Years 3–4 multi-age Mathematics Curriculum and assessment plan

Example

Context and cohort considerations
The multi-age Years 3–4 cohort participates in daily mathematics learning. This plan has considered:

- summative and formative data from the previous year showing the need to consolidate and expand upon base 10 number system understandings
- timing of NAPLAN in Term 1 for Year 3
- exploration and use of digital tools, e.g. virtual material, electronic devices, programs and dynamic geometric software, in relevant contexts that support the learning and doing of mathematics.
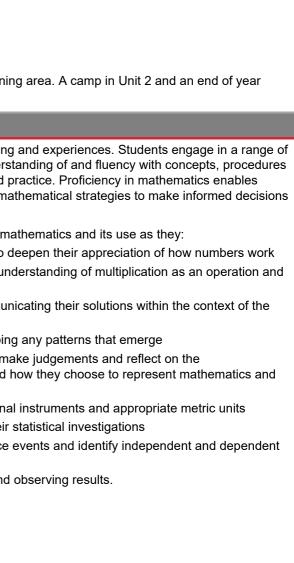
Across the year, the contexts for teaching and learning reflect authentic learning experiences for the students. Unit 1 provides an opportunity to connect statistical investigations to the Science learning area. A camp in Unit 2 and an end of year school performance in Unit 4 also provide contexts for learning.

Level description — Year 3	Level description — Year 4
In Year 3, learning in Mathematics builds on each student's prior learning and experiences. Students engage in a range of approaches to learning and doing mathematics that develop their understanding of and fluency with concepts, procedures and processes by making connections, reasoning, problem-solving and practice. Proficiency in mathematics enables students to respond to familiar and unfamiliar situations by employing mathematical strategies to make informed decisions and solve problems efficiently.	In Year 4, learning in Mathematics builds on each student's prior learning and experiences. Students engage in a range of approaches to learning and doing mathematics that develop their understanding of and fluency with concepts, procedures and processes by making connections, reasoning, problem-solving and practice. Proficiency in mathematics enables students to respond to familiar and unfamiliar situations by employing mathematical strategies to make informed decisions and solve problems efficiently.

Students further develop proficiency and positive dispositions towards mathematics and its use as they:

Year 3

- become increasingly aware of the usefulness of mathematics to model situations and solve practical problems
- recognise that mathematics has conventions and language enabling the unambiguous communication of ideas and results
- experience the power of being able to manipulate numbers using a range of strategies that are based on proficiency with single-digit addition facts and their understanding of place value in the base 10 number system, partitioning and regrouping
- begin to apply their understanding of algorithms and technology to experiment with numbers and recognise patterns
- develop, extend and apply their addition and multiplication facts and related facts for subtraction and division through recognising connections between operations and develop automaticity for 3, 4, 5, and 10 multiplication facts through games and meaningful practice
- learn to formulate, choose and use calculation strategies, communicating their solutions within a modelling context
- use metric units to measure and compare objects and events
- recognise the relationship between dollars and cents and learn to represent money values in different ways
- determine key features of objects and spaces, and use these when they build models and spatial representations
- undertake, with guidance, statistical investigations that are meaningful to them, making decisions about their use and representation of categorical and discrete numerical data and reporting findings
- develop a qualitative understanding of chance and use the language of chance to describe and compare the outcomes of familiar chance events
- become increasingly able to understand that different outcomes can be the results of random processes.

Year 4

- draw on their proficiency with number facts, fractions and decimals to deepen their appreciation of how numbers work
- develop and use strategies for multiplication that are based on their understanding of multiplication as an operation and their knowledge of laws for arithmetic operations
- choose and use efficient strategies when modelling problems, communicating their solutions within the context of the situation
- use algorithms to generate sets of numbers, recognising and describing any patterns that emerge
- become aware of the importance of context and purpose when they make judgements and reflect on the reasonableness of measurements and the results of calculations, and how they choose to represent mathematics and mathematical information
- measure and estimate common attributes of objects using conventional instruments and appropriate metric units
- develop and use surveys to obtain data that is directly relevant to their statistical investigations
- draw on their reasoning skills to analyse, categorise and order chance events and identify independent and dependent events
- investigate variability by conducting repeated chance experiments and observing results.

Unit 1 — Investigating our environment	Unit 2 — Is that reasonable?	Unit 3 — How much or how likely?	Unit 4 — Finding solutions
Duration: 10 weeks	Duration: 10 weeks	Duration: 10 weeks	Duration: 10 weeks
Investigating mathematics in everyday life in the school environment helps students see the relevance of mathematics in their lives. It supports the development of critical and creative thinking skills as learners expand on known ideas by identifying key elements and relationships between mathematical concepts. This unit focuses on investigating mathematics in everyday life, building on understandings of the base 10 number system, exploring shapes, objects, and angles, and undertaking statistical investigations. Students develop critical and creative thinking skills, make connections to the world around them, and communicate their findings through various representations and reports.

In the first phase of this unit, students build on their understandings of the base 10 number system by making connections to how the base 10 number system helps them to order, represent, partition and regroup natural numbers, and use this understanding in calculations. Students use physical materials, place value charts, number lines, number expanders and diagrams to deepen their understanding of the relationships. Year 4 students also use their understanding of place value to multiply natural numbers by ten and use the properties of odd and even numbers in calculations. Students keep a collection of annotated representations in an investigation folio.

