Prep Mathematics
Curriculum and assessment plan

Example

Level description	Context and cohort considerations
In Foundation, learning in Mathematics builds on the Early Years Learning Framework and 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, skills, 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: • explore situations, sparked by curiosity, using physical and virtual materials to represent, sort, quantify, compare and solve everyday problems • look for and make connections between number names, numerals and quantities, and compare quantities and shapes, using elementary mathematical reasoning in active learning experiences • bring mathematical meaning to their use of familiar terms and language when they pose and respond to questions, and explain their thinking and reasoning • build confidence and autonomy in being able to make and justify mathematical decisions based on quantification and direct comparisons • learn to recognise repetition in pattern sequences and apply this to creatively build repeating patterns in a range of contexts • develop a sense of sameness, difference and change when they engage in play-based activities.	The Prep cohort participate in daily mathematics learning. This plan has considered: • information provided in kindergarten transition statements about students' prior numeracy experiences with early counting, measurement and patterning • exploration and use of digital tools (e.g. virtual materials) in relevant contexts that support the learning and doing of mathematics. Across the year, the contexts for teaching and learning reflect authentic learning experiences of the students. Units promote curiosity, numeracy, critical and creative thinking skills and positive dispositions towards Mathematics.

Unit 1 — Playful explorations through Maths	Unit 2 — Making choices and giving reasons why	Unit 3 — Curious about collections	Unit 4 — Creative solutions to a picnic
Duration: 10 weeks	**Duration: 10 weeks**	**Duration: 10 weeks**	**Duration: 10 weeks**
Student exploration fosters natural curiosity and encourages young learners to make sense of the world. In this unit, students engage in playful experiences with numbers and patterns and are encouraged to ask questions that reflect their natural curiosity. Emphasis is placed on developing flexible, critical and creative thinking skills by formulating questions in response to explorations and wonderings to find solutions. In the first phase of this unit, students begin to develop number sense from zero to 20 in familiar environments. They are encouraged to notice numbers and quantities in the everyday world through classroom experiences and maths walks. Students develop an understanding of number names, representations and sequences through practical investigations involving role play, games, books, songs and rhymes and active experiences. Students deepen conceptual understandings by using a wide range of physical and virtual materials and are supported to make connection to verbal/signed and written representations of numbers. In the second phase of this unit, students continue to build their confidence as early learners of mathematics. They explore pattern situations using materials, shapes, sounds, rhymes and actions. They are supported to recognise patterns in daily life, such as routines, and identify patterns in natural and built surroundings. Students develop confidence to recognise, copy and continue repeating patterns. They also make connections to the number structure of patterns, e.g. red, red, blue, red, red, blue is two red, one blue. Throughout this unit, annotated samples of student learning are collected in a learning journal, e.g. drawings, photographs, physical materials, pattern crafts. Students show, explain and demonstrate their knowledge, understanding and skills to a familiar audience at the end of the term to celebrate learning in their first year of schooling.	In mathematical investigations, making choices encourages flexible thinking and discovery of alternative approaches. Young learners deepen their reasoning skills by sharing their thinking and talking about the choices they have made. Throughout this unit students are encouraged to communicate and demonstrate their thinking, choices and strategies in a range of number and measurement contexts. In the first phase of this unit, students continue to build confidence as mathematicians by extending on number understandings from Unit 1. Students consolidate their knowledge of number names, representations and sequences through hands-on learning with physical materials and game play. They deepen their understanding as they establish the language of counting to partition and combine physical or virtual collections up to 10 in different ways, e.g. using physical materials and ten frames, dominoes and dice. Through practical experiences and game play, students use counting strategies and subitising (to five) to quantify collections. In the second phase of this unit, students explore measurement in their environment. Students identify the attributes of objects, including length, capacity and mass. Students work independently and in small groups to directly compare pairs of objects from their classroom environment. They are guided to understand the importance of a baseline. Students use language to describe measurement attributes and compare pairs of objects, e.g. ‘tall’, ‘long’, ‘wide’, ‘heavier’, ‘shorter’. They develop critical and creative thinking skills as they draw conclusions and communicate why and how they made choices and decisions. Teachers use observed demonstration across a series of tasks to collect evidence of students’ learning.	Providing students with the opportunities to investigate encourages them to pose questions, seek information, explore concepts and prioritise information relevant to the topic. This enables young learners to identify mathematical relationships and connected concepts. In this unit, students engage in play-based explorations to foster curiosity and develop an understanding of quantification, shapes and data collection. In the first phase of this unit, students’ curiosity is fostered as they explore collections of shapes and objects through play-based activities such as a classroom shape hunt. In familiar environments, students are encouraged to recognise and name shapes, describing their key attributes. They then deepen their understanding by creating these shapes independently using a variety of different mediums. In the second phase of this unit, students are supported to make connection between shapes and statistics knowledge. As students collect and sort collections of shapes into groups using their key attributes, e.g. colour, size, texture or number of sides, they represent information using objects or images and explain how collections have been sorted. Students draw on their understanding of number concepts from Units 1 and 2 to quantify data. They count collections to at least 20 and make comparisons between the size of collections. Students use relevant information to explain their reasoning. Teachers use supervised assessment to collect evidence of students’ learning.	Supporting young learners to find creative solutions promotes inquisitiveness, flexible thinking and organising communication of results. This unit provides an engaging real-world context where possibilities are explored and ideas are put into action in new creative ways. In the first phase of the unit, students help plan the end of year class teddy bear’s picnic. Students use their imagination and apply understandings and skills from the year. During focussed lessons and in playful experiences, students test and trial ideas by experimenting with a series of addition, subtraction and equal sharing problems to plan their picnic. Students use physical materials, verbally discuss their thinking and record the results with drawings and numerals, e.g. sharing plates and cups, counting the number of sandwiches and answering questions on how many are left. In the second phase of the unit, as students prepare for the picnic they also identify, sequence and compare times of the day and the events/activities that will take place at the picnic. After the picnic, students order images of these events and justify the placement using sequencing language, e.g. this happened ‘first’, ‘next’, we did this ‘last’. Finally, students use familiar language, e.g. ‘next to’, ‘underneath’, ‘above’, ‘below’, ‘beside’, ‘in front’, ‘behind’, ‘beside’, ‘up’, ‘down’, ‘left’ and ‘right’, as they describe the position and location of themselves and objects in relation to other objects. Students reflect on problems posed during design, planning and participation in the picnic and develop their mathematical reasoning skills as they communicate their creative picnic solutions. Evidence of student learning is collected through an investigation folio.

