Year 6 Mathematics

Achievement

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.

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.

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.

Assessable Elements

An overall level of achievement in this subject is determined by the teacher's on-balance judgment of the evidence presented in students' summative assessment across the following:

- **Fluency**
- **Problem Solving**
- **Reasoning**
- **Understanding**

Delivery (mode, time requirements, lessons)

Students have access to scheduled lessons each week. Lessons are delivered via our learning management system. Students are also expected to undertake independent study to complete tasks and assessments in accordance with the Work Rate Calendar.

Student Requirements

Computer, internet access, email, printer, scanner, headset with microphone, stationery, resource list and SRS list.

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Units and Learning Experiences, Summative Assessment, Criteria Assessed, Approximate timing/due date of Summative Assessment		
Semester 1	**Term 1**	**Unit 1** students will engage in a variety of mathematical concepts designed to develop their skills in **fractions**, **decimals**, **percentages**, and **problem-solving**. They will learn to **add and subtract fractions with related denominators** and apply the four operations to **decimals**, linking these concepts to the metric system. Additionally, students will explore **prime, composite, and square numbers**, use **mathematical modelling** to solve financial problems, and investigate **probabilities** through simulations and comparisons of observed vs. expected outcomes in chance experiments. Students will also work on creating and applying **algorithms** to generate numbers, solve **equations** with unknown values, and recognize **patterns**. They will study **geometrical concepts** such as **area of rectangles**, **angle properties**, and **tessellations**, while also using the **Cartesian plane** to plot points and interpret **ordered pairs**. As part of their statistical learning, students will compare different data sets and critique arguments using statistical evidence.
		Summative Assessment, due date: • Students will demonstrate their knowledge and understanding through a combination of hands-on investigations and tests throughout the term.
	Term 2	**Unit 2** **students will deepen their understanding of measurement, fractions, and data analysis while exploring new strategies for problem-solving. They will focus on estimation strategies, metric system measurements, and apply these concepts to find the area of composite rectangles and perimeter of rectangles. Additionally, students will investigate data through bar charts, column graphs, and line graphs, and they will gain insight into the mode, range, and order of operations, helping them refine their skills in balancing equations and understanding function machines.** **Students will also work with fractions, including adding and subtracting fractions and finding equivalent fractions, while rounding decimals and applying their knowledge to real-world scenarios. Problem-solving strategies such as guessing and checking, making organized lists, and solving simpler problems will support their learning, with a focus on investigations like "Happy Hippos" and "Unique You." Through statistical investigations, students will develop critical thinking skills to compare and interpret categorical and numerical data effectively.**
		Summative Assessment, due date: • Students will demonstrate their knowledge and understanding through a combination of hands-on investigations and tests throughout the term.

Semester 2	**Term 3**	**Unit 3** **students will work extensively with decimals, focusing on addition and subtraction of decimals to the tenths and hundredths. They will also delve into fraction-to-percentage renaming and multi-step problems, applying these concepts to real-life contexts such as budgets and discounts. Students will explore coordinates within one quadrant of the Cartesian plane, and they will investigate cross-sections, properties of shapes, and tessellations, deepening their understanding of geometry.** **A key area of focus will be critically analysing misleading data and bias in graphs and data presentation, learning to identify how causes of bias can influence outcomes. Additionally, they will investigate calculating duration, reading timetables, and measuring with tonnes and kilograms, linking these skills to real-world problems like travel and financial planning. Problem-solving strategies such as acting out the problem and breaking larger problems into smaller parts will help students navigate more complex tasks, with a test at the end of the term to assess their progress.**
		Summative assessment, due date: • Students will demonstrate their knowledge and understanding through a combination of hands-on investigations and tests throughout the term.
	Term 4	**Unit 4** students will continue refining their skills with **decimals**, focusing on operations such as **addition, subtraction, multiplication**, and **division** with **decimals to thousandths**. They will apply these skills to real-world scenarios, like analysing whether **petrol prices** are high, as part of an **investigation** into **financial literacy**. Students will also engage with **patterns and rules** in mathematical contexts, working with **probability** concepts by comparing and conducting **repeated probability experiments** to understand **expected vs. observed probabilities**. A key focus will be the **use of coordinates in all four quadrants** of the **Cartesian plane**, along with **transformations** such as **translations, reflections, rotations**, and their application to **coordinates**. Students will also deepen their understanding of **discrete and continuous data** and explore its representation in various types of graphs. The term will culminate in an **assessment**, evaluating their ability to solve complex problems involving **probability**, **coordinates**, and **patterns**, as well as testing their **problem-solving strategies** with practical applications.
		Summative assessment, due date: • Students will demonstrate their knowledge and understanding through a combination of hands-on investigations and tests throughout the term.

Disclaimer All of the above information is accurate at the time of development.