Inspire Maths 5 Long-term Plan

Unit title	Key concepts
1 Whole Numbers (1)	
Numbers to 10 million	• The next place after the ten thousands place is the hundred thousands place • 10 ten thousands = 1 hundred thousand
Place and value	• The actual value of a digit in a number is equal to the digit multiplied by the place value. E.g. the value of the digit 5 in the number 4 657 809 is 5 ten thousands, i.e. 5 × 10 000 = 50 000 • The value of a number is the sum of the values of each digit in the number
Comparing numbers within 10 million	• In a number, e.g. 1999, the value of the first digit (1000) is always greater than the sum of the values of the remaining digits (999)
Rounding to the nearest thousand and estimating	• There are 10 hundreds between two consecutive thousands
2 Whole Numbers (2)	
Using a calculator	• Understanding the concepts of place value and the four operations
Multiplying by tens, hundreds or thousands	In the base ten number system: • Ones × 10 = tens, Tens × 10 = hundreds, Hundreds × 10 = thousands • Ones × 100 = hundreds, Tens × 100 = thousands, Hundreds × 100 = ten thousands • Ones × 1000 = thousands, Tens × 1000 = ten thousands, Hundreds × 1000 = hundred thousands
Dividing by tens, hundreds or thousands	In the base ten number system: • Thousands ÷ 10 = hundreds, Hundreds ÷ 10 = tens, Tens ÷ 10 = ones, Ones ÷ 10 = tenths • Ten thousands ÷ 100 = hundreds, Thousands ÷ 100 = tens, Hundreds ÷ 100 = ones, Tens ÷ 100 = tenths, Ones ÷ 100 = hundredths • Hundred thousands ÷ 1000 = hundreds, Ten thousands ÷ 1000 = tens, Thousands ÷ 1000 = ones, Hundreds ÷ 1000 = tenths Tens ÷ 1000 = hundredths, Ones ÷ 1000 = thousandths
Order of operations	• In number sentences with only addition and subtraction or only multiplication and division, the order of operations is from left to right • In number sentences with multiplication and/or division together with addition and/or subtraction, the order of operations is from left to right with multiplication and/or division carried out first • In number sentences with brackets, the order of operations is from left to right with the operations in the brackets carried out first
Word problems (1)	• Application of concepts and skills of the four operations to solving word problems
Word problems (2)	• Application of concepts and skills of the four operations and various strategies to solving word problems
Practice Book – Review 1	
Assessment Book – Test 1	

3 Fractions (1)	
Like and unlike fractions	• A fraction refers to a part of a whole • Like fractions are fractions with the same denominator • Unlike fractions are fractions with different denominators
Adding unlike fractions	• Fractions are equivalent when they show the same parts of the whole • Fractions can be added when they are expressed as like fractions
Subtracting unlike fractions	• Two fractions can be subtracted if they come from the same whole or from identical wholes
Fractions and division	• A whole number when divided by another whole number can result in: (a) a whole number with or without remainder (b) a proper fraction (c) a mixed number
Converting fractions to decimals	• Fractions and decimals are interchangeable • Decimals are a special type of fractions with denominators in tens, hundreds and thousands
Adding mixed numbers	• A mixed number comprises a whole number and a proper fraction • Mixed numbers can be added like adding proper and improper fractions
Subtracting mixed numbers	• A mixed number comprises a whole number and a proper fraction • Mixed numbers can be subtracted like subtracting proper and improper fractions
Word problems	• The following concepts are applied to fractions: part-whole concepts in addition and subtraction, comparison concept, adding-on in addition, taking-away in subtraction and division concept
4 Fractions (2)	
Product of proper fractions	• Multiplying two fractions is the same as finding the fractional part of another fraction
Word problems (1)	• The product of two proper fractions is the fractional part of another fraction
Product of an improper fraction and a proper or improper fraction	• Multiplying a fraction and another fraction is the same as finding the fractional part of another fraction
Product of a mixed number and a whole number	• The product of a whole and a mixed number refers to the group and item multiplication concept
Word problems (2)	• Use the group and item multiplication concept to find the product of a whole number and a mixed number
Dividing a fraction by a whole number	• Division in fractions is dividing each fractional part into smaller equal parts/units
Word problems (3)	• The concepts of the four operations and division of a fraction are applied
Practice Book – Review 2	
Assessment Book – Test 2, Challenging Problems 1, Check-up 1	
5 Area of a triangle	
Base and height of a triangle	• Any side of a triangle can be the base and for each base, there is a corresponding height
Finding the area of a triangle	• The area of a triangle is half that of its related rectangle • Area of a triangle = $^1/_2$ x Base x Height