In the second phase of this unit, through hands-on investigations, students explore and extend their understandings of shapes, objects and angles in their school's natural and constructed environments. Students determine key features and create representations of shapes, objects and angles. Year 4 students extend this knowledge to include symmetry and use dynamic geometric software to create patterns and pictures. Students also create a two-dimensional representation of the school environment they have been investigating, locating landmarks and describing positions. Students keep a collection of annotated findings in their investigation folio.

In the third phase of this unit, students are encouraged to expand on known ideas as they undertake statistical investigations relating to Biological Sciences in the school environment, e.g. a school garden. Students make decisions about data representations (including frequency tables and graphs) and ways of reporting findings using digital tools. Year 4 students create many-to-one data displays. All students compare and interpret data and communicate results through an investigation report. | Fostering a sense of inquisitiveness through investigations supports students to develop their ability to use sound judgment and form reasoned mathematical conclusions. This unit provides the opportunity to foster the critical and creative thinking skill of analysing as students consider the reasonableness of decisions and solutions from investigations relating to time and number properties and patterns.

In the first phase of this unit, students deepen their understanding of time from previous year levels as they read and interpret times. Students read and set times to the minute on digital and analog devices. Through investigations, they develop an understanding of the relationship between units of time; Year 3 students compare duration of events and Year 4 students solve problems involving time durations involving 'am' and 'pm'. Students then plan a sequence of events for the class camp. Students draw on prior knowledge to make sound decisions, including realistic scheduling of events, with estimation and calculation of time durations. Students share their proposed timetable with a peer and receive feedback on the reasonableness of their plan and timing for activities.

In the second phase of this unit, students explore the power of estimation as a tool for establishing the reasonableness of answers. As students develop mathematical proficiency with Number, they make connections between addition and subtraction to find unknown values in number sentences using materials, balance scales and diagrams. Students expand their understanding of the base 10 number system from Unit 1, to perform calculations and explain solutions. Within a supervised assessment, students use computational thinking and apply additive strategies to explore, recognise and describe emerging patterns. Year 3 students follow and create simple algorithms which involve a sequence of steps, e.g. investigating multiples of 2, 5, or 10 and describe emerging patterns. Year 4 students follow and create algorithms which involve a sequence of steps to investigate decisions that use addition and multiplication, e.g. multiples of one to 10. They identify and describe emerging patterns. | Questioning encourages students to be active learners and supports them to deepen their understandings of mathematical concepts. This unit engages students through questioning. Students explore situations to gain a deeper understanding of the value and workings of numbers, how much objects weigh or hold, and the likelihood of events.

In the first phase of this unit, students draw on their proficiency with number facts, fractions, and decimals to deepen their appreciation of how numbers work and how much they value they hold. Students engage in hands-on investigations using Think Boards, diagrams, number lines and physical materials, e.g. cutting objects, sharing collections, bundling sticks or straws. Year 4 students continue to expand their understanding of the base 10 number system to include tenths and hundredths, as well as explore unit and equivalent fractions. Students apply Number understandings to solve problems in a supervised assessment.

In the second phase of this unit, students relate their fractional understandings to measurement contexts. In hands-on experiences, students measure and compare the mass and capacity of objects using conventional instruments and appropriate metric units, e.g. measuring jugs and kitchen and other scales. Students' curiosity is encouraged, and critical and creative thinking skills developed as students pose questions and explore the notion of 'how much' objects weigh or hold. Through a written and practical supervised assessment, students communicate their knowledge, understandings and skills.

In the third phase of this unit, students deepen critical and creative thinking skills as they investigate variability in chance experiments. They observe and record outcomes of experiments in response to questions using a variety of physical and virtual materials, e.g. dice, spinners, coins and cards. In a project, students investigate how likely it is that an event will occur by conducting familiar repeated chance experiments, observing the results. They describe outcomes and discuss variation in their results. | Students can learn to think like mathematicians when they experiment with ideas, modify approaches, and apply strategies to find solutions. In this unit, students build on their knowledge and apply their understandings of numerical, financial, and measurement concepts to new situations. Through exploration and experimentation, they develop critical and creative thinking skills and apply strategies to solve problems.

In the first phase of this unit, students build on their engagement with numerical, financial and measurement contexts. In hands-on investigations, students draw on their prior knowledge to apply strategies to estimate, measure and compare the length of objects using familiar metric units. They use a variety of resources to measure objects, e.g. measuring tape, trundle wheel, strips of centimetre grid paper, rulers, and become aware of the accuracy of formal units of measure. Through the investigations students also develop an appreciation of the importance of reasonable approximations. Year 3 students creatively represent money values in different ways, recognising the relationship between dollars and cents. All students keep a record of discoveries from investigations to communicate these findings in a multimodal presentation (using multimedia).

In the second phase of this unit, students draw on their Number understandings from the year to find solutions to problems. Using the mathematical modelling process, students find solutions to practical problems involving multiplication and division for their end of year performance. For example, Year 3 students calculate approximate seating arrangements for expected guests and Year 4 students predict the number of expected guests and calculate funds raised from ticket sales. Students use a range of strategies, e.g. materials, part-part-whole diagrams, number sentences, arrays, to communicate understandings in this project and explain thinking used to find solutions. |

