Chapel Hill State School

Maths Curriculum and Assessment Year Level Plan

YEAR 5 - 2025

AC V9

Curriculum Intent

Year Level Description

In Year 5, 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:

- apply their understanding of relationships to convert between forms of numbers, units and spatial representations
- use mathematical modelling to solve practical problems, with guidance, using natural numbers and operations, and report on insights and conclusions they reach about the context
- use common percentages to make proportional comparisons of quantities
- use appropriate instruments and digital tools to construct and measure angles in degrees
- use appropriate metric units to directly measure the area and perimeter of regular and irregular spaces
- locate and move positions within a grid coordinate system
- recognise what stays the same and what changes when shapes undergo transformations
- experiment with factors and multiples using algorithms and digital tools
- plan, conduct and report findings from statistical investigations that involve an increasing range of types of data and means for representing data
- develop their reasoning skills when they consider relationships between events and connect long-term frequency over many trials to the likelihood of an event occurring.

Achievement Standard

Spiral Progression and Alignment

Developing the same concepts from one year level to the next in increasing complexity and application.

YEAR 4

Number, Algebra

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.

Measurement, Space

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.

Statistics, Probability

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.

YEAR 5

Number, Algebra

By the end of Year 5, students use place value to write and order decimals including decimals greater than one. They express natural numbers as products of factors and identify multiples. Students order and represent, add and subtract fractions with the same or related denominators. They represent common percentages and connect them to their fraction and decimal equivalents. Students use their proficiency with multiplication facts and efficient calculation strategies to multiply large numbers by one- and two-digit numbers and divide by single-digit numbers. They check the reasonableness of their calculations using estimation. Students use mathematical modelling to solve financial and other practical problems, formulating and solving problems, choosing arithmetic operations and interpreting results in terms of the situation. They apply properties of numbers and operations to find unknown values in numerical equations involving multiplication and division. Students create and use algorithms to identify and explain patterns in the factors and multiples of numbers.

Measurement, Space

They choose and use appropriate metric units to measure the attributes of length, mass and capacity, and to solve problems involving perimeter and area. Students convert between 12- and 24-hour time. They estimate, construct and measure angles in degrees. Students use grid coordinates to locate and move positions. They connect objects to their two-dimensional nets. Students perform and describe the results of transformations and identify any symmetries.

Statistics, Probability

They plan and conduct statistical investigations that collect nominal and ordinal categorical and discrete numerical data using digital tools. Students identify the mode and interpret the shape of distributions of data in context. They interpret and compare data represented in line graphs. Students conduct repeated chance experiments, list the possible outcomes, estimate likelihoods and make comparisons between those with and without equally likely outcomes.

YEAR 6

Number, Algebra

By the end of Year 6, students use integers to represent points on a number line and in the Cartesian plane. They solve problems using the properties of prime, composite and square numbers. Students order common fractions, giving reasons, and add and subtract fractions with related denominators. They use all 4 operations with decimals and connect decimal representations of measurements to the metric system. Students solve problems involving finding a fraction, decimal or percentage of a quantity and use estimation to find approximate solutions to problems involving rational numbers and percentages. They use mathematical modelling to solve financial and other practical problems involving percentages and rational numbers, formulating and solving the problem, and justifying choices. Students find unknown values in numerical equations involving combinations of arithmetic operations. They identify and explain rules used to create growing patterns. Students create and use algorithms to generate sets of numbers, using a rule.

Measurement, Space

They interpret and use timetables. Students convert between common units of length, mass and capacity. They use the formula for the area of a rectangle and angle properties to solve problems. Students identify the parallel cross-section for right prisms. They create tessellating patterns using combinations of transformations. Students locate an ordered pair in any one of the 4 quadrants on the Cartesian plane.

Statistics, Probability

They compare distributions of discrete and continuous numerical and ordinal categorical data sets as part of their statistical investigations, using digital tools. Students critique arguments presented in the media based on statistics. They assign probabilities using common fractions, decimal and percentages. Students conduct simulations using digital tools, to generate and record the outcomes from many trials of a chance experiment. They compare observed frequencies to the expected frequencies of the outcomes of chance experiments.

