### Our World of Learning in Maths - Year 6

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Learning

My World and Me



### Autumn Term – Textbook 6a

### Number and Place Value: Numbers to 10 Million

Maths — No Problem! Book Reference	Lesson Name	Lesson Objective
Chapter 1  - Numbers to 10 Million	Lesson 1 - Reading and Writing Numbers to 10 Million	To construct and record numbers to 10 000 000; to recognise the value of digits to 10 000 000.
	Lesson 2 - Comparing Numbers to 10 Million	To compare numbers to 10 000 000 using place value.
	Lesson 3 - Comparing and Ordering Numbers to 10 Million	To compare and order numbers to 10 000 000; to create combinations of numbers using a fixed number of digits.
	Lesson 4 - Rounding Numbers	To round numbers to 10 000 000 to the nearest miliion, hundred thousand and ten thousand.
	Lesson 5 - Rounding Numbers	To round numbers to the nearest appropriate number up to and including millions; to determine when rounding is appropriate and to which value.
	Chapter consolidation	To practise various concepts covered in the chapter.



### Autumn Term – Textbook 6a

### **Calculations: Four Operations on Whole Numbers**

Calculations. Four Operations on whole Numbers		
Maths — No Problem! Book Reference	Lesson Name	Lesson Objective
Chapter 2  - Four Operations	Lesson 1 - Using Mixed Operations	To use multiple operations and create expressions from a picture; to use the order of operations to solve expressions.
on Whole Numbers	Lesson 2 - Order of Operations	To create and solve expressions using the four operations.
	Lesson 3 - Multiplying by Tens	To multiply numbers by multiples of 10; to use number bonds as a key strategy in multiplication.
	Lesson 4 - Multiplying a 3-Digit Number by a 3-Digit Number	To multiply 3- and 4-digit numbers by 2-digit numbers without regrouping or renaming; to use both number bonds and the column method as key strategies.
	Lesson 5 - Multiplying by a 2-Digit Number	To multiply 3- and 4-digit numbers by 2-digit numbers without regrouping or renaming; to use both number bonds and the column method as key strategies.
	Lesson 6 - Multiplying by a 3-Digit Number by a 2-Digit Number	To multiply 3- and 4-digit numbers by 2-digit numbers with regrouping and renaming; to use number bonds and pattern recognition as key strategies for multiplication.
	Lesson 7 - Multiplying a 4-Digit Number by a 2-Digit Number	To multiply 3- and 4-digit numbers by 2-digit numbers with regrouping and renaming; to use number bonds and the column method as key strategies.
	Lesson 8 - Multiplying by a 2-Digit Number	To estimate products of multiplying 3- and 4-digit numbers by a 2-digit numbers; to use knowledge of multiplication to create specific products.
	Lesson 9 - Dividing by a 2-Digit Number	To divide 3-digit numbers by 2-digit numbers using a variety of strategies; to use number bonds, long division and bar models to facilitate division by 2-digit numbers.
	Lesson 10 - Dividing by a 2-Digit Number	To divide 4-digit numbers by 2-digit numbers; to use number bonds and long division as the key strategies.
	Lesson 11 - Dividing by a 2-Digit Number	To divide 4-digit numbers by 2-digit numbers using a variety of methods; to use number bonds, long and short division as key methods.
	Lesson 12 - Dividing by a 2-Digit Number with Remainder	To divide 3-digit numbers by 2-digit numbers giving rise to remainders; to use number bonds and long and short division as key strategies to solve division problems.
	Lesson 13 - Dividing by a 2-Digit Number with Remainder	To divide 4-digit numbers by 2-digit numbers giving rise to a remainder; to represent the remainder as part of a whole amount of money or decimal.

Continued overleaf





### Autumn Term – Textbook 6a Calculations: Four Operations on Whole Numbers (continued) Maths — No Problem! Lesson Name **Lesson Objective** Book Reference Chapter 2 Lesson 14 - Solving Word To use the bar model heuristic to solve word problems involving multiplication and division. - Four Operations Problems Using Bar Models on Whole Numbers Lesson 15 - Solving Word To solve word problems using division as the main strategy; to use pictorial representations to support word problems. Problems Using Patterns Lesson 16 - Solving Word To solve word problems involving multiple operations, including multiplication and division. Problems Using Multiple Methods Lesson 17 - Finding To find common multiples in real-life situations; to use common multiples in tandem with knowledge of time. Common Multiples Lesson 18 - Finding To use common multiples to solve problems; to organise mathematical thinking into tables and lists. Common Multiples Lesson 19 - Finding To find the largest common factor of 3-digit numbers; to use multiplication and division to find largest common factors. Common Factors Lesson 20 - Finding To find common factors using concrete materials. Common Factors Lesson 21 - Finding Prime Numbers To use prime numbers to create other numbers; to explore prime numbers above 100. Lesson 22 - Finding Prime Numbers To explore prime numbers using concrete materials; to identify prime numbers using multiplication or division. Chapter consolidation To practise various concepts covered in the chapter.



