Year 4 plan — Australian Curriculum: Mathematics

Implementation year: School name:

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| Identify curriculum | Year level description | The proficiency strands *Understanding*, *Fluency*, *Problem* *Solving* and *Reasoning* are an integral part of mathematics content across the three content strands: *Number and Algebra*, *Measurement and Geometry*, and *Statistics* *and* *Probability*. The proficiencies reinforce the significance of working mathematically within the content and describe how the content is explored or developed. They provide the language to build in the developmental aspects of the learning of mathematics.At this year level:*Understanding* includes making connections between representations of numbers, partitioning and combining numbers flexibly, extending place value to decimals, using appropriate language to communicate times and describing properties of symmetrical shapes *Fluency* includes recalling multiplication tables, communicating sequences of simple fractions, using instruments to measure accurately, creating patterns with shapes and their transformations, and collecting and recording data *Problem* *Solving* includes formulating, modelling and recording authentic situations involving operations, comparing large numbers with each other, comparing time durations, and using properties of numbers to continue patterns *Reasoning* includes using generalising from number properties and results of calculations, deriving strategies for unfamiliar multiplication and division tasks, comparing angles, communicating information using graphical displays and evaluating the appropriateness of different displays. |
| Achievement standard | By the end of Year 4, students choose appropriate strategies for calculations involving multiplication and division. They recognise common equivalent fractions in familiar contexts and make connections between fraction and decimal notations up to two decimal places. Students solve simple purchasing problems. They identify unknown quantities in number sentences. They describe number patterns resulting from multiplication. Students compare areas of regular and irregular shapes using informal units. They solve problems involving time duration. They interpret information contained in maps. Students identify dependent and independent events. They describe different methods for data collection and representation, and evaluate their effectiveness.Students use the properties of odd and even numbers. They recall multiplication facts to 10 x 10 and related division facts. Students locate familiar fractions on a number line. They continue number sequences involving multiples of single digit numbers. Students use scaled instruments to measure temperatures, lengths, shapes and objects. They convert between units of time. Students create symmetrical shapes and patterns. They classify angles in relation to a right angle. Students list the probabilities of everyday events. They construct data displays from given or collected data. |
| Source: Australian Curriculum, Assessment and Reporting Authority (ACARA), *Australian Curriculum v3.0: Mathematics for Foundation–10*, <www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10>. |
| Teaching and learning | Term overview | Term 1 | Term 2 | Term 3 | Term 4 |
| During this term students will:* recognise, represent, order and apply place value of numbers up to tens of thousands
* apply multiplication facts (2, 3, 4, 5, 10)
* investigate fractions (count by halves, quarters and thirds)
* investigate multiplication number patterns
* investigate time and length
* revise and consolidate Year 3 concepts as required.
 | **Exemplar unit: Shapes, area, angles and symmetry in the environment** During this term students will:* revise and consolidate Term 1 concepts as required
* recognise, represent and order numbers up to tens of thousands
* apply multiplication and related division facts (2, 3, 4, 5, 6, 9, 10)
* investigate properties of odd and even numbers
* investigate number sequences involving multiples (3, 4 ,6, 7, 8, 9)
* split and combine two-dimensional shapes
* investigate the area of regular and irregular shapes
* compare and classify angles
* investigate symmetry.
 | During this term students will:* revise and consolidate Terms 1 and 2 concepts as required
* apply place value to partition, rearrange and regroup numbers to at least tens of thousands
* apply multiplication and related division facts (2, 3, 4, 5, 6, 7, 8, 9, 10)
* use efficient written and mental strategies for multiplication and division
* apply place value of numbers to tenths and hundredths
* make connections between fractions and decimals (equivalence)
* locate and represent fractions on a number line
* use addition and subtraction to find unknown quantities
* investigate mass, capacity and temperature
* investigate location (scale, legend, direction)
* explore chance
* collect data, and create and evaluate data displays.
 | During this term students will:* revise and consolidate Terms 1, 2 and 3 concepts as required
* apply place value to partition, rearrange and regroup numbers to at least tens of thousands
* solve word problems for multiplication and division, using a variety of strategies
* solve word problems related to money (purchases and change)
* investigate the area of regular and irregular shapes
* investigate volume
* compare and classify angles
* explore everyday chance events
* investigate data collection methods and representations
* collect data, create and evaluate data displays.
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| Teaching and learning | Aboriginal and Torres Strait Islander perspectives | Mathematics provides opportunities for students to strengthen their appreciation and understanding of Aboriginal peoples and Torres Strait Islander peoples and their living cultures. Specific content and skills within relevant sections of the curriculum can be drawn upon to encourage engagement with:* Aboriginal and Torres Strait Islander frameworks of knowing and ways of learning
* Social, historical and cultural contexts associated with different uses of mathematical concepts in Australian Indigenous societies
* Aboriginal peoples’ and Torres Strait Islander peoples’ contributions to Australian society and cultures.

