# *Inspire Maths* 5 Long-term Plan

| Unit title | Key concepts |
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| **1 Whole Numbers (1)** | |
| Numbers to 10 million | • The next place after the ten thousands place is the hundred thousands place<br>• 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<br>• 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:<br>• Ones × 10 = tens, Tens × 10 = hundreds, Hundreds × 10 = thousands<br>• Ones × 100 = hundreds, Tens × 100 = thousands, Hundreds × 100 = ten thousands<br>• Ones × 1000 = thousands, Tens × 1000 = ten thousands, Hundreds × 1000 = hundred thousands |
| Dividing by tens, hundreds or thousands | In the base ten number system:<br>• Thousands ÷ 10 = hundreds, Hundreds ÷ 10 = tens, Tens ÷ 10 = ones, Ones ÷ 10 = tenths<br>• Ten thousands ÷ 100 = hundreds, Thousands ÷ 100 = tens, Hundreds ÷ 100 = ones, Tens ÷ 100 = tenths, Ones ÷ 100 = hundredths<br>• 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<br>• 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<br>• 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** | |

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| **3 Fractions (1)** | |
| Like and unlike fractions | • A fraction refers to a part of a whole<br>• Like fractions are fractions with the same denominator<br>• Unlike fractions are fractions with different denominators |
| Adding unlike fractions | • Fractions are equivalent when they show the same parts of the whole<br>• 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<br>• 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<br>• 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<br>• 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<br>• Area of a triangle = $^1/_2$ x Base x Height |

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| **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<br>• 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<br>• 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<br>• 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<br>• When a number is divided by 10, 100 or 1000, the decimal place shifts 1, 2 or 3 places respectively to the left<br>• 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 |

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| **10 Percentage** | |
| Per cent | • 5% means 5 out of 100<br>• 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<br>• 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<br>• A unit of measurement of angles is the degree<br>• 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<br>• 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:<br>• the opposite sides are parallel<br>• the opposite angles are equal<br>• 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** | |

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| **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<br>• Given the length and width of a rectangle, only one rectangle can be drawn<br>• Given one side and one angle of a rhombus, only one rhombus can be drawn<br>• Given two adjacent sides and one angle of a parallelogram, only one parallelogram can be drawn<br>• 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<br>• 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<br>• Volume is measured in cubic units<br>• 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<br>• Volume of a cuboid = Length x Width x Height<br>• 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** | |