**[](http://www.calculate.org.au/)[](http://www.amsi.org.au)MATHEMATICS SCOPE AND SEQUENCE AUDIT: Year 7**

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| **NUMBER AND ALGEBRA** | | **TIMES** | **SAM** | **Term 1** | **Term 2** | **Term 3** | **Term 4** |
| Number and Place Value | [Investigate index notation and represent whole numbers as products of powers of prime numbers (ACMNA149)](http://www.australiancurriculum.edu.au/glossary/popup?a=M&t=Index" \o "Elaborations: 1) defining and comparing prime and composite numbers and explaining the difference between them, 2) applying knowledge of factors to strategies for expressing whole numbers, 3) solving problems involving LCM and GCD for whole number pairs) | [***TIMESNA13***](http://amsi.org.au/teacher_modules/Whole_number_arithmetic.html)[***TIMESNA16***](http://www.amsi.org.au/teacher_modules/Primes_and_Prime_Factorisation.html)  [***TIMESNA19***](http://amsi.org.au/teacher_modules/Multiples_factors_and_powers.html) |  |  |  |  |  |
|  | [Investigate and use square roots of perfect square numbers (ACMNA150)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: 1) investigating square numbers such as 25 and 36 and developing square-root notation, 2) investigating between which two whole numbers a square root lies) |  |  |  |  |  |  |
|  | [Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: understanding that arithmetic laws are powerful ways of describing and simplifying calculations) | [***TIMESNA13***](http://amsi.org.au/teacher_modules/Whole_number_arithmetic.html) | [***SAMMYNA08***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_1c.html#intro) |  |  |  |  |
|  | [Compare, order, add and subtract integers (ACMNA280)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: None for this) | [***TIMESNA15***](http://amsi.org.au/teacher_modules/Integer.html) |  |  |  |  |  |
| Real Numbers | [Compare fractions using equivalence. Locate and represent positive and negative fractions and mixed numbers on a number line (ACMNA152)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: exploring equivalence among families of fractions by using a fraction wall or a number line (for example by using a fraction wall to show that 2/3 is the same as 4/6 and 6/9)) | [***TIMESNA14***](http://amsi.org.au/teacher_modules/fractions.html) | [***SAMMYNA09***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_1d.html#intro) |  |  |  |  |
|  | [Solve problems involving addition and subtraction of fractions, including those with unrelated denominators (ACMNA153)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: exploring and developing efficient strategies to solve additive problems involving fractions (for example by using fraction walls or rectangular arrays with dimensions equal to the denominators)) | [***TIMESNA14***](http://amsi.org.au/teacher_modules/fractions.html) | [***SAMMYNA10***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_1e.html#intro) |  |  |  |  |
|  | [Multiply and divide fractions and decimals using efficient written strategies and digital technologies (ACMNA154)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: investigating multiplication of fractions and decimals, using strategies including patterning and multiplication as repeated addition, and identifying the processes for division as the inverse of multiplication the in) | [***TIMESNA14***](http://amsi.org.au/teacher_modules/fractions.html)[***TIMESNA18***](http://www.amsi.org.au/teacher_modules/decimals_and_percentages.html) |  |  |  |  |  |
|  | [Express one quantity as a fraction of another, with and without the use of digital technologies (ACMNA155)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: using authentic examples for the quantities to be expressed and understanding the reasons for the calculations) | [***TIMESNA14***](http://amsi.org.au/teacher_modules/fractions.html) |  |  |  |  |  |
|  | [Round decimals to a specified number of decimal places (ACMNA156)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: using rounding to estimate the results of calculations with whole numbers and decimals, and understanding the conventions for rounding) | [***TIMESNA18***](http://www.amsi.org.au/teacher_modules/decimals_and_percentages.html) |  |  |  |  |  |
|  | [Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: 1) justifying choices of written, mental or calculator strategies for solving specific problems, 2) understanding that quantities can be represented by different number types and calculated using various operations, 3) calculating percentage) | [***TIMESNA18***](http://www.amsi.org.au/teacher_modules/decimals_and_percentages.html)[***TIMESNA20***](http://www.amsi.org.au/teacher_modules/Percentages.html) |  |  |  |  |  |
|  | [Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies. (ACMNA158)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: using authentic problems to express quantities as percentages of other amounts) | [***TIMESNA17***](http://www.amsi.org.au/teacher_modules/Unitary_Method.html) [***TIMESNA20***](http://www.amsi.org.au/teacher_modules/Percentages.html) |  |  |  |  |  |
|  | [Recognise and solve problems involving simple ratios (ACMNA173)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: understanding that rate and ratio problems can be solved using fractions or percentages and choosing the most efficient form to solve a particular problem) | [***TIMESNA17***](http://www.amsi.org.au/teacher_modules/Unitary_Method.html) |  |  |  |  |  |