Mathematics provides opportunities to explore aspects of Australian Indigenous knowing in connection to, and with guidance from, the communities who own them. Using a respectful inquiry approach, students have the opportunity to explore mathematical concepts in Aboriginal and Torres Strait Islander lifestyles including knowledge of number, space, measurement and time. Through these experiences, students have opportunities to learn that Aboriginal peoples and Torres Strait Islander peoples have sophisticated applications of mathematical concepts which may be applied in other peoples’ ways of knowing.  |
| General capabilities and cross‑curriculum priorities | Opportunities to engage with:Description: gc_literacyDescription: gc_numeracyDescription: gc_critical Description: Description: cc_sust | Opportunities to engage with:Description: gc_literacyDescription: gc_numeracyDescription: gc_ictDescription: gc_criticalDescription: gc_personal_social Description: Description: cc_asia | Opportunities to engage with:Description: gc_literacyDescription: gc_numeracyDescription: gc_ictDescription: gc_criticalDescription: gc_personal_social Description: Description: cc_asiaDescription: Description: cc_sust | Opportunities to engage with:Description: gc_literacyDescription: gc_numeracyDescription: gc_ictDescription: gc_criticalDescription: Description: cc_asia |
| Key to general capabilities and cross-curriculum priorities | Description: Description: gc_literacy Literacy  Description: Description: gc_numeracy Numeracy  Description: Description: gc_ict ICT capability  Description: Description: gc_critical Critical and creative thinking  Description: Description: gc_ethical Ethical behaviour  Description: Description: gc_personal_social Personal and social capability  Description: Description: gc_intercultural Intercultural understanding Aboriginal and Torres Strait Islander histories and cultures  Description: Description: cc_asia Asia and Australia’s engagement with Asia  Description: Description: cc_sust Sustainability |
| Develop assessment | AssessmentFor advice and guidelines on assessment, see [www.qsa.qld.edu.au](http://www.qsa.qld.edu.au) | A folio is a targeted selection of evidence of student learning and includes a range of responses to a variety of assessment techniques. A folio is used to make an overall on-balance judgment about student achievement and progress at appropriate points and informs the reporting process. |
| Term 1 | Term 2 | Term 3 | Term 4 |
| Week | Assessment instrument | Week | Assessment instrument | Week | Assessment instrument | Week | Assessment instrument |
| 1 | Initial assessment Identify Year 4 consolidation needs and learning goals (e.g. KWL, teacher/student conference). | 4 | Modelling and problem-solving task (Written) Explore symmetrical patterns in art work. | 3–8 | Modelling and problem-solving task: Using a map (Written)Show compass points around the school on a map (treasure hunt). | 4 | Supervised assessment: Short response (Written)Solve problems related to measurements and comparisons. |
| 4 | Modelling and problem-solving task (Spoken/signed)Explore number patterns and properties. | 6–8 | Mathematical investigation: Journal (Written) Investigate shapes, area, angles and symmetry in the environment.The assessment package *Angles and symmetry in the built environment* in the QSA Assessment Bank could be used in this unit. | 5 | Supervised assessment: Short response (Written)Solve problems related to fractions. | 7 | Mathematical investigation: Graphic organiser (Written) Collect and represent data of everyday chance events. |
| 6–7 | Supervised assessment: Short response (Written)Apply place value. | 9 | Supervised assessment: Short response (Written)Solve multiplication and division problems. |  |  | 8–9 | Mathematical investigation (Written) Investigate area, volume and angles. |
| 8–9 | Modelling and problem-solving task: Demonstration (Spoken/signed)Explore time. |  |  | **QCATs:** Identify the curriculum targeted by the QCAT and schedule its implementation appropriate to the sequence of learning. |
| Make judgments and use feedback | Moderation | Teachers develop tasks and plan units.Teachers co-mark tasks to ensure consistency of judgments. | Teachers develop tasks and plan units.Teachers identify A–E samples before marking tasks, and moderate to ensure consistency of judgments.Curriculum leaders randomly sample folios to check for consistency of judgments. | Teachers develop tasks and plan units.Teachers identify A–E samples before marking the treasure hunt task, and moderate to ensure consistency of judgments.Teachers moderate the QCATs to identify A–E samples to take to cluster moderation in Term 4. | Teachers develop tasks and plan units.Teachers co-mark tasks to ensure consistency of judgments.Curriculum leaders randomly sample folios to check for consistency of teacher judgments. Teachers participate in cluster moderation of the QCATs. |

