Level 4

Mathematics

Mathematics Level Description

In Level 4, students extend the number system to simple decimal fractions, and broaden their use of measures and scales.

Students model, represent and order numbers to tens of thousands, and extend place value to tenths and hundredths. They investigate odd and even numbers and explore number patterns based on multiples of 3, 4, 6, 7, 8 and 9. Students develop facility with multiplication facts up to 10 x 10 and related division facts. They investigate simple equivalent fractions and count by halves, thirds and quarters, and locate corresponding elements on a number line. Students use simple decimals to solve money problems including total cost and change. They solve simple number sentences and word problems involving all four operations.

Students use scaled instruments with metric units to measure and compare length, mass, capacity and temperature. They compare shapes and objects using familiar metric units for area and volume, and compare angles with respect to a right angle. Students use 'am' and 'pm' notations, and solve simple time problems, including conversions between units of time. They construct new shapes by combining or splitting common shapes, and create symmetric patterns, pictures and shapes with and without the use of technology. They interpret and use basic maps with simple scales, directions and legends.

Students select and trial different methods for collecting data, including surveys. They construct suitable data displays with and without the use of technology, where there is a many-to-one relationship between elements of graphs and data, and evaluate the effectiveness of different displays. They identify relative likelihood of everyday events, and identify events that are mutually exclusive and events that are independent.

Mathematics Content Descriptions

Number and Algebra

Number and place value

Investigate and use the properties of odd and even numbers (VCMNA151)

Recognise, represent and order numbers to at least tens of thousands (VCMNA152)

Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (VCMNA153)

Investigate number

Measurement and Geometry

Using units of measurement

Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (VCMMG165)

Compare objects using familiar metric units of area and volume (VCMMG166)

Convert between units of time (VCMMG167)

Use am and pm notation and solve simple time problems (VCMMG168)

Statistics and Probability

Chance

Describe possible everyday events and order their chances of occurring (VCMSP175)

Identify everyday events where one cannot happen if the other happens (VCMSP176)

Identify events where the chance of one will not be affected by the occurrence of the other (VCMSP177)

Data representation and interpretation

sequences involving multiples of 3, 4, 6, 7, 8, and 9 (VCMNA154)

Recall multiplication facts up to 10 × 10 and related division facts (VCMNA155)

Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and for division where there is no remainder (VCMNA156)

Fractions and decimals

Investigate equivalent fractions used in contexts (VCMNA157)

Count by quarters, halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line (VCMNA158)

Recognise that the place value system can be extended to tenths and hundredths. Make connections between fractions and decimal notation (VCMNA159)

Money and financial mathematics

Solve problems involving purchases and the calculation of change to the nearest five cents with and without digital technologies (VCMNA160)

Patterns and algebra

Explore and describe number patterns resulting from performing multiplication (VCMNA161)

Solve word problems by using number sentences involving multiplication or division where there is no remainder (VCMNA162)

Use equivalent number sentences involving addition and subtraction to find unknown quantities (VCMNA163)

Shape

Compare the areas of regular and irregular shapes by informal means (VCMMG169)

Compare and describe two dimensional shapes that result from combining and splitting common shapes, with and without the use of digital technologies (VCMMG170)

Explain and compare the geometric properties of two-dimensional shapes and three-dimensional objects (VCMMG171)

Location and transformation

Use simple scales, legends and directions to interpret information contained in basic maps (VCMMG172)

Create symmetrical patterns, pictures and shapes with and without digital technologies (VCMMG173)

Geometric reasoning

Compare angles and classify them as equal to, greater than or less than a right angle (VCMMG174)

Select and trial methods for data collection, including survey questions and recording sheets (VCMSP178)

Construct suitable data displays, with and without the use of digital technologies, from given or collected data. Include tables, column graphs and picture graphs where one picture can represent many data values (VCMSP179)

Evaluate the effectiveness of different displays in illustrating data features including variability (VCMSP180)

(VCMNA163)

Define a simple class of problems and solve them using an effective algorithm that involves a short sequence of steps and decisions (VCMNA164)

Mathematics Achievement Standard

Number and Algebra

Students recall multiplication facts to 10 x 10 and related division facts. They choose appropriate strategies for calculations involving multiplication and division, with and without the use of digital technology, and estimate answers accurately enough for the context. Students solve simple purchasing problems with and without the use of digital technology. They locate familiar fractions on a number line, recognise common equivalent fractions in familiar contexts and make connections between fractions and decimal notations up to two decimal places. Students identify unknown quantities in number sentences. They use the properties of odd and even numbers and describe number patterns resulting from multiplication. Students continue number sequences involving multiples of single-digit numbers and unit fractions, and locate them on a number line.

Measurement and Geometry

Students compare areas of regular and irregular shapes, using informal units. They solve problems involving time duration. Students use scaled instruments to measure length, angle, area, mass, capacity and temperature of shapes and objects. They convert between units of time. Students create symmetrical simple and composite shapes and patterns, with and without the use of digital technology. They classify angles in relation to a right angle. Students interpret information contained in maps.

Statistics and Probability

Students describe different methods for data collection and representation, and evaluate their effectiveness. They construct data displays from given or collected data, with and without the use of digital technology. Students list the probabilities of everyday events. They identify dependent and independent events.