	Unit 1 — Investigating our environment	Unit 2 — Is that reasonable?	Unit 3 — How much or how likely?	Unit 4 — Finding solutions
Year 3	**Assessment 1 — Project** **Description:** Students compile an investigation folio on the concepts of natural numbers beyond 10 000, partitioning, angles, objects and two-dimensional representations. **Technique:** Project **Mode:** Multimodal **Conditions:** Practical components are observed by the teacher	**Assessment 3 — Project** Description: Students use the relationship between formal units of time (hours, minutes, seconds) to plan a timetable for the school camp. **Technique:** Project **Mode:** Written **Conditions:** Length is considered in the context of the assessment	**Assessment 5 — Supervised assessment** **Description:** Students answer multiple-choice and short response questions on the concepts of unit fractions, mass, and capacity. **Technique:** Supervised assessment **Mode:** Multimodal **Conditions:** Up to 40 minutes, plus 5 minutes perusal, planning and/or teacher instruction time	**Assessment 7 — Project** Description: Students create a spoken presentation using multimedia to share learning with others from money and length investigations. Technique: Project Mode: Multimodal (using multimedia) Conditions: Up to 1 minute
	Assessment 2 — Project: Statistical investigation **Description:** Students conduct a guided statistical investigation on living and non-living things in a habitat within the school environment and communicate findings in an investigation report. **Technique:** Project **Mode:** Written (using digital tools to create data representations) **Conditions:** Length is considered in the context of the assessment	**Assessment 4 — Supervised assessment: Computational thinking** **Description:** Students find unknown values in number sentences involving addition and subtraction, and follow and create algorithms. **Technique:** Supervised assessment **Mode:** Written **Conditions:** Up to 40 minutes, plus 5 minutes perusal, planning and/or teacher instruction time	**Assessment 6 — Project: Probability experiments and simulations** **Description:** Students participate in probability experiments to identify how likely everyday events will occur and describe outcomes and events. **Technique:** Project **Mode:** Multimodal **Conditions:** Practical components are observed by the teacher	**Assessment 8 — Project: Mathematical modelling** **Description:** Students find solutions to practical problems in relation to the end of year school performance, using the mathematical modelling process. **Technique:** Project **Mode:** Written **Conditions:** Up to 200 words
Year 4	**Assessment 1 — Project** **Description:** Students compile an investigation folio on the concepts of place value, odd and even numbers, angles, shapes and objects, grid references and symmetry. **Technique:** Project **Mode:** Multimodal (using dynamic geometric software) **Conditions:** Practical components are observed by the teacher	**Assessment 3 — Project** **Description:** Students solve problems involving duration of time, including 'am' and 'pm' to plan a timetable for the school camp. **Technique:** Project **Mode:** Written **Conditions:** Length is considered in the context of the assessment	**Assessment 5 — Supervised assessment** **Description:** Students answer multiple-choice and short response questions on the concepts of tenths and hundredths, equivalent fractions, mass, and capacity. **Technique:** Supervised assessment **Mode:** Multimodal **Conditions:** Up to 40 minutes, plus 5 minutes perusal, planning and/or teacher instruction time	**Assessment 7 — Project** **Description:** Students create a spoken presentation using multimedia to share learning with others from length, temperature, perimeter and area investigations. **Technique:** Project **Mode:** Multimodal (using multimedia) **Conditions:** Up to 1 minute
	Assessment 2 — Project: Statistical investigation **Description:** Students conduct a statistical investigation on producers, consumers and decomposers in a habitat within the school environment and communicate findings in an investigation report. **Technique:** Project **Mode:** Written (using digital tools to create data representations) **Conditions:** Length is considered in the context of the assessment	**Assessment 4 — Supervised assessment: Computational thinking** **Description:** Students use their proficiency with additive strategies to find unknown values in numerical equations and follow and create algorithms. **Technique:** Supervised assessment **Mode:** Written **Conditions:** Up to 40 minutes, plus 5 minutes perusal, planning and/or teacher instruction time	**Assessment 6 — Project: Probability experiments and simulations** **Description:** Students participate in probability experiments to order events in terms of likelihood and identify whether results are independent or dependent. **Technique:** Project **Mode:** Multimodal **Conditions:** Practical components are observed by the teacher	**Assessment 8 — Project: Mathematical modelling** **Description:** Students find solutions to financial and practical problems in relation to the end of year school performance, using the mathematical modelling process. **Technique:** Project **Mode:** Written **Conditions:** Up to 200 words