Year 4 Mathematics: review for balance and coverage of content descriptions

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| Number and Algebra | 1 | 2 | 3 | 4 |
| Number and place value |
| Investigate and use the properties of odd and even numbers [(ACMNA071)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA071) |  | ✓ |  |  |
| Recognise, represent and order numbers to at least tens of thousands [(ACMNA072)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA072) | ✓ | ✓ |  |  |
| Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems  [(ACMNA073)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA073) | ✓ |  | ✓ | ✓ |
| Investigate number sequences involving multiples of 3, 4, 6, 7, 8, and 9 [(ACMNA074)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA074) |  | ✓ | ✓ |  |
| Recall multiplication facts up to 10 × 10 and related division facts [(ACMNA075)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA075) | ✓ | ✓ | ✓ |  |
| Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and for division where there is no remainder [(ACMNA076)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA076) |  |  | ✓ | ✓ |
| Fractions and decimals |
| Investigate equivalent fractions used in contexts [(ACMNA077)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA077) | ✓ |  | ✓ |  |
| Count by quarters halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line [(ACMNA078)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA078) | ✓ |  | ✓ |  |
| Recognise that the place value system can be extended to tenths and hundredths. Make connections between fractions and decimal  notation [(ACMNA079)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA079) |  |  | ✓ | ✓ |
| Money and financial mathematics |
| Solve problems involving purchases and the calculation of change to the nearest five cents with and without digital technologies  [(ACMNA080)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA080) |  |  | ✓ | ✓ |
| Patterns and algebra |
| Explore and describe number patterns resulting from performing multiplication  [(ACMNA081)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA081) | ✓ | ✓ | ✓ | ✓ |
| Solve word problems by using number sentences involving multiplication or division where there is no remainder [(ACMNA082)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA082) |  |  |  | ✓ |
| Use equivalent number sentences involving addition and subtraction to find unknown quantities [(ACMNA083)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA083) |  |  | ✓ |  |

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| Measurement and Geometry | 1 | 2 | 3 | 4 |
| Using units of measurement |
| Use scaled instruments to measure and compare lengths, masses, capacities and temperatures [(ACMMG084)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG084) |  |  | ✓ |  |
| Compare objects using familiar metric units of area and volume [(ACMMG290)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG290) |  |  | ✓ | ✓ |
| Convert between units of time [(ACMMG085)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG085) | ✓ |  |  |  |
| Use am and pm notation and solve simple time problems [(ACMMG086)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG086) | ✓ |  |  |  |
| Shape |
| Compare the areas of regular and irregular shapes by informal means [(ACMMG087)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG087) |  | ✓ |  | ✓ |
| Compare and describe two dimensional shapes that result from combining and splitting common shapes, with and without the use of digital technologies [(ACMMG088)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG088) |  | ✓ |  |  |
| Location and transformation |
| Use simple scales, legends and directions to interpret information contained in basic maps  [(ACMMG090)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG090) |  |  | ✓ |  |
| Create symmetrical patterns, pictures and shapes with and without digital technologies [(ACMMG091)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG091) |  | ✓ |  |  |
| Geometric reasoning |
| Compare angles and classify them as equal to, greater than or less than a right angle [(ACMMG089)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG089) |  | ✓ |  | ✓ |

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| Statistics and Probability | 1 | 2 | 3 | 4 |
| Chance |
| Describe possible everyday events and order their chances of occurring [(ACMSP092)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP092) |  |  | ✓ | ✓ |
| Identify everyday events where one cannot happen if the other happens [(ACMSP093)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP093) |  |  | ✓ | ✓ |
| Identify events where the chance of one will not be affected by the occurrence of the other  [(ACMSP094)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP094) |  |  | ✓ | ✓ |
| Data representation and interpretation |
| Select and trial methods for data collection, including survey questions and recording sheets  [(ACMSP095)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP095) |  |  | ✓ | ✓ |
| Construct suitable data displays, with and without the use of digital technologies, from given or collected data. Include tables, column graphs and picture graphs where one picture can represent many data values [(ACMSP096)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP096) |  |  | ✓ | ✓ |
| Evaluate the effectiveness of different displays in illustrating data features including variability [(ACMSP097)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP097) |  |  | ✓ | ✓ |

Source: Australian Curriculum, Assessment and Reporting Authority (ACARA), *Australian Curriculum v3.0: Mathematics for Foundation–10*, <www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10>.