#### Autumn Term – Textbook 6a Fractions, Decimals and Percentages: Fractions Maths — No Problem! Lesson Name **Lesson Objective** Book Reference Chapter 3 Lesson 1 - Simplifying Fractions Using To use concrete materials to simplify fractions: to recognise equivalence in fractions to 1/4. - Fractions Common Factors Lesson 2 - Simplifying Fractions To simplify fractions using division and common factors; to represent fractions using concrete Using Common Factors materials and pictorial representations. Lesson 3 - Comparing and Ordering Fractions To compare fractions and place them in order from smallest to largest. Lesson 4 - Comparing and To compare and order fractions by finding common denominators. **Ordering Improper Fractions** Lesson 5 - Comparing and To compare and order fractions using common factors. Ordering Fractions and Mixed Numbers Lesson 6 - Adding and Subtracting Adding and subtracting fractions with different denominators; using pictorial representations to compare Unlike Fractions fractions and add/subtract Lesson 7 - Adding and Subtracting To add and subtract fractions with different denominators. Unlike Fractions Lesson 8 - Adding and Subtracting To add and subtract mixed numbers, including fractions with different denominators; to subtract from the whole Mixed Numbers and add the remainder back on. Lesson 9 - Adding and Subtracting To add and subtract fractions with different denominators: to add and subtract mixed numbers. Mixed Numbers Lesson 10 - Multiplying Pairs of Proper Fractions To multiply fractions using pictorial representations and abstract methods. To determine if the commutative law applies to fractions; to multiply fractions using concrete materials and pictorial Lesson 11 - Multiplying Pairs of Proper Fractions representations. To use concrete materials to understand and solve the multiplication of fractions; to simplify equations using Lesson 12 - Multiplying Pairs of Proper Fractions pattern blocks. Lesson 13 - Dividing a Fraction by a Whole Number To divide a fraction by a whole number; to use pictorial representation to divide whole numbers into fractions. To divide fractions by whole numbers using concrete materials and pictorial representations; to divide fractions Lesson 14 - Dividing a Fraction by a Whole Number when the numerator and divisor are not easily divisible.

To divide fractions by a whole number; to use pictorial representations to support division.

To practise various concepts covered in the chapter.



Chapter consolidation

Lesson 15 - Dividing a Fraction by a Whole Number

### Autumn Term – Textbook 6a

### Fractions, Decimals and Percentages: Decimals

Fractions, Decimals and Percentages: Decimals		
Maths — No Problem! Book Reference	Lesson Name	Lesson Objective
Chapter 4 - Decimals	Lesson 1 - Reading and Writing Decimals	To read and write decimals to thousandths; to use concrete materials to represent decimals.
	Lesson 2 - Dividing Whole Numbers by Multiples of 10	To divide whole numbers by larger whole numbers; to use Base 10 materials to represent tenths, hundredths and thousandths.
	Lesson 3 - Dividing Whole Numbers	To divide whole numbers that give rise to decimals; to calculate decimal fraction equivalents using long division.
	Lesson 4 - Writing Fractions as Decimals	To convert fractions into decimals using bar models and long division.
	Lesson 5 - Writing Fractions as Decimals	To write fractions as decimals; to use long division as the key strategy for turning fractions into decimals.
	Lesson 6 - Multiplying Decimals without Regrouping	To multiply decimals by whole numbers using partitioning or the worded method to help find the solution.
	Lesson 7 - Multiplying Decimals with Regrouping	To multiply whole numbers that include a decimal by other whole numbers; to use partitioning and the worded method as key strategies.
	Lesson 8 - Multiplying Decimals with Regrouping	To multiply decimals by whole numbers, including regrouping and renaming.
	Lesson 9 - Multiplying Decimals with Regrouping	To multiply decimals by whole numbers using a variety of methods; to use the heuristic 'making a list' to help solve a problem.
	Lesson 10 - Dividing Decimals without Regrouping	To divide decimals using number bonds and number discs as the key strategies.
	Lesson 11 - Dividing Decimals with Regrouping	To divide decimals using bar models, number bonds and long division as key strategies, including regrouping and renaming.
	Lesson 12 - Multiplying a Decimal by a 2-Digit Whole Number	To multiply decimals by a 2-digit whole number using number discs and the column method.
	Lesson 13 - Dividing a Decimal by a 2-Digit Whole Number	To divide decimals by 2-digit numbers using number bonds and the worded method.
	Lesson 14 - Dividing a Decimal by a 2-Digit Whole Number	To divide decimals by 2-digit whole numbers using number bonds and the worded method.
	Chapter consolidation	To practise various concepts covered in the chapter.



