Inspire Maths 6 Long-term Plan

Unit title	Key concepts
1 Algebra	
Using letters as numbers	• Letters in algebraic expressions represent numbers • A letter can represent a specific unknown number or any number in general
Simplifying algebraic expressions	• The sum $a + a + a + \ldots + a$ (n terms) = $n \times a = na$ • The sum $ma + na = (m + n) \times a = (m + n)a$ • The difference $ma - na = (m - n) \times a = (m - n)a$
Word problems	• The process of problem solving in mathematics involves the application of concepts and strategies
Assessment Book – Test 1	
2 Angles in Shapes and Diagrams	
Finding unknown angles	• Understanding and applying the properties of angles, triangles, squares, rectangles, parallelograms, rhombuses and trapeziums
Assessment Book – Test 2	
3 Nets	
Solids	• Cubes and cuboids have rectangular faces (including squares) • Prisms have rectangular faces (including squares) and two identical polygonal faces (which could also be rectangles) • Pyramids have triangular faces that meet at a point and a polygonal base • Cylinders have a curved surface and two identical circular bases (at the ends) • Cones have a curved surface and a circular base
Nets of solids	• A net of a solid is a diagram that can be folded to make the solid • A solid can have different nets
Practice Book – Review 1	
Assessment Book – Test 3, Challenging Problems 1, Check-up 1	
4 Fractions	
Four operations with fractions	• A fraction is a part of a whole or set, a ratio or a quotient • Addition and subtraction of fractions or mixed numbers can be interpreted in the same way as addition and subtraction of whole numbers • Multiplication of fractions, for example, $^2/_3 \times {}^3/_4$ is interpreted as $^2/_3$ of $^3/_4$ or $^3/_4$ of $^2/_3$ • Division of a fraction by a whole number is interpreted as partition (sharing)
Dividing by a proper fraction	• Division by a proper fraction is interpreted as measurement division; e.g., $3 \div {}^2/_3$ or $^3/_4 \div {}^2/_3$ is interpreted as the number of two-thirds in 3 or $^3/_4$
Word problems	• The process of problem solving in mathematics involves the application of concepts and strategies
Assessment Book – Test 4	

5 Ratio	
Ratio and fraction	• The ratio of one quantity to another quantity may not represent the actual number of items in each group • A simplified ratio of two quantities shows the relative amount of each quantity with respect to the other
Word problems (1)	• Fractions and ratios can be used to show the relative amounts of two quantities • The multiple concept in multiplication is another comparative tool to show the relative amount of two quantities
Comparing ratios	• The quantities in fixed ratios increase or decrease by the same multiple
Word problems (2)	• When quantities are increased or decreased in relation to each other, the ratios of the quantities are also changed
Assessment Book – Test 5	
6 Percentage	
Finding percentages	• Percentages are similar to decimal fractions • A percentage is a special type of decimal fraction, giving the number of parts out of 100 equal parts rather than out of 1
Word problems (1)	• Applying the concepts learnt on percentage to solve word problems using a variety of strategies
Word problems (2)	• Applying the concepts learnt on percentage and a variety of strategies to solve higher-order word problems
Assessment Book – Test 6, Challenging Problems 2, Check-up 2	
7 Speed	
Distance and speed	• Speed is defined as the distance travelled per unit of time • The greater the distance travelled per unit of time, the faster the speed
Average speed	• Average speed is not the mean of two or more speeds • Average speed is the mean distance travelled per unit of time • Average speed is calculated by dividing the total distance travelled by the total time taken
Word problems	• Applying combinations of concepts such as mean (average), speed and rate to solve higher-order word problems
Practice Book – Review 2	
Practice Book – Revision 1	
Assessment Book – Test 7	
8 Circles	
Radius, diameter and circumference	• A radius of a circle is any straight line from the centre to a point on the circumference • A diameter of a circle is any straight line that joins two points on the circumference and passes through the centre • The circumference of a circle is its perimeter • The ratio of the circumference of a circle to its diameter is the constant π
Area of a circle	• The area of a circle is equal to $\pi \times$ Radius $\times$ Radius
Assessment Book – Test 8	

9 Pie Charts	
Understanding pie charts	• The circle in a pie chart represents one whole or 100%
Practice Book – Review 3	
Assessment Book – Test 9, Challenging Problems 3	
10 Area and Perimeter	
Area and perimeter of composite shapes	• The properties of squares, rectangles, triangles and circles • Formulae can be used to find the perimeters and areas of squares, rectangles and triangles, as well as the circumference and area of circles
Assessment Book – Test 10	
11 Volume of Solids and Liquids	
Volume of solids	• The volume of a cuboid is the product of its length, width and height • The square root of a number n is the number m so that $m \times m = n$ • The cube root of a number n is the number m so that $m \times m \times m = n$
Volume of liquids	• The volume of liquid in a full container is given by the capacity of the container • Liquid in a container takes the shape of the container • Rate is an example of direct proportion, and problems involving rate can be solved using the unitary method
Practice Book – Review 4	
Practice Book – Revision 2	
Assessment Book – Test 11	
Think It Through	