| Money & Financial Maths | [Investigate and calculate 'best buys', with and without digital technologies (ACMNA174)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?layout=1" \l "cdcode=ACMNA174&level=7" \o "Elaborations: applying the unitary method to identify ‘best buys’ situations, such as comparing the cost per 100g) | [***TIMESNA17***](http://www.amsi.org.au/teacher_modules/Unitary_Method.html) |  |  |  |  |  |
| Patterns and Algebra | [Introduce the concept of variables as a way of representing numbers using letters (ACMNA175)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: understanding that arithmetic laws are powerful ways of describing and simplifying calculations and that using these laws leads to the generality of algebra) | [***TIMESNA23***](http://www.amsi.org.au/teacher_modules/Algebraic_expressions.html) | [***(SAMMYNA06)***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_1a.html#intro) |  |  |  |  |
|  | [Create algebraic expressions and evaluate them by substituting a given value for each variable (ACMNA176)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: using authentic formulas to perform substitutions) | [***TIMESNA23***](http://www.amsi.org.au/teacher_modules/Algebraic_expressions.html)[***TIMESNA24***](http://www.amsi.org.au/teacher_modules/Negative_and_the_Index_Laws.html) |  |  |  |  |  |
|  | [Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: 1)identifying order of operations in contextualised problems, preserving order by inserting brackets in numerical expressions, recognising order is preserved by convention, 2) moving fluently between algebraic and word representations) | [***TIMESNA13***](http://www.amsi.org.au/teacher_modules/whole_number_arithmetic.html) [***TIMESNA26***](http://amsi.org.au/teacher_modules/Linear_equations.html) | [***SAMMYNA07***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_1b.html#intro) |  |  |  |  |
| Linear and non-linear relationships | [Given coordinates, plot points on the Cartesian plane, and find coordinates for a given point (ACMNA178)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: plotting points from a table of integer values and recognising simple patterns, such as points that lie on a straight line) |  | [***SAMMYNA11***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_2a.html#intro) |  |  |  |  |
|  | [Solve simple linear equations (ACMNA179)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: 1) solving equations using concrete materials, such as the balance model, and explain the need to do the same thing to each side of the equation using substitution to check solutions, 2) investigating a range of strategies to solve equations) | [***TIMESNA26***](http://www.amsi.org.au/teacher_modules/linear_equations.html) |  |  |  |  |  |
|  | [Investigate, interpret and analyse graphs from authentic data (ACMNA180)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=NA&layout=1" \o "Elaborations: use travel graphs to investigate/compare distance travelled to and from school, 2) interpreting features of travel graphs, eg: the slope of lines and meaning of horizontal line, 3) using graphs of evaporation rates to explore water storage) | [***TIMESNA29***](http://www.amsi.org.au/teacher_modules/Introduction_to_coordinate_geometry.html) |  |  |  |  |  |
| **MEASUREMENT AND GEOMETRY** | |  |  |  |  |  |  |
| Using Units of Measurement | [Establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving (ACMMG159)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=MG&layout=1" \o "Elaborations: 1) build on understanding of area of rectangles to develop formulas for area of triangles, 2) establishing that area of a triangle is half area of an appropriate rectangle, 3) using area formulas for rectangles and triangles to solve problems) | [***TIMESMG10***](http://www.amsi.org.au/teacher_modules/introduction_to_measurement.html) |  |  |  |  |  |
|  | [Calculate volumes of rectangular prisms (ACMMG160)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=MG&layout=1" \o "Elaborations: 1) investigating volumes of cubes and rectangular prisms and establishing and using the formula V = l × b × h, 2) understanding and using cubic units when interpreting and finding volumes of cubes and rectangular prisms) | [***TIMESMG11***](http://www.amsi.org.au/teacher_modules/area_volume_surface_area.html) |  |  |  |  |  |
| Shape | [Draw different views of prisms and solids formed from combinations of prisms (ACMMG161)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=MG&layout=1" \o "Elaborations: using aerial views of buildings and other 3-D structures to visualise the structure of the building or prism) |  | [***SAMMYMG07***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_2b.html#intro) |  |  |  |  |
| Location and Transformation | [Describe translations, reflections in an axis, and rotations of multiples of 90° on the Cartesian plane using coordinates. Identify line and rotational symmetries (ACMMG181)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=MG&layout=1" \o "Elaborations: 1) describing patterns and investigating different ways to produce same transformation eg using two successive reflections to provide same result as a translation, 2) experimenting/creating/recreating patterns using combinations of transforms) |  | [***SAMMYMG09***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_2d.html#intro) |  |  |  |  |
| Geometric Reasoning | [Identify corresponding, alternate and co-interior angles when two straight lines are crossed by a transversal (ACMMG163)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=MG&layout=1" \o "Elaborations: defining and classifying pairs of angles as complementary, supplementary, adjacent and vertically opposite) | [***TIMESMG09***](http://www.amsi.org.au/teacher_modules/introduction_to_plane_geometry.html) | [***SAMMYMG08***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_2c.html#intro) |  |  |  |  |
