Year 5 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, using fractions to represent probabilities, comparing and ordering fractions and decimals and representing them in various ways, describing transformations and identifying line and rotational symmetry  *Fluency* includes choosing appropriate units of measurement for calculation of perimeter and area, using estimation to check the reasonableness of answers to calculations and using instruments to measure angles  *Problem* *Solving* includes formulating and solving authentic problems using whole numbers and measurements and creating financial plans  *Reasoning* includes investigating strategies to perform calculations efficiently, continuing patterns involving fractions and decimals, interpreting results of chance experiments, and posing appropriate questions for data investigations and interpreting data sets. | | | |
| Achievement standard | By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.  Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the 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:   * identify and describe fractions and multiples * use estimation, rounding and efficient mental and written strategies to solve problems and check reasonableness of answers to calculations * compare and order common unit fractions and represent them on a number line * investigate patterns with fractions, decimals and whole numbers * use 12- and 24-hour time systems * describe translations, reflections and rotations * explore symmetry and transformations * pose questions to allow for the collection of data * construct data displays * revise and consolidate Year 4 concepts as required. | During this term students will:   * revise and consolidate Term 1 concepts as required * solve problems involving multiplication of large numbers by one- and two-digit whole numbers * solve problems involving division by one digit * investigate number systems beyond hundredths * calculate the perimeter and area of rectangles * investigate three-dimensional shapes and their nets. | **Exemplar unit: Playing fair**  During this term students will:   * revise and consolidate Terms 1 and 2 concepts as required * compare and order common unit fractions and represent them on a number line * solve problems involving the addition and subtraction of fractions with the same denominator * investigate patterns with fractions * use equivalent number sentences involving multiplication and division to find unknown quantities * use appropriate units of measurement for length, area, volume, capacity and mass * estimate, measure, compare and construct angles * investigate chance, including outcomes of chance experiments and probabilities ranging from 0 to 1 * pose questions and collect categorical data * construct data displays * describe and interpret data sets. | During this term students will:   * revise and consolidate Terms 1, 2 and 3 concepts as required * develop strategies to solve problems involving the addition and subtraction of fractions * create simple financial plans * use grid references for locations and use directional language * investigate chance and probability. |

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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:  gc_literacygc_numeracygc_ictgc_critical  cc_sust | | Opportunities to engage with:  gc_literacygc_numeracygc_ictgc_critical | | Opportunities to engage with:  gc_literacygc_numeracygc_ictgc_criticalgc_personal_social  cc_asiacc_sust | | Opportunities to engage with:  gc_literacygc_numeracygc_critical  cc_asia | | |
| Key to general capabilities and cross-curriculum priorities | gc_literacy Literacy  gc_numeracy Numeracy  gc_ict ICT capability  gc_critical Critical and creative thinking  gc_ethical Ethical behaviour  gc_personal_social Personal and social capability  gc_intercultural Intercultural understanding   Aboriginal and Torres Strait Islander histories and cultures  cc_asia Asia and Australia’s engagement with Asia  cc_sust Sustainability | | | | | | | | |
| Develop assessment | Assessment  For 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 5 consolidation needs and learning goals (e.g. KWL, teacher/student conference). | 5 | Supervised assessment: Short response (Written)  Use multiplication strategies. | 3 | Supervised assessment: Short response (Written)  Solve problems related to addition and subtraction of fractions with the same denominators. | 4–7 | | Mathematical investigation (Written)  Create a travel itinerary using:   * mapping * budgets * estimation and calculations of money using the four operations * directional language. |
| 3–4 | Mathematical investigation: Journal (Written)  Create a day planner using 12- and 24-hour time. | 8–9 | Supervised assessment: Short response (Written)  Solve problems related to perimeter and area of rectangles. | 5 | Modelling and problem-solving task: Demonstration (Spoken/signed)  Select appropriate units to measure:   * volume * capacity * mass * angles (with protractors). |  | |  |
| 7–8 | Modelling and problem-solving task (Written)  Design a model using translations, reflections, rotations, symmetry, and transformations. |  |  | 6–8 | Modelling and problem-solving task (Multimodal)  Design a game, *Playing fair*:   * Use patterns and fractions * Explain probability involving coin tosses and a die |  | |  |
|  |  |  | **NAPLAN** |  |  |  | |  |
| 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 co-mark tasks 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 multimodal task, and moderate to ensure consistency of judgments.  Teachers co-mark tasks to ensure consistency of judgments. | | 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. | | |