Year 3

Unit 1 — Investigating our environment		Unit 2 — Is that reasonable?		Unit 3 — How much or how likely?		Unit 4 — Finding solutions	
Assessment 1 — Project	Term/week	**Assessment 3 — Project**	Term/week	**Assessment 5 — Supervised assessment**	Term/week	**Assessment 7 — Project**	Term/week
Description: Students compile an investigation folio on the concepts of place value, shapes and objects, angles, and location, e.g. diagrams, construction of representations or models, written reflections and explanations. The investigation folio shows students' learning, focusing on: • ordering and representing natural numbers beyond 10 000 • partitioning, rearranging and regrouping two- and three-digit numbers in different ways to assist in calculations • identifying angles as measures of turn and comparing them to right angles • making, comparing and classifying objects using key features • interpreting and creating two-dimensional representations of familiar environments. **Technique:** Project **Mode**: Multimodal (written and practical with physical materials) **Conditions:** • started in week 2 and completed over multiple lessons by end of week 10 • practical components are observed by the teacher	Term 1 Week 10	**Description:** In this project students use the relationship between formal units of time (hours, minutes, seconds) to estimate and compare measures of duration. They plan events and estimate time durations for the school camp by creating a timetable. Students share their timetable and discuss its reasonableness with a peer. **Technique:** Project **Mode:** Written **Conditions:** • started in week 3 and completed over multiple lessons by end of week 4	Term 2 Week 4	**Description:** Students answer multiple-choice and short response questions on the concepts of fractions, mass, and capacity. Students explore the notion of 'how much' when they represent unit fractions and their multiples in different ways. Under supervised conditions and through a practical hands-on demonstration, students apply fractional understandings and use familiar metric units. They estimate, compare, and measure attributes of objects to determine how much objects weigh or hold and record findings. **Technique:** Supervised assessment **Mode:** Multimodal (written and practical with scaled instruments to measure mass and capacity) **Conditions:** • up to 40 minutes, plus 5 minutes perusal, planning and/or teacher instruction time • may be completed over multiple lessons or broken into components in week 7 • practical components are observed by the teacher	Term 3 Week 7	**Description:** In this project students apply financial and measurement understandings in investigations. They make estimates, find solutions to financial problems, and creatively represent money in different ways. They also find solutions to problems involving length by measuring and comparing objects using familiar metric units. Students create a spoken presentation using multimedia to share learning with others. **Technique:** Project **Mode:** Multimodal (using multimedia) **Conditions:** • started in week 4 and completed over multiple lessons with presentations completed by the end of week 6 • spoken/signed or multimodal responses up to 1 minute	Term 4 Week 6
Assessment 2 — Project: Statistical investigation	Term/week	**Assessment 4 — Supervised assessment: Computational thinking**	Term/week	**Assessment 6 — Project: Probability experiment**	Term/week	**Assessment 8 — Project: Mathematical modelling**	Term/week
Description: Students conduct a guided statistical investigation on living and non-living things in a habitat within the school environment. They observe, record and represent data from the school environment and use digital tools where appropriate. They interpret results from investigations and communicate findings through an investigation report. **Technique:** Project **Mode:** Written (using digital tools to create data representations) **Conditions:** • started in week 6 and completed over multiple lessons by end of week 7	Term 1 Week 7	**Description:** In a supervised assessment students find unknown values in number sentences involving addition and subtraction. They apply additive strategies and recognise the connection between addition and subtraction as inverse operations. Students follow and create algorithms which involve a sequence of steps, investigating numbers, and describe emerging patterns. **Technique:** Supervised assessment **Mode:** Written **Conditions:** • up to 40 minutes, plus 5 minutes perusal, planning and/or teacher instruction time • may be completed over multiple lessons or broken into components in week 8	Term 2 Week 8	**Description:** Students participate in probability experiments to identify how likely everyday events will occur and describe outcomes and events. Students use practical activities and observation to conduct repeated chance experiments. They discuss variation in results and record outcomes. **Technique:** Project **Mode:** Multimodal (written and practical with materials to conduct chance experiments) **Conditions:** • completed over multiple lessons in week 9 • practical components are observed by the teacher	Term 3 Week 9	**Description:** Students find solutions to practical problems in relation to the end of year school performance, using the mathematical modelling process. They apply understandings of single-digit multiplication and division to formulate problems, approximating seating arrangements for expected guests. Students choose calculation strategies to find solutions. They determine the reasonableness of calculations, and record findings. **Technique:** Project **Mode:** Written **Conditions:** • completed over multiple lessons in week 7 • written responses up to 200 words	Term 4 Week 7