|  | [Investigate conditions for two lines to be parallel and solve simple numerical problems using reasoning (ACMMG164)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=MG&layout=1" \o "Elaborations: 1) constructing parallel & perpendicular lines using their properties, a pair of compasses & a ruler, & dynamic geometry software, 2) define/identify rel'ships betw'n altenate/corresponding/co-interior angles for parallel ines & tranversal) | [***TIMESMG09***](http://www.amsi.org.au/teacher_modules/introduction_to_plane_geometry.html) |  |  |  |  |  |
|  | [Demonstrate that the angle sum of a triangle is 180° and use this to find the angle sum of a quadrilateral (ACMMG166)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=MG&layout=1" \o "Elaborations: using concrete materials and digital technologies to investigate the angle sum of a triangle and quadrilatera) | [***TIMESMG09***](http://www.amsi.org.au/teacher_modules/introduction_to_plane_geometry.html) |  |  |  |  |  |
|  | [Classify triangles according to their side and angle properties and describe quadrilaterals (ACMMG165)](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10?y=7&s=MG&layout=1" \o "Elaborations: 1) identifying side and angle properties of scalene, isosceles, right-angled and obtuse-angled triangles, 2) describing squares, rectangles, rhombuses, parallelograms, kites and trapeziums) | [***TIMESMG13***](http://www.amsi.org.au/teacher_modules/Construction.html)  [***TIMESMG20***](http://amsi.org.au/teacher_modules/Paralleograms_and_rectangles.html)[***TIMESMG21***](http://www.amsi.org.au/teacher_modules/Rhombuses_Kites_and_Trapezia.html) |  |  |  |  |  |
| **STATISTICS AND PROBABILITY** | |  |  |  |  |  |  |
| Chance | [Construct sample spaces for single-step experiments with equally likely outcomes (ACMSP167)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=7&s=SP&layout=1) | [***TIMESSP12***](http://www.amsi.org.au/teacher_modules/Chance_year_7.html) | [***SAMMYSP02***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_3a.html#teacher) |  |  |  |  |
|  | [Assign probabilities to the outcomes of events and determine probabilities for events (ACMSP168)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=7&s=SP&layout=1) | [***TIMESSP12***](http://www.amsi.org.au/teacher_modules/Chance_year_7.html) | [***SAMMYSP02***](http://www.amsi.org.au/ESA_middle_years/Year7/Year7_md/Year7_3a.html#teacher) |  |  |  |  |
| Data representation and interpretation | [Identify and investigate issues involving numerical data collected from primary and secondary sources (ACMSP169)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=7&s=SP&layout=1) | [***TIMESSP02***](http://www.amsi.org.au/teacher_modules/Data_Investigation_and_interpretation7.html) |  |  |  |  |  |
|  | [Construct and compare a range of data displays including stem-and-leaf plots and dot plots (ACMSP170)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=7&s=SP&layout=1) | [***TIMESSP02***](http://www.amsi.org.au/teacher_modules/Data_Investigation_and_interpretation7.html) |  |  |  |  |  |
|  | [Calculate mean, median, mode and range for sets of data. Interpret these statistics in the context of data (ACMSP171)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=7&s=SP&layout=1) | [***TIMESSP02***](http://www.amsi.org.au/teacher_modules/Data_Investigation_and_interpretation7.html) |  |  |  |  |  |
|  | [Describe and interpret data displays using median, mean and range (ACMSP172)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=7&s=SP&layout=1) | [***TIMESSP02***](http://www.amsi.org.au/teacher_modules/Data_Investigation_and_interpretation7.html) |  |  |  |  |  |
| **PROFICIENCIES (Embedded Throughout)** | | **Keywords** | | | | | |
| [**Understanding**](Proficiency%20Summaries/Understanding%20Statements%20and%20Keywords.docx) | includes describing patterns in uses of indices with whole numbers, recognising  equivalences between fractions, decimals, percentages and ratios, plotting points on the Cartesian plane, identifying angles formed by a transversal crossing a pair of lines, and connecting the laws and properties of numbers to algebraic terms and expressions | Making connections, noticing properties, manipulating according to properties, identifying and describing relationships | | | | | |
| [**Fluency**](Proficiency%20Summaries/Fluency%20Statements%20and%20Keywords.docx) | includes calculating accurately with integers, representing fractions and decimals in various ways, investigating best buys,  finding measures of central tendency and calculating areas of shapes and volumes of prisms | Calculating accurately, appropriate representation, | | | | | |
| [**Problem Solving**](Proficiency%20Summaries/Problem%20Solving%20Statements%20and%20Keywords.docx) | includes formulating and solving authentic problems using numbers and measurements, working with transformations and identifying symmetry, calculating angles and interpreting sets of data collected through chance experiments | Formulate, solve, identifying “symmetries”, interpret | | | | | |
| [**Reasoning**](Proficiency%20Summaries/Reasoning%20Statements%20and%20Keywords.docx) | includes applying the number laws to calculations, applying known geometric facts to draw conclusions about shapes, applying an understanding of ratio and interpreting data displays | Applying, interpreting, drawing conclusions | | | | | |