Year 5 Mathematics: review for balance and coverage of content descriptions

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| Number and Algebra | 1 | 2 | 3 | 4 |
| Number and place value | | | | |
| Identify and describe factors and multiples of whole numbers and use them to solve problems [(ACMNA098)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA098) | ✓ |  |  |  |
| Use estimation and rounding to check the reasonableness of answers to calculations [(ACMNA099)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA099) | ✓ |  | ✓ |  |
| Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies [(ACMNA100)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA100) |  | ✓ | ✓ |  |
| Solve problems involving division by a one digit number, including those that result in a remainder [(ACMNA101)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA101) |  | ✓ | ✓ |  |
| Use efficient mental and written strategies and apply appropriate digital technologies to solve problems [(ACMNA291)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA291) | ✓ |  | ✓ |  |
| Fractions and decimals | | | | |
| Compare and order common unit fractions and locate and represent them on a number line [(ACMNA102)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA102) | ✓ |  | ✓ |  |
| Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator [(ACMNA103)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA103) |  |  | ✓ | ✓ |
| Recognise that the place value system can be extended beyond hundredths [(ACMNA104)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA104) |  | ✓ |  |  |
| Compare, order and represent decimals  [(ACMNA105)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA105) | ✓ |  | ✓ |  |
| Money and financial mathematics | | | | |
| Create simple financial plans [(ACMNA106)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA106) |  |  |  | ✓ |
| Patterns and algebra | | | | |
| Describe, continue and create patterns with fractions, decimals and whole numbers resulting from addition and subtraction  [(ACMNA107)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA107) | ✓ |  | ✓ |  |
| Use equivalent number sentences involving multiplication and division to find unknown quantities [(ACMNA121)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMNA121) |  |  | ✓ |  |

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| **Measurement and Geometry** | **1** | **2** | **3** | **4** |
| Using units of measurement | | | | |
| Choose appropriate units of measurement for length, area, volume, capacity and mass  [(ACMMG108)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG108) |  |  | ✓ |  |
| Calculate the perimeter and area of rectangles using familiar metric units [(ACMMG109)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG109) |  | ✓ |  |  |
| Compare 12- and 24-hour time systems and convert between them [(ACMMG110)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG110) | ✓ |  |  |  |
| Shape | | | | |
| Connect three-dimensional objects with their nets and other two-dimensional representations  [(ACMMG111)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG111) |  | ✓ |  |  |
| Location and transformation | | | | |
| Use a grid reference system to describe locations. Describe routes using landmarks and directional language [(ACMMG113)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG113) |  |  |  | ✓ |
| Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries [(ACMMG114)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG114) | ✓ |  |  |  |
| Apply the enlargement transformation to familiar two dimensional shapes and explore the properties of the resulting image compared with the original [(ACMMG115)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG115) | ✓ |  |  |  |
| Geometric reasoning | | | | |
| Estimate, measure and compare angles using degrees. Construct angles using a protractor [(ACMMG112)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG112) |  |  | ✓ |  |

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| **Statistics and Probability** | **1** | **2** | **3** | **4** |
| Chance | | | | |
| List outcomes of chance experiments involving equally likely outcomes and represent probabilities of those outcomes using fractions  [(ACMSP116)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP116) |  |  | ✓ | ✓ |
| Recognise that probabilities range from 0 to 1 [(ACMSP117)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP117) |  |  | ✓ | ✓ |
| Data representation and interpretation | | | | |
| Pose questions and collect categorical or numerical data by observation or survey  [(ACMSP118)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP118) | ✓ |  | ✓ |  |
| Construct displays, including column graphs, dot plots and tables, appropriate for data type, with and without the use of digital technologies  [(ACMSP119)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP119) | ✓ |  | ✓ |  |
| Describe and interpret different data sets in context [(ACMSP120)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMSP120) |  |  | ✓ | ✓ |

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