The leftmost vertical label reads: **Assessment**

	Unit 1 — Investigating our environment	Unit 2 — Is that reasonable?	Unit 3 — How much or how likely?	Unit 4 — Finding solutions
Achievement standard	By the end of Year 3, students order and represent natural numbers beyond 10 000. They partition, rearrange and regroup two- and three-digit numbers in different ways to assist in calculations. Students extend and use single-digit addition and related subtraction facts and apply additive strategies to model and solve problems involving two- and three-digit numbers. They use mathematical modelling to solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens, and using a range of strategies. Students represent unit fractions and their multiples in different ways. They make estimates and determine the reasonableness of financial and other calculations. Students find unknown values in number sentences involving addition and subtraction. They create algorithms to investigate numbers and explore simple patterns. Students use familiar metric units when estimating, comparing and measuring the attributes of objects and events. They identify angles as measures of turn and compare them to right angles. Students estimate and compare measures of duration using formal units of time. They represent money values in different ways. Students make, compare and classify objects using key features. They interpret and create two-dimensional representations of familiar environments. Students conduct guided statistical investigations involving categorical and discrete numerical data, and interpret their results in terms of the context. They record, represent and compare data they have collected. Students use practical activities, observation or experiment to identify and describe outcomes and the likelihood of everyday events explaining reasoning. They conduct repeated chance experiments and discuss variation in results.	By the end of Year 3, students order and represent natural numbers beyond 10 000. They partition, rearrange and regroup two- and three-digit numbers in different ways to assist in calculations. Students extend and use single-digit addition and related subtraction facts and apply additive strategies to model and solve problems involving two- and three-digit numbers. They use mathematical modelling to solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens, and using a range of strategies. Students represent unit fractions and their multiples in different ways. They make estimates and determine the reasonableness of financial and other calculations. Students find unknown values in number sentences involving addition and subtraction. They create algorithms to investigate numbers and explore simple patterns. Students use familiar metric units when estimating, comparing and measuring the attributes of objects and events. They identify angles as measures of turn and compare them to right angles. Students estimate and compare measures of duration using formal units of time. They represent money values in different ways. Students make, compare and classify objects using key features. They interpret and create two-dimensional representations of familiar environments. Students conduct guided statistical investigations involving categorical and discrete numerical data, and interpret their results in terms of the context. They record, represent and compare data they have collected. Students use practical activities, observation or experiment to identify and describe outcomes and the likelihood of everyday events explaining reasoning. They conduct repeated chance experiments and discuss variation in results.	By the end of Year 3, students order and represent natural numbers beyond 10 000. They partition, rearrange and regroup two- and three-digit numbers in different ways to assist in calculations. Students extend and use single-digit addition and related subtraction facts and apply additive strategies to model and solve problems involving two- and three-digit numbers. They use mathematical modelling to solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens, and using a range of strategies. Students represent unit fractions and their multiples in different ways. They make estimates and determine the reasonableness of financial and other calculations. Students find unknown values in number sentences involving addition and subtraction. They create algorithms to investigate numbers and explore simple patterns. Students use familiar metric units when estimating, comparing and measuring the attributes of objects and events. They identify angles as measures of turn and compare them to right angles. Students estimate and compare measures of duration using formal units of time. They represent money values in different ways. Students make, compare and classify objects using key features. They interpret and create two-dimensional representations of familiar environments. Students conduct guided statistical investigations involving categorical and discrete numerical data, and interpret their results in terms of the context. They record, represent and compare data they have collected. Students use practical activities, observation or experiment to identify and describe outcomes and the likelihood of everyday events explaining reasoning. They conduct repeated chance experiments and discuss variation in results.	By the end of Year 3, students order and represent natural numbers beyond 10 000. They partition, rearrange and regroup two- and three-digit numbers in different ways to assist in calculations. Students extend and use single-digit addition and related subtraction facts and apply additive strategies to model and solve problems involving two- and three-digit numbers. They use mathematical modelling to solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens, and using a range of strategies. Students represent unit fractions and their multiples in different ways. They make estimates and determine the reasonableness of financial and other calculations. Students find unknown values in number sentences involving addition and subtraction. They create algorithms to investigate numbers and explore simple patterns. Students use familiar metric units when estimating, comparing and measuring the attributes of objects and events. They identify angles as measures of turn and compare them to right angles. Students estimate and compare measures of duration using formal units of time. They represent money values in different ways. Students make, compare and classify objects using key features. They interpret and create two-dimensional representations of familiar environments. Students conduct guided statistical investigations involving categorical and discrete numerical data, and interpret their results in terms of the context. They record, represent and compare data they have collected. Students use practical activities, observation or experiment to identify and describe outcomes and the likelihood of everyday events explaining reasoning. They conduct repeated chance experiments and discuss variation in results.
Moderation	Calibration: Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.	Consensus: Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.	Calibration: Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.	Expert: Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.

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Content descriptions — Year 3	Units				Content descriptions	Units				Measurement	Units			
Number	1	2	3	4	Algebra	1	2	3	4	Measurement	1	2	3	4
recognise, represent and order natural numbers using naming and writing conventions for numerals beyond 10 000 AC9M3N01	☑	☐	☐	☐	recognise and explain the connection between addition and subtraction as inverse operations, apply to partition numbers and find unknown values in number sentences AC9M3A01	☐	☑	☐	☐	identify which metric units are used to measure everyday items; use measurements of familiar items and known units to make estimates AC9M3M01	☐	☐	☑	☑
recognise and represent unit fractions including $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$ and $\frac{1}{10}$ and their multiples in different ways; combine fractions with the same denominator to complete the whole AC9M3N02	☐	☐	☑	☐	extend and apply knowledge of addition and subtraction facts to 20 to develop efficient mental strategies for computation with larger numbers without a calculator AC9M3A02	☐	☑	☐	☐	measure and compare objects using familiar metric units of length, mass and capacity, and instruments with labelled markings AC9M3M02	☐	☐	☑	☑
add and subtract two- and three-digit numbers using place value to partition, rearrange and regroup numbers to assist in calculations without a calculator AC9M3N03	☑	☐	☐	☐	recall and demonstrate proficiency with multiplication facts for 3, 4, 5 and 10; extend and apply facts to develop the related division facts AC9M3A03	☐	☐	☐	☑	recognise and use the relationship between formal units of time including days, hours, minutes and seconds to estimate and compare the duration of events AC9M3M03	☐	☑	☐	☐
multiply and divide one- and two-digit numbers, representing problems using number sentences, diagrams and arrays, and using a variety of calculation strategies AC9M3N04	☐	☐	☐	☑						describe the relationship between the hours and minutes on analog and digital clocks, and read the time to the nearest minute AC9M3M04	☐	☑	☐	☐
estimate the quantity of objects in collections and make estimates when solving problems to determine the reasonableness of calculations AC9M3N05	☐	☐	☐	☑						identify angles as measures of turn and compare angles with right angles in everyday situations AC9M3M05	☑	☐	☐	☐
use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate problems using number sentences and choose calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation AC9M3N06	☐	☐	☐	☑						recognise the relationships between dollars and cents and represent money values in different ways AC9M3M06	☐	☐	☐	☑
follow and create algorithms involving a sequence of steps and decisions to investigate numbers; describe any emerging patterns AC9M3N07	☐	☑	☐	☐										