Spring Term – Textbook 6a			
Measurement: Mea	Measurement: Measurements		
Maths — No Problem! Book Reference	Lesson Name	Lesson Objective	
Chapter 5 - Measurements	Lesson 1 - Converting Units of Length: Millimetres and Centimetres	To convert common measurements into centimetres and millimetres.	
	Lesson 2 - Converting Units of Length: Metres and Centimetres	To convert units of measure into different units; to use knowledge of decimals and fractions to help convert units.	
	Lesson 3 - Converting Units of Length : Kilometres and Metres	To convert metres into kilometres as units of measure.	
	Lesson 4 - Converting Units of Length: Miles and Kilometres.	To convert distances between miles and kilometres.	
	Lesson 5 - Converting Units of Mass	To convert units of mass from grams to kilograms using decimals and fractions.	
	Lesson 6 - Converting Units of Volume	To convert units of volume from millilitres to litres.	
	Lesson 7 - Converting Units of Time	To convert units of time from minutes to hours; to represent time using 24-hour notation.	
	Chapter consolidation	To practise various concepts covered in the chapter.	

Spring Term – Textbook 6a		
Word Problems		
Maths — No Problem! Book Reference	Lesson Name	Lesson Objective
Chapter 6	Lesson 1 - Solving Word Problems	To use bar models to solve word problems involving the four operations.
- Word Problems	Lesson 2 - Solving Word Problems	To use the bar model heuristic to solve word problems involving money.
	Lesson 3 - Solving Word Problems	To use the bar model heuristic to solve complex word problems involving ratio.
	Lesson 4 - Solving Word Problems	To use the bar model heuristic to solve complex word problems involving time.
	Lesson 5 - Solving Word Problems	To solve word problems that apply the bar model heuristic and involve fractions.
	Lesson 6 - Solving Word Problems	To create and solve complex word problems using the four operations.
	Chapter consolidation	To practise various concepts covered in the chapter.
Week 3	Mid-Year (A) Tests and Remediation	

### Spring Term - Textbook 6b

### Fractions, Decimals and Percentages: Percentage

Maths — No Problem! Book Reference	Lesson Name	Lesson Objective
Chapter 7 – Percentage	Lesson 1 - Finding the Percentage of a Number	To find the percentage of a whole number using division and multiplication; to use bar modelling as a pictorial approach to calculating percentage.
	Lesson 2 - Finding the Percentage of a Quantity	To find the percentage of a quantity; to use bar model diagrams to support the division and multiplication of numbers towards the percentage.
	Lesson 3 - Finding Percentage Change	To find the percentage change in an amount over time; to calculate the percentage change where the number gives rise to a decimal.
	Lesson 4 - Using Percentage to Compare	To use percentage, bar models and fractions to compare amounts.
	Chapter consolidation	To practise various concepts covered in the chapter.



#### Spring Term - Textbook 6b **Ratio and Proportion: Ratio** Maths — No Problem! **Lesson Name Lesson Objective Book Reference** Chapter 8 Lesson 1 - Comparing Quantities To use ratios and fractions to compare objects; to find the relationship between ratios, percentages and fractions. - Ratio Lesson 2 - Comparing Quantities To determine the ratio of a quantity using concrete materials: to simplify ratios using concrete materials in addition to division. To compare more than two quantities using the term 'ratio': to use bar models to express ratios where there is more than Lesson 3 - Comparing Quantities one quantity. To compare quantity using both fractions and ratios; to use bar model diagrams to represent ratios. Lesson 4 - Comparing Quantities Lesson 5 - Comparing Quantities To compare quantities using bar models and common factors: to use multiplication and division to simplify ratios. Lesson 6 - Comparing Numbers To compare numbers using ratios; to make decisions about simplifying ratios using division. To solve word problems using a variety of heuristics including guess-and-check and bar models; to apply knowledge of Lesson 7 - Solving Word Problems ratios to word problems. To solve word problems using the bar model heuristic; to employ division and multiplication as primary strategies when solving Lesson 8 - Solving Word Problems word problems