6 Ratio	
Finding ratio	• Ratio is a way of comparing the relative sizes of two quantities or sets of items
Equivalent ratios	• Finding the common factor of the terms of the ratio of two quantities • Dividing the terms of a ratio of two quantities by the common factor to express a ratio in its simplest form
Word problems (1)	• Applying equivalent ratio concept, part-whole concept, taking away concept and comparison concept to solve up to 2-step word problems involving ratio of two quantities
Comparing three quantities	• Ratio is a way of comparing the relative sizes of three quantities or sets of items
Word problems (2)	• Applying equivalent ratio concept, part-whole concept and comparison concept to solve up to 2-step word problems involving ratio of three quantities
Practice Book – Review 3	
Practice Book – Revision 1	
Assessment Book – Test 3, Challenging Problems 2, Check-up 2	
7 Decimals	
Converting decimals to fractions	• Decimals are an extension of fractions • Decimals can be converted to fractions, and vice versa
Multiplying by tens, hundreds and thousands	• When a number is multiplied by 10, 100 or 1000, each digit in the number moves 1, 2 or 3 places respectively to the left in the place value chart • When a number is multiplied by 10, 100 or 1000, the decimal place shifts 1, 2 or 3 places respectively to the right
Dividing by tens, hundreds and thousands	• When a number is divided by 10, 100 or 1000, each digit in the number moves 1, 2 or 3 places respectively to the right in the place value chart • When a number is divided by 10, 100 or 1000, the decimal place shifts 1, 2 or 3 places respectively to the left • Dividing by 10 is the same as multiplying by $^1/_{10}$
Using a calculator	• Understanding the concepts of place value and the four arithmetical operations
Word problems	• Application of concepts and skills of the four operations to solving word problems
8 Measurements	
Converting a measurement from a larger unit to a smaller unit	• Understanding direct proportion
Converting a measurement from a smaller unit to a larger unit	• Understanding direct proportion
Practice Book – Review 4	
Assessment Book – Test 4	
9 Mean (average)	
Understanding mean (average)	• The total amount or sum of the data is found by multiplication: Total = Mean x Number of data or items
Word problems	• Applying the mean concept and part-whole concept to solve problems involving more than one set of items

10 Percentage	
Per cent	• 5% means 5 out of 100 • Percentage is a specific fraction where the denominator is 100
Converting more fractions to percentages	• Fractions and percentages are two representations for comparison of numbers • Percentage is a specific fraction where the denominator is 100
Percentage of a quantity	• Percentage of a quantity refers to part of a whole where the whole is equivalent to 100 units
Word problems	• 100 parts = the whole = 100%
Practice Book – Review 5	
Assessment Book – Test 5, Challenging Problems 3, Check-up 3	
11 Angles	
Angles on a straight line	• An angle (≤ 180°) is made when two straight lines meet at a point • A unit of measurement of angles is the degree • The sum of angles on a straight line is 180°
Angles at a point	• The sum of angles at a point is 360°
Vertically opposite angles	• Vertically opposite angles are made by two intersecting straight lines • Vertically opposite angles are equal
12 Properties of Triangles and 4-sided Shapes	
Angles of a triangle	• Sum of angles in a triangle = 180°
Right-angled, isosceles and equilateral triangles (Right-angled triangles)	• A right-angled triangle has one angle equal to 90°
Right-angled, isosceles and equilateral triangles (Isosceles triangles)	• An isosceles triangle has two equal sides
Right-angled, isosceles and equilateral triangles (Equilateral triangles)	• An equilateral triangle has three equal sides
Parallelograms, rhombuses and trapeziums (Parallelograms)	A parallelogram is a 4-sided shape in which: • the opposite sides are parallel • the opposite angles are equal • each pair of angles between parallel sides adds up to 180°
Parallelograms, rhombuses and trapeziums (Rhombuses)	• A rhombus is a parallelogram with four equal sides where the opposite angles are equal and each pair of angles between parallel sides adds up to 180°
Parallelograms, rhombuses and trapeziums (Trapeziums)	• A trapezium is a 4-sided shape in which only one pair of opposite sides is parallel and each pair of angles between parallel sides adds up to 180°
Practice Book – Review 6	
Assessment Book – Test 6	

13 Geometrical Construction	
Drawing triangles	• Given two angles and the side adjacent to the given angles or two sides and the included angle, only one triangle can be drawn
Drawing 4-sided shapes	• Given the side of a square, only one square can be drawn • Given the length and width of a rectangle, only one rectangle can be drawn • Given one side and one angle of a rhombus, only one rhombus can be drawn • Given two adjacent sides and one angle of a parallelogram, only one parallelogram can be drawn • Given two adjacent sides, the included angle and the angle adjacent to the included angle of a trapezium with the parallel sides indicated, only one trapezium can be drawn
14 Volume of Cubes and Cuboids	
Building solids using unit cubes	• A cube is a solid which has 6 square faces • A unit cube means a single cube
Drawing cubes and cuboids	• Isometric dotty paper can be used to draw cubes and cuboids
Understanding and measuring volume	• Volume is the amount of space an object occupies • Volume is measured in cubic units • Volume can be measured in different units, including cm^3 and m^3
Volume of a cuboid and of liquid	• Volume of a cube = Edge x Edge x Edge • Volume of a cuboid = Length x Width x Height • Volume of liquid in a container that is completely filled is equal to the capacity of the container
Practice Book – Review 7	
Practice Book – Revision 2	
Assessment Book – Test 7, Challenging Problems 4, Check-up 4	