Content descriptions — Year 3	Units				Content descriptions	Units				Content descriptions	Units			
Space	**1**	**2**	**3**	**4**	**Statistics**	**1**	**2**	**3**	**4**	**Probability**	**1**	**2**	**3**	**4**
make, compare and classify objects, identifying key features and explaining why these features make them suited to their uses AC9M3SP01	☑	☐	☐	☐	acquire data for categorical and discrete numerical variables to address a question of interest or purpose by observing, collecting and accessing data sets; record the data using appropriate methods including frequency tables and spreadsheets AC9M3ST01	☑	☐	☐	☐	identify practical activities and everyday events involving chance; describe possible outcomes and events as 'likely' or 'unlikely' and identify some events as 'certain' or 'impossible' explaining reasoning AC9M3P01	☐	☐	☑	☐
interpret and create two dimensional representations of familiar environments, locating key landmarks and objects relative to each other AC9M3SP02	☑	☐	☐	☐	create and compare different graphical representations of data sets including using software where appropriate; interpret the data in terms of the context AC9M2ST02	☑	☐	☐	☐	conduct repeated chance experiments; identify and describe possible outcomes, record the results, recognise and discuss the variation AC9M3P02	☐	☐	☑	☐
					conduct guided statistical investigations involving the collection, representation and interpretation of data for categorical and discrete numerical variables with respect to questions of interest AC9M3ST03	☑	☐	☐	☐					

Year 4

Unit 1 — Investigating our environment			Unit 2 — Is that reasonable?		Unit 3 — How much or how likely?		Unit 4 — Finding solutions	
Assessment 1 — Project		**Term/ week**	**Assessment 3 — Project**	**Term/ week**	**Assessment 5 — Supervised assessment**	**Term/ week**	**Assessment 7 — Project**	**Term/ week**
Assessment	**Description:** Students compile an investigation folio on the concepts of multiples of 10, odd and even numbers, shapes, angles, symmetry, and location, e.g. diagrams, creation of symmetrical patterns, written reflections and explanations. The investigation folio shows students' learning, focusing on: • using their understanding of place value to multiply natural numbers by multiples of 10 • using properties of odd and even numbers • comparing angles relative to a right angle using angle names • representing and approximating shapes and objects in the environment • creating and interpreting grid references • identifying line and rotational symmetry in plane shapes • creating symmetrical patterns. **Technique:** Project **Mode:** Multimodal (written and practical with physical materials and dynamic geometric software) **Conditions:** • started in week 2 and completed over multiple lessons by end of week 10 • practical components are observed by the teacher	Term 1 Week 10	**Description:** In this project students solve problems involving duration of time, including 'am' and 'pm'. They plan events and durations for the school camp by creating a timetable. Students share their timetable with a peer and discuss the reasonableness of the timetable, duration of events and conversions between units of time. **Technique:** Project **Mode:** Written **Conditions:** • started in week 3 and completed over multiple lessons by end of week 4	Term 2 Week 4	**Description:** Students answer multiple-choice and short response questions on the concepts of fractions, mass, and capacity. Students explore the notion of 'how much' when they recognise equivalent fractions and make connections between fractions and decimal notation. Under supervised conditions and through a practical hands-on demonstration, students apply fractional understandings and use scaled instruments and appropriate units to measure mass and capacity. Students record their findings. **Technique:** Supervised assessment **Mode:** Multimodal (written and practical with scaled instruments to measure mass and capacity) **Conditions:** • up to 40 minutes, plus 5 minutes perusal, planning and/or teacher instruction time • may be completed over multiple lessons or broken into components in week 7 • practical components are observed by the teacher	Term 3 Week 7	**Description:** In this project students apply measurement understandings in investigations. They find solutions to problems involving length, temperature, perimeter, and area. They measure and compare objects and shapes, interpret unmarked and partial units, and used scaled instruments. Students create a spoken presentation using multimedia to share learning with others. **Technique:** Project **Mode:** Multimodal (using multimedia) **Conditions:** • started in week 4 and completed over multiple lessons with presentations completed by the end of week 6 • spoken/signed or multimodal responses up to 1 minute	Term 4 Week 6
	Assessment 2 — Project: Statistical investigation	**Term/ week**	**Assessment 4 — Supervised assessment: Computational thinking**	**Term/ week**	**Assessment 6 — Project: Probability experiment**	**Term/ week**	**Assessment 8 — Project: Mathematical modelling**	**Term/ week**
	Description: Students conduct a statistical investigation on producers, consumers and decomposers in a habitat within the school environment. They observe, record and represent data, creating many-to-one displays. They use digital tools where appropriate. Students interpret results, communicate findings through an investigation report and analyse the suitability of displays. **Technique:** Project **Mode:** Written (using digital tools to create data representations) **Conditions:** • started in week 6 and completed over multiple lessons by end of week 7	Term 1 Week 7	**Description:** In a supervised assessment students use their proficiency with additive strategies to find unknown values in numerical equations. They follow and create algorithms which involve a sequence of steps to investigate decisions that use addition and multiplication. They identify and describe emerging patterns. **Technique:** Supervised assessment **Mode:** Written **Conditions:** • up to 40 minutes, plus 5 minutes perusal, planning and/or teacher instruction time • may be completed over multiple lessons or broken into components in week 8	Term 2 Week 8	**Description:** In this project students participate in probability experiments to order events in terms of likelihood and identify whether results are independent or dependent. Students use practical activities and observation to conduct repeated chance experiments. They describe variation in results and record outcomes. **Technique:** Project **Mode:** Multimodal (written and practical with materials to conduct chance experiments) **Conditions:** • completed over multiple lessons in week 9 • practical components are observed by the teacher	Term 3 Week 9	**Description:** Students find solutions to financial and practical problems in relation to the end of year school performance, using the mathematical modelling process. They apply understandings of multiplication and division to formulate problems, predicting the number of expected guests and funds raised from ticket sales. Students choose efficient calculation strategies. They interpret results in terms of the reasonableness of calculations, and record findings. **Technique:** Project **Mode:** Written **Conditions:** • completed over multiple lessons in week 7 • written responses up to 200 words	Term 4 Week 7

