**[](http://www.calculate.org.au/)[](http://www.amsi.org.au)MATHEMATICS SCOPE AND SEQUENCE AUDIT: Year 8**

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| **NUMBER AND ALGEBRA** | | **TIMES** | **SAM** | **Term 1** | **Term 2** | **Term 3** | **Term 4** |
| Number & Algebra | [Use index notation with numbers to establish the index laws with positive integral indices and the zero index (ACMNA182)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1) | [***TIMESNA13***](http://amsi.org.au/teacher_modules/Whole_number_arithmetic.html)  [***TIMESNA19***](http://amsi.org.au/teacher_modules/Multiples_factors_and_powers.html) | [***SAMMYNA15***](http://www.amsi.org.au/ESA_middle_years/Year8/Year8_md/Year8_1d.html#intro) |  |  |  |  |
|  | [Carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies(ACMNA183)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1) | [***TIMESNA15***](http://amsi.org.au/teacher_modules/Integer.html) |  |  |  |  |  |
| Real Numbers | [Investigate terminating and recurring decimals (ACMNA184)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1) | [***TIMESNA18***](http://www.amsi.org.au/teacher_modules/decimals_and_percentages.html) | [***SAMMYNA13***](http://www.amsi.org.au/ESA_middle_years/Year8/Year8_md/Year8_1b.html#intro) |  |  |  |  |
|  | [Investigate the concept of irrational numbers, including π (ACMNA186)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1) | [***TIMESNA28***](http://www.amsi.org.au/teacher_modules/Real_numbers.html) | [***SAMMYNA14***](http://www.amsi.org.au/ESA_middle_years/Year8/Year8_md/Year8_1c.html#intro) |  |  |  |  |
|  | [Solve problems involving the use of percentages, including percentage increases and decreases, with and without digital technologies (ACMNA187)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1) | [***TIMESNA18***](http://www.amsi.org.au/teacher_modules/decimals_and_percentages.html)[***TIMESNA20***](http://www.amsi.org.au/teacher_modules/Percentages.html) |  |  |  |  |  |
|  | [Solve a range of problems involving rates and ratios, with and without digital technologies (ACMNA188)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1) | [***TIMESNA21***](http://www.amsi.org.au/teacher_modules/rates_and_ratio.html) |  |  |  |  |  |
| Money & Financial Maths | [Solve problems involving profit and loss, with and without digital technologies (ACMNA189)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1) |  |  |  |  |  |  |
| Patterns & Algebra | [Extend and apply the distributive law to the expansion of algebraic expressions (ACMNA190)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1) | [***TIMESNA23***](http://www.amsi.org.au/teacher_modules/Algebraic_expressions.html) [***TIMESNA25***](http://www.amsi.org.au/teacher_modules/special_expansions_algbrc_fracs.html) | [***SAMMYNA16***](http://www.amsi.org.au/ESA_middle_years/Year8/Year8_md/Year8_1e.html#intro) |  |  |  |  |
|  | [Factorise algebraic expressions by identifying numerical factors (ACMNA191)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1http://www.australiancurriculum.edu.au/glossary/popup?a=M&t=Factorise) | [***TIMESNA24***](http://www.amsi.org.au/teacher_modules/Negative_and_the_Index_Laws.html) |  |  |  |  |  |
|  | [Simplify algebraic expressions involving the four operations (ACMNA192)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1http://www.australiancurriculum.edu.au/glossary/popup?a=M&t=Factorise) | [***TIMESNA23***](http://www.amsi.org.au/teacher_modules/Algebraic_expressions.html)[***TIMESNA25***](http://www.amsi.org.au/teacher_modules/special_expansions_algbrc_fracs.html)  [***TIMESNA26***](http://amsi.org.au/teacher_modules/Linear_equations.html) |  |  |  |  |  |
| Linear & Non-linear Relationships | [Plot linear relationships on the Cartesian plane with and without the use of digital technologies (ACMNA193)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1http://www.australiancurriculum.edu.au/glossary/popup?a=M&t=Factorise) |  | [***SAMMYNA12***](http://www.amsi.org.au/ESA_middle_years/Year8/Year8_md/Year8_1a.html#intro) |  |  |  |  |
|  | [Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution (ACMNA194)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=NA&layout=1http://www.australiancurriculum.edu.au/glossary/popup?a=M&t=Factorise) |  |  |  |  |  |  |
| **MEASUREMENT AND GEOMETRY** | |  |  |  |  |  |  |
| Using units of Measurement | [Choose appropriate units of measurement for area and volume and convert from one unit to another (ACMMG195)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=MG&layout=1) |  |  |  |  |  |  |
|  | [Find perimeters and areas of parallelograms, trapeziums, rhombuses and kites (ACMMG196)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=MG&layout=1) | [***TIMESMG11***](http://www.amsi.org.au/teacher_modules/area_volume_surface_area.html) |  |  |  |  |  |
|  | [Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving circumference and area (ACMMG197)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=MG&layout=1) | [***TIMESMG17***](http://www.amsi.org.au/teacher_modules/the_circle.html) | [***SAMMYMG12***](http://www.amsi.org.au/ESA_middle_years/Year8/Year8_md/Year8_2c.html#intro) |  |  |  |  |
|  | [Develop the formulas for volumes of rectangular and triangular prisms and prisms in general. Use formulas to solve problems involving volume(ACMMG198)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=MG&layout=1) | [***TIMESMG11***](http://www.amsi.org.au/teacher_modules/area_volume_surface_area.html) | [***SAMMYMG10***](http://www.amsi.org.au/ESA_middle_years/Year8/Year8_md/Year8_2a.html#intro) |  |  |  |  |
