtract, multiply and divide fractions.	9	4
Use proportional reasoning to solve a problem, and choose the correct numbers to take as 100% or as a whole.	9	4
Make and justify estimates and approximations of calculations.	9	14
Construct linear equation with integer coefficients; solve them using an appropriate method.	9	5
Generate terms of a sequence using term-to-term and position-to-position definitions of the sequence.	9	10
Use linear expressions to describe the n th term of an arithmetic sequence.	9	10
Given values for m and c , find the gradient of lines given by equations of the form $y = m x + c$.	9	5
Construct linear functions arising from real-life problems and plot their corresponding graphs, discuss and interpret graphs arising from real situations.	9	5
Recognise when two triangles are congruent.	9	7
Solve problems using side, angle and symmetry properties of polygons, and angle properties of parallel and intersecting lines.	8	15, 19
Know that translations, rotations and reflections preserve length and angle and map objects onto congruent images.	9	7
Know and use the formulae for the circumference and area of a circle.	8	16
Design a survey or experiment to capture the necessary data from one or more sources; determine the sample size and degree of accuracy needed; design, trial and if necessary refine data-collection sheets.	8 and 9	20 18
Communicate interpretations and results of a statistical enquiry using selected tables, graphs and diagrams in support.	9	8
Know that the sum of probabilities of all mutually exclusive outcomes is 1 and use this when solving problems	9	6
Solve substantial problems by breaking them into simpler tasks, using a range of efficient techniques, methods and resources, including ICT.	9	1, 2
Present a precise, reasoned argument, making use of symbols, diagrams and graphs and related explanatory text; give solutions to an appropriate degree of accuracy.	9	2, 5, 8, 18

YEAR 9 Extension

NNS Key Objective	MEP Reference	
	YEAR	Unit
Understand and use proportionality and calculate the result of any proportional change using only multiplicative methods.	9	5, 13
Know and use the index laws for multiplication and division of positive integer powers.	9	3
Square a linear expression, expand the product of two linear expressions of the form $x \pm n$; factorise the corresponding quadratic expression.	9	11
Solve a pair of simultaneous linear equations by eliminating one variable; link a graphical representation of an equation or pair of equations to the algebraic solution.	9	5
Change the subject of a formula	9	11
Know that if two 2-D shapes are similar, corresponding angles are equal and corresponding sides are in the same ratio.	8	19
Understand and apply Pythagoras' Theorem.	9	15
Know from experience of constructing them that triangles given SSS, SAS, ASA or RHS are unique, but that triangles given SSA are not.	10/11	4
Understand and use measures of speed and other compound measures to solve problems.	8	18
Identify possible sources of bias in a statistical enquiry and plan how to minimise it.	8	20
Examine critically the results of a statistical enquiry and justify choice of statistical representation in written presentations.	9	8
Generate fuller solutions to mathematical problems.	throughout	
Recognise limitations on the accuracy of data and measurements.	9	14

NOTES

YEAR 7 Topics in *MEP* Scheme of Work in addition to topics related to *NNS* Objectives:

- appreciating mathematical logic
- area, perimeter and volume of simple and compound shapes
- collect and illustrate data
- solve problems using time
- solve linear equations

YEAR 8 Topics in *MEP* Scheme of Work in addition to topics related to *NNS* Objectives:

- solve problems involving networks
- factors and index notation
- use and apply Pythagoras' Theorem
- nets and surface area of simple shapes
- bearings
- solve problems involving time and money
- circumference and area of circles
- volume and surface area of cylinders
- conversion between metric and imperial units
- problems with speed, distance and time

YEAR 9 Topics in *MEP* Scheme of Work in addition to topics related to *NNS* Objectives:

- binary numbers and other bases
 - indices
 - solve simultaneous equations
 - construct lines of best fit
 - construct and use cumulative frequency graphs together with box and whisker plots
 - analyse quadratic functions
 - appreciate the design and use of random samples, including stratified samples
-