	Unit 1 — Investigating our environment	Unit 2 — Is that reasonable?	Unit 3 — How much or how likely?	Unit 4 — Finding solutions
Achievement standard	By the end of Year 4, students use their understanding of place value to represent tenths and hundredths in decimal form and to multiply natural numbers by multiples of 10. They use mathematical modelling to solve financial and other practical problems, formulating the problem using number sentences, solving the problem choosing efficient strategies and interpreting results in terms of the situation. Students use their proficiency with addition and multiplication facts to add and subtract, multiply and divide numbers efficiently. They choose rounding and estimation strategies to determine whether results of calculations are reasonable. Students use the properties of odd and even numbers. They recognise equivalent fractions and make connections between fraction and decimal notations. Students count and represent fractions on a number line. They find unknown values in numerical equations involving addition and subtraction. Students follow and create algorithms that generate sets of numbers and identify emerging patterns.	By the end of Year 4, students use their understanding of place value to represent tenths and hundredths in decimal form and to multiply natural numbers by multiples of 10. They use mathematical modelling to solve financial and other practical problems, formulating the problem using number sentences, solving the problem choosing efficient strategies and interpreting results in terms of the situation. Students use their proficiency with addition and multiplication facts to add and subtract, multiply and divide numbers efficiently. They choose rounding and estimation strategies to determine whether results of calculations are reasonable. Students use the properties of odd and even numbers. They recognise equivalent fractions and make connections between fraction and decimal notations. Students count and represent fractions on a number line. They find unknown values in numerical equations involving addition and subtraction. Students follow and create algorithms that generate sets of numbers and identify emerging patterns.	By the end of Year 4, students use their understanding of place value to represent tenths and hundredths in decimal form and to multiply natural numbers by multiples of 10. They use mathematical modelling to solve financial and other practical problems, formulating the problem using number sentences, solving the problem choosing efficient strategies and interpreting results in terms of the situation. Students use their proficiency with addition and multiplication facts to add and subtract, multiply and divide numbers efficiently. They choose rounding and estimation strategies to determine whether results of calculations are reasonable. Students use the properties of odd and even numbers. They recognise equivalent fractions and make connections between fraction and decimal notations. Students count and represent fractions on a number line. They find unknown values in numerical equations involving addition and subtraction. Students follow and create algorithms that generate sets of numbers and identify emerging patterns.	By the end of Year 4, students use their understanding of place value to represent tenths and hundredths in decimal form and to multiply natural numbers by multiples of 10. They use mathematical modelling to solve financial and other practical problems, formulating the problem using number sentences, solving the problem choosing efficient strategies and interpreting results in terms of the situation. Students use their proficiency with addition and multiplication facts to add and subtract, multiply and divide numbers efficiently. They choose rounding and estimation strategies to determine whether results of calculations are reasonable. Students use the properties of odd and even numbers. They recognise equivalent fractions and make connections between fraction and decimal notations. Students count and represent fractions on a number line. They find unknown values in numerical equations involving addition and subtraction. Students follow and create algorithms that generate sets of numbers and identify emerging patterns.
	They use scaled instruments and appropriate units to measure length, mass, capacity and temperature. Students measure and approximate perimeters and areas. They convert between units of time when solving problems involving duration. Students compare angles relative to a right angle using angle names. They represent and approximate shapes and objects in the environment. Students create and interpret grid references. They identify line and rotational symmetry in plane shapes and create symmetrical patterns.	They use scaled instruments and appropriate units to measure length, mass, capacity and temperature. Students measure and approximate perimeters and areas. They convert between units of time when solving problems involving duration. Students compare angles relative to a right angle using angle names. They represent and approximate shapes and objects in the environment. Students create and interpret grid references. They identify line and rotational symmetry in plane shapes and create symmetrical patterns.	They use scaled instruments and appropriate units to measure length, mass, capacity and temperature. Students measure and approximate perimeters and areas. They convert between units of time when solving problems involving duration. Students compare angles relative to a right angle using angle names. They represent and approximate shapes and objects in the environment. Students create and interpret grid references. They identify line and rotational symmetry in plane shapes and create symmetrical patterns.	They use scaled instruments and appropriate units to measure length, mass, capacity and temperature. Students measure and approximate perimeters and areas. They convert between units of time when solving problems involving duration. Students compare angles relative to a right angle using angle names. They represent and approximate shapes and objects in the environment. Students create and interpret grid references. They identify line and rotational symmetry in plane shapes and create symmetrical patterns.
	Students create many-to-one data displays, assess the suitability of displays for representing data and discuss the shape of distributions and variation in data. They use surveys and digital tools to generate categorical or discrete numerical data in statistical investigations and communicate their findings in context. Students order events or the outcomes of chance experiments in terms of likelihood and identify whether events are independent or dependent. They conduct repeated chance experiments and describe the variation in results.	Students create many-to-one data displays, assess the suitability of displays for representing data and discuss the shape of distributions and variation in data. They use surveys and digital tools to generate categorical or discrete numerical data in statistical investigations and communicate their findings in context. Students order events or the outcomes of chance experiments in terms of likelihood and identify whether events are independent or dependent. They conduct repeated chance experiments and describe the variation in results.	Students create many-to-one data displays, assess the suitability of displays for representing data and discuss the shape of distributions and variation in data. They use surveys and digital tools to generate categorical or discrete numerical data in statistical investigations and communicate their findings in context. Students order events or the outcomes of chance experiments in terms of likelihood and identify whether events are independent or dependent. They conduct repeated chance experiments and describe the variation in results.	Students create many-to-one data displays, assess the suitability of displays for representing data and discuss the shape of distributions and variation in data. They use surveys and digital tools to generate categorical or discrete numerical data in statistical investigations and communicate their findings in context. Students order events or the outcomes of chance experiments in terms of likelihood and identify whether events are independent or dependent. They conduct repeated chance experiments and describe the variation in results.
Moderation	Calibration: Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.	Consensus: Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.	Calibration: Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.	Expert: Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.