Sequence of units	Semester 1		Semester 2	
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**
Unit description	**Number, Space, Statistics** Students further develop proficiency and positive dispositions towards mathematics and its use as they: • use a range of physical and virtual materials and apply understanding of relationships to convert between forms of numbers, units and spatial representations especially with fractions and decimals • use materials, diagrams or arrays to become efficient with multiplication facts • locate and move positions within a grid coordinate system to pinpoint specific locations • recognise what stays the same and what changes when shapes undergo transformations • use physical materials and dynamic geometric software to perform transformations • plan and conduct a statistical investigation that involves a range of data sets including nominal and ordinal categorical and discrete numerical data; report findings and interpret and compare data representations to make informed decisions.	**Number, Algebra, Measurement** Students further develop proficiency and positive dispositions towards mathematics and its use as they: • use physical and virtual materials to experiment with factors and multiples • use materials, diagrams or arrays to find unknowns in numerical equations involving multiplication and division • build fluency and understanding of multiplication facts. • develop efficient strategies to multiply and divide • use mathematical modelling to solve financial problems, involving natural numbers and operations, and report on insights and conclusions reached • use estimation strategies to check the reasonableness of calculations when solving problems • apply an understanding of relationships to convert between 12- and 24-hour time when solving practical problems.	**Number, Space, Measurement** Students further develop proficiency and positive dispositions towards mathematics and its use as they: • use common percentages to make proportional comparisons of quantities in everyday contexts • apply understanding of fractions to compare and order them, and solve problems involving addition and subtraction of fractions with the same or related denominators • use mathematical modelling to solve practical problems using natural numbers and operations, and report on insights and conclusions • apply an understanding of relationships between objects and two-dimensional nets by constructing a variety of objects • solve practical problems involving perimeter and area of regular and irregular spaces using appropriate metric units • decide on the appropriate unit when measuring length, mass and capacity of objects • use appropriate instruments such as protractors and digital tools to construct and measure angles in degrees.	**Number, Algebra, Probability** Students further develop proficiency and positive dispositions towards mathematics and its use as they: • use place value to order decimals • use algorithms and digital tools to experiment with factors and multiples to identify and explain patterns • use multiplication facts and efficient calculation strategies to build fluency in multiplying large numbers by one and two-digit numbers and divide by single digit numbers • find unknowns in numerical equations involving multiplication and division using materials, diagrams, number sentences and arrays • develop reasoning skills when considering relationships between events and connecting long-term frequency over many trials to the likelihood of an event occurring.
Curriculum links				

Assessment		Semester 1		Semester 2	
		Monitoring task U1.1 *Exploring transformations*	**Assessment task U2.1** *Number and mathematical modelling*	**Assessment task U3.1** *Number and mathematical modelling*	**Assessment task U4.1** *Number, algebra and computational thinking*
Range and balance of assessment conventions	**Technique**	Test Observed demonstration	Short response Observed demonstration	Short response Observed demonstration	Investigation Observed demonstration
	Mode	Written	Practical	Practical	Practical
	Conditions	☒ Access to resources ☒ Individual task **or** ☐ Group task **Consideration of:** ☒ Time conditions ☒ Accessibility for all students	☒ Access to resources ☒ Individual task **or** ☐ Group task **Consideration of:** ☒ Time conditions ☒ Accessibility for all students	☒ Access to resources ☒ Individual task **or** ☐ Group task **Consideration of:** ☒ Time conditions ☒ Accessibility for all students	☒ Access to resources ☒ Individual task **or** ☐ Group task **Consideration of:** ☒ Time conditions ☒ Accessibility for all students
	Diagnostic		Includes Unit Diagnostic Number	Includes Unit Diagnostic Number	Includes Unit Diagnostic Number
Assessment		**Assessment task U1.2** *Using grid references*	Monitoring task *Convert between 12 and 24 hour time*	**Assessment task U3.2** *Measurement and Space*	**Assessment task U4.2** *Probability and probability experiments and simulations*
Range and balanc	**Technique**	Test Observed demonstration	Test Observed demonstration	Test Observed demonstration	Investigation Observed demonstration
	Mode	Written	Written	Written	Multimodal

	Conditions	☒ Access to resources ☒ Individual task **or** ☐ Group task **Consideration of:** ☒ Time conditions ☒ Accessibility for all students	☒ Access to resources ☒ Individual task **or** ☐ Group task **Consideration of:** ☒ Time conditions ☒ Accessibility for all students	☒ Access to resources ☒ Individual task **or** ☒ Group task **Consideration of:** ☒ Time conditions ☒ Accessibility for all students	☒ Access to resources ☒ Individual task **or** ☒ Group task **Consideration of:** ☒ Time conditions ☒ Accessibility for all students
	Diagnostic	Includes Unit Diagnostic Number			
Assessment		**Assessment task U1.3** *Planning and conducting a guided statistical investigation*			
Range and balance of assessment conventions	**Technique**	Investigation Observed demonstration	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.
	Mode	Multimodal	Choose an item.	Choose an item.	Choose an item.
	Conditions	☒ Access to resources ☒ Individual task **or** ☒ Group task **Consideration of:** ☒ Time conditions ☒ Accessibility for all students	☐ Access to resources ☐ Individual task **or** ☐ Group task **Consideration of:** ☐ Time conditions ☐ Accessibility for all students	☐ Access to resources ☐ Individual task **or** ☐ Group task **Consideration of:** ☐ Time conditions ☐ Accessibility for all students	☐ Access to resources ☐ Individual task **or** ☐ Group task **Consideration of:** ☐ Time conditions ☐ Accessibility for all students
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Achievement Standard - Elements Addressed				
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**
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They interpret and compare data represented in line graphs.** Students conduct repeated chance experiments, list the possible outcomes, estimate likelihoods and make comparisons between those with and without equally likely outcomes.	**Number, Algebra** **By the end of Year 5,** students use place value to write and order decimals including decimals greater than one. **They express natural numbers as products of factors and identify multiples**. Students order and represent, add and subtract fractions with the same or related denominators. They represent common percentages and connect them to their fraction and decimal equivalents. Students use their proficiency with multiplication facts and efficient calculation strategies to multiply large numbers by one- and two-digit numbers and divide by single-digit numbers. **They check the reasonableness of their calculations using estimation. 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