Year Level Description

The proficiency strands *Understanding, Fluency, Problem Solving and Reasoning* are an integral part of mathematics content across the three content strands: *Number and Algebra, Measurement and Geometry, and Statistics and Probability*. The proficiencies reinforce the significance of working mathematically within the content and describe how the content is explored or developed. They provide the language to build in the developmental aspects of the learning of mathematics.   *At this year level:*

- *Understanding* includes making connections between representations of numbers, using fractions to represent probabilities, comparing and ordering fractions and decimals and representing them in various ways, describing transformations and identifying line and rotational symmetry
- *Fluency* includes choosing appropriate units of measurement for calculation of perimeter and area, using estimation to check the reasonableness of answers to calculations and using instruments to measure angles
- *Problem Solving* includes formulating and solving authentic problems using whole numbers and measurements and creating financial plans
- *Reasoning* includes investigating strategies to perform calculations efficiently, continuing patterns involving fractions and decimals, interpreting results of chance experiments, posing appropriate questions for data investigations and interpreting data sets

Achievement Standard

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Content Descriptors

Number and Algebra	Measurement and Geometry	Statistics and Probability
- Identify and describe factors and multiples of whole numbers and use them to solve problems - Use estimation and rounding to check the reasonableness of answers to calculations - Solve problems involving multiplication of large numbers by one or two-digit numbers using efficient mental, written strategies and appropriate digital technologies - Solve problems involving division by a one-digit number, including those that result in a remainder - Use efficient mental and written strategies and apply appropriate digital technologies to solve problems - Compare and order common unit fractions and locate and represent them on a number line - Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator - Recognise that the number system can be extended beyond hundredths - Compare, order and represent decimals - Create simple financial plans - Describe, continue and create patterns with fractions, decimals and whole numbers resulting from addition and subtraction - Use equivalent number sentences involving multiplication & division to find unknown quantities	- Choose appropriate units of measurement for length, area, volume, capacity and mass - Calculate the perimeter and area of rectangles using familiar metric units - Compare 12 and 24 hour time systems and convert between them - Connect three-dimensional objects with their nets and other two-dimensional representations - Use a grid reference system to describe locations. Describe routes using landmarks and directional language. - Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetry - Apply the enlargement transformation to familiar two-dimensional shapes and explore the properties of the resulting image compared with the original - Estimate, measure and compare angles using degrees. Construct angles using a protractor	- List outcomes of chance experiments involving equally likely outcomes and represent probabilities of those outcomes using fractions - Recognise that probabilities range from 0 to 1 - Pose questions and collect categorical or numerical data by observation or survey - Construct displays, including column graphs, dot plots and tables, appropriate for data type, with and without the use of digital technologies - Describe and interpret different data sets in context