Where there is one assessment item within a unit, the corresponding achievement standard aspect/s is indicated in blue.

	Unit 1 — Playful exploration through maths		Unit 2 — Making choices and giving reasons why		Unit 3 — Curious about collections		Unit 4 — Creative solutions to a picnic	
	Assessment 1 — Project	**Term/ week**	**Assessment 2 — Observed demonstration**	**Term/ week**	**Assessment 3 — Supervised assessment**	**Term/ week**	**Assessment 4 — Project**	**Term/ week**
Assessment	**Description:** Students keep a learning journal, e.g. drawings, photographs, physical materials, pattern crafts, demonstrating their understanding and fluency when: • making connections between number names, numerals and position in the sequence of numbers from zero to at least 20 • copying and continuing repeating patterns. **Technique:** Project **Mode:** Written, spoken/signed and practical (with physical materials) **Conditions:** • issued in week 3 and completed over multiple lessons by end of week 9 • practical components are observed by the teacher	Term 1 Week 9	**Description:** Through practical tasks, e.g. demonstrations which involve the manipulation of physical and virtual materials, teacher-student conferences, group discussions and sharing of ideas and thinking, students demonstrate their understanding, fluency and reasoning when: • making connections between number names, numerals and position in the sequence of numbers from zero to at least 20 • using subitising (to five) and counting strategies to quantify collections • partitioning and combining collections up to 10 in different ways, representing these with numbers • identifying the attributes of mass, capacity and length • using direct comparison strategies to compare objects. **Technique:** Observed demonstration **Mode:** Spoken/signed and practical (with physical materials) **Conditions:** • issued in week 3 and completed over multiple lessons by end of week 9 • may be completed in small groups • practical components are observed by the teacher	Term 2 Week 9	**Description:** Students answer short response questions focusing on understanding, fluency and reasoning when: • representing practical situations that involve quantifying collections by naming, creating and sorting familiar shapes into groups • giving reasoning on how collections have been sorted by using key attributes • collecting, sorting and comparing data in response to questions by comparing the size of collections. **Technique:** Supervised assessment **Mode:** Written, spoken/signed and practical (with physical materials) **Conditions:** • may be completed one-on-one, in small groups or in whole class settings • may be completed over multiple lessons or broken into components in week 8 • practical components are observed by the teacher	Term 3 Week 8	**Description:** Through an investigation folio, students will complete a variety of tasks to plan a school teddy bear picnic. The investigation folio includes annotated samples, e.g. drawings, photographs, physical materials, video, of students' learning focusing on understanding, fluency and reasoning when: • representing practical situations that involve equal sharing, adding to and taking away from collections to at least 10 • sequencing and connecting events to the time of day • comparing events and activities using direct comparison strategies • describing the position and location of themselves and objects at the picnic. **Technique:** Project **Mode:** Written, spoken/signed and practical (with physical materials) **Conditions:** • issued in week 2 and completed over multiple lessons by end of week 8 • practical components are observed by the teacher	Term 4 Week 8