Content descriptions — Year 4

Number	Unit 1	Unit 2	Unit 3	Unit 4
recognise and extend the application of place value to tenths and hundredths and use the conventions of decimal notation to name and represent decimals AC9M4N01	☐	☐	☑	☐
explain and use the properties of odd and even numbers AC9M4N02	☑	☐	☐	☐
find equivalent representations of fractions using related denominators and make connections between fractions and decimal notation AC9M4N03	☐	☐	☑	☐
count by fractions including mixed numerals; locate and represent these fractions as numbers on number lines AC9M4N04	☐	☐	☑	☐
solve problems involving multiplying or dividing natural numbers by multiples and powers of 10 without a calculator, using the multiplicative relationship between the place value of digits AC9M4N05	☑	☐	☐	☐
develop efficient strategies and use appropriate digital tools for solving problems involving addition and subtraction, and multiplication and division where there is no remainder AC9M4N06	☐	☑	☐	☑
choose and use estimation and rounding to check and explain the reasonableness of calculations including the results of financial transactions AC9M4N07	☐	☐	☐	☑
use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate the problems using number sentences and choose efficient calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation AC9M4N08	☐	☐	☐	☑
follow and create algorithms involving a sequence of steps and decisions that use addition or multiplication to generate sets of numbers; identify and describe any emerging patterns AC9M4N09	☐	☑	☐	☐

Algebra	Unit 1	Unit 2	Unit 3	Unit 4
find unknown values in numerical equations involving addition and subtraction, using the properties of numbers and operations AC9M4A01	☐	☑	☐	☐
recall and demonstrate proficiency with multiplication facts up to 10 x 10 and related division facts; extend and apply facts to develop efficient mental strategies for computation with larger numbers without a calculator AC9M4A02	☐	☐	☐	☑

Measurement	Unit 1	Unit 2	Unit 3	Unit 4
interpret unmarked and partial units when measuring and comparing attributes of length, mass, capacity, duration and temperature, using scaled and digital instruments and appropriate units AC9M4M01	☐	☑	☑	☑
recognise ways of measuring and approximating the perimeter and area of shapes and enclosed spaces, using appropriate formal and informal units AC9M4M02	☐	☐	☐	☑
solve problems involving the duration of time including situations involving "am" and "pm" and conversions between units of time AC9M4M03	☐	☑	☐	☐
estimate and compare angles using angle names including acute, obtuse, straight angle, reflex and revolution, and recognise their relationship to a right angle AC9M4M04	☑	☐	☐	☐

Content descriptions — Year 4	Units				Content descriptions	Units				Content descriptions	Units			
Space	1	2	3	4	**Statistics**	1	2	3	4	**Probability**	1	2	3	4
represent and approximate composite shapes and objects in the environment, using combinations of familiar shapes and objects AC9M4SP01	☑	☐	☐	☐	acquire data for categorical and discrete numerical variables to address a question of interest or purpose, using digital tools; represent data using many-to-one pictographs, column graphs and other displays or visualisations; interpret and discuss the information that has been created AC9M4ST01	☑	☐	☐	☐	describe possible everyday events and the possible outcomes of chance experiments and order outcomes or events based on their likelihood of occurring; identify independent or dependent events AC9M4P01	☐	☐	☑	☐
create and interpret grid reference systems using grid references and directions to locate and describe positions and pathways AC9M4SP02	☑	☐	☐	☐	analyse the effectiveness of different displays or visualisations in illustrating and comparing data distributions, then discuss the shape of distributions and the variation in the data AC9M4ST02	☑	☐	☐	☐	conduct repeated chance experiments to observe relationships between outcomes; identify and describe the variation in results AC9M4P02	☐	☐	☑	☐
recognise line and rotational symmetry of shapes and create symmetrical patterns and pictures, using dynamic geometric software where appropriate AC9M4SP03	☑	☐	☐	☐	conduct statistical investigations, collecting data through survey responses and other methods; record and display data using digital tools; interpret the data and communicate the results AC9M4ST03	☑	☐	☐	☐					

General capabilities	Units			
	1	2	3	4
Critical and creative thinking	☑	☑	☑	☑
Digital literacy	☑	☐	☐	☑
Ethical understanding	☐	☐	☐	☐
Intercultural understanding	☐	☐	☐	☐
Literacy	☐	☐	☐	☐
Numeracy	☑	☑	☑	☑
Personal and social capability	☐	☐	☐	☐

Cross-curriculum priorities	Units			
	1	2	3	4
Aboriginal and Torres Strait Islander histories and cultures	☐	☐	☐	☐
Asia and Australia's engagement with Asia	☐	☐	☐	☐
Sustainability	☐	☐	☐	☐