|  | [Solve problems involving duration, including using 12- and 24-hour time within a single time zone (ACMMG199)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=MG&layout=1) | [***TIMESMG03***](http://www.amsi.org.au/teacher_modules/time.html) |  |  |  |  |  |
| Geometric Reasoning | [Define congruence of plane shapes using transformations (ACMMG200)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=MG&layout=1) | [***TIMESMG14***](http://www.amsi.org.au/teacher_modules/Congruence.html) | [***SAMMYMG11***](http://www.amsi.org.au/ESA_middle_years/Year8/Year8_md/Year8_2b.html#intro) |  |  |  |  |
|  | [Develop the conditions for congruence of triangles (ACMMG201)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=MG&layout=1) | [***TIMESMG14***](http://www.amsi.org.au/teacher_modules/Congruence.html)[***TIMESMG22***](http://www.amsi.org.au/teacher_modules/Scale_drawings_and_similarity.html) |  |  |  |  |  |
|  | [Establish properties of quadrilaterals using congruent triangles and angle properties, and solve related numerical problems using reasoning (ACMMG202)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=MG&layout=1) | [***TIMESMG14***](http://www.amsi.org.au/teacher_modules/Congruence.html)[***TIMESMG20***](http://amsi.org.au/teacher_modules/Paralleograms_and_rectangles.html)  [***TIMESMG22***](http://www.amsi.org.au/teacher_modules/Scale_drawings_and_similarity.html) |  |  |  |  |  |
| **STATISTICS AND PROBABILITY** | |  |  |  |  |  |  |
| Chance | [Identify complementary events and use the sum of probabilities to solve problems (ACMSP204)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=SP&layout=1) | [***TIMESSP13***](http://www.amsi.org.au/teacher_modules/Chance_year_8.html) |  |  |  |  |  |
|  | [Describe events using language of 'at least', exclusive 'or' (A or B but not both), inclusive 'or' (A or B or both) and 'and'. (ACMSP205)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=SP&layout=1) | [***TIMESSP13***](http://www.amsi.org.au/teacher_modules/Chance_year_8.html) |  |  |  |  |  |
|  | [Represent events in two-way tables and Venn diagrams and solve related problems (ACMSP292)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=SP&layout=1) | [***TIMESSP13***](http://www.amsi.org.au/teacher_modules/Chance_year_8.html) |  |  |  |  |  |
| Data Representation & Interpretation | [Investigate techniques for collecting data, including census, sampling and observation (ACMSP284)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=SP&layout=1) | [***TIMESSP05***](http://www.amsi.org.au/teacher_modules/Data_Investigation_and_interpretation8.html) | [***SAMMYSP03***](http://www.amsi.org.au/ESA_middle_years/Year8/Year8_md/Year8_3a.html#intro) |  |  |  |  |
|  | [Explore the practicalities and implications of obtaining data through sampling using a variety of investigative processes (ACMSP206)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=SP&layout=1) | [***TIMESSP05***](http://www.amsi.org.au/teacher_modules/Data_Investigation_and_interpretation8.html) |  |  |  |  |  |
|  | [Explore the variation of means and proportions of random samples drawn from the same population (ACMSP293)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=SP&layout=1) | [***TIMESSP05***](http://www.amsi.org.au/teacher_modules/Data_Investigation_and_interpretation8.html) |  |  |  |  |  |
|  | [Investigate the effect of individual data values , including outliers, on the mean and median (ACMSP207)](http://www.australiancurriculum.edu.au/mathematics/curriculum/f-10?y=8&s=SP&layout=1) |  |  |  |  |  |  |
| **PROFICIENCIES (Embedded Throughout)** | | **Keywords** | | | | | |
| [**Understanding**](Proficiency%20Summaries/Understanding%20Statements%20and%20Keywords.docx) | includes describing patterns involving indices and recurring decimals, identifying commonalities between operations with algebra and arithmetic, connecting rules  for linear relations their graphs, explaining the purpose of statistical measures, and  explaining measurements of perimeter and area | Making connections, noticing properties, manipulating according to properties, identifying and describing relationships, explaining | | | | | |
| [**Fluency**](Proficiency%20Summaries/Fluency%20Statements%20and%20Keywords.docx) | includes calculating accurately with simple decimals, indices and integers, recognising equivalence of common decimals and fractions including  recurring decimals, factorising and simplifying basic algebraic expressions, and evaluating perimeters, areas of common shapes and their volumes and three dimensional objects | Calculating, recognising connections, simplifying expressions according to rules, evaluating | | | | | |
| [**Problem Solving**](Proficiency%20Summaries/Problem%20Solving%20Statements%20and%20Keywords.docx) | includes formulating, and  modelling  practical situations involving ratios, profit and loss, areas and perimeters of common shapes, and using two-way tables and Venn diagrams to calculate probabilities | Formulate, model, convert/translate information | | | | | |
| [**Reasoning**](Proficiency%20Summaries/Reasoning%20Statements%20and%20Keywords.docx) | includes justifying the result of a calculation or estimation as reasonable,  deriving probability from its complement, using congruence to deduce properties of triangles, finding estimates of means and proportions of populations | Justifying, deriving, deducing, estimating, investigating | | | | | |