	Unit 1 — Playful exploration through maths	Unit 2 — Making choices and giving reasons why	Unit 3 — Curious about collections	Unit 4 — Creative solutions to a picnic
Achievement standard	By the end of Foundation Year, students make connections between number names, numerals and position in the sequence of numbers from zero to at least 20. They use subitising and counting strategies to quantify collections. Students compare the size of collections to at least 20. They partition and combine collections up to 10 in different ways, representing these with numbers. Students represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10. They copy and continue repeating patterns. Students identify the attributes of mass, capacity, length and duration, and use direct comparison strategies to compare objects and events. They sequence and connect familiar events to the time of day. Students name, create and sort familiar shapes and give their reasoning. They describe the position and the location of themselves and objects in relation to other objects and people within a familiar space. Students collect, sort and compare data in response to questions in familiar contexts.	By the end of Foundation Year, students make connections between number names, numerals and position in the sequence of numbers from zero to at least 20. They use subitising and counting strategies to quantify collections. Students compare the size of collections to at least 20. They partition and combine collections up to 10 in different ways, representing these with numbers. Students represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10. They copy and continue repeating patterns. Students identify the attributes of mass, capacity, length and duration, and use direct comparison strategies to compare objects and events. They sequence and connect familiar events to the time of day. Students name, create and sort familiar shapes and give their reasoning. They describe the position and the location of themselves and objects in relation to other objects and people within a familiar space. Students collect, sort and compare data in response to questions in familiar contexts.	By the end of Foundation Year, students make connections between number names, numerals and position in the sequence of numbers from zero to at least 20. They use subitising and counting strategies to quantify collections. Students compare the size of collections to at least 20. They partition and combine collections up to 10 in different ways, representing these with numbers. Students represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10. They copy and continue repeating patterns. Students identify the attributes of mass, capacity, length and duration, and use direct comparison strategies to compare objects and events. They sequence and connect familiar events to the time of day. Students name, create and sort familiar shapes and give their reasoning. They describe the position and the location of themselves and objects in relation to other objects and people within a familiar space. Students collect, sort and compare data in response to questions in familiar contexts.	By the end of Foundation Year, students make connections between number names, numerals and position in the sequence of numbers from zero to at least 20. They use subitising and counting strategies to quantify collections. Students compare the size of collections to at least 20. They partition and combine collections up to 10 in different ways, representing these with numbers. Students represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10. They copy and continue repeating patterns. Students identify the attributes of mass, capacity, length and duration, and use direct comparison strategies to compare objects and events. They sequence and connect familiar events to the time of day. Students name, create and sort familiar shapes and give their reasoning. They describe the position and the location of themselves and objects in relation to other objects and people within a familiar space. Students collect, sort and compare data in response to questions in familiar contexts.
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.	**Expert:** 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.

Content descriptions	Units				Content descriptions	Units				Content descriptions	Units			
Number	**1**	**2**	**3**	**4**	**Algebra**	**1**	**2**	**3**	**4**	**Measurement**	**1**	**2**	**3**	**4**
name, represent and order numbers including zero to at least 20, using physical and virtual materials and numerals AC9MFN01	☑	☑	☐	☐	recognise, copy and continue repeating patterns represented in different ways AC9MFA01	☑	☐	☐	☐	identify and compare attributes of objects and events, including length, capacity, mass and duration, using direct comparisons and communicating reasoning AC9MFM01	☐	☑	☐	☑
recognise and name the number of objects within a collection up to 5 using subitising AC9MFN02	☐	☑	☐	☐						sequence days of the week and times of the day including morning, lunchtime, afternoon and night time, and connect them to familiar events and actions AC9MFM02	☐	☐	☐	☑
quantify and compare collections to at least 20 using counting and explain or demonstrate reasoning AC9MFN03	☐	☑	☑	☐										
partition and combine collections up to 10 using part-part-whole relationships and subitising to recognise and name the parts AC9MFN04	☐	☑	☐	☐										
represent practical situations involving addition, subtraction and quantification with physical and virtual materials and use counting or subitising strategies AC9MFN05	☐	☐	☑	☑										
represent practical situations that involve equal sharing and grouping with physical and virtual materials and use counting or subitising strategies AC9MFN06	☐	☐	☐	☑										

Content descriptions	Units				Content descriptions	Units			
Space	**1**	**2**	**3**	**4**	**Statistics**	**1**	**2**	**3**	**4**
sort, name and create familiar shapes; recognise and describe familiar shapes within objects in the environment, giving reasons AC9MFSP01	☐	☐	☑	☐	collect, sort and compare data represented by objects and images in response to given investigative questions that relate to familiar situations AC9MFST01	☐	☐	☑	☐
describe the position and location of themselves and objects in relation to other people and objects within a familiar space AC9MFSP02	☐	☐	☐	☑					

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	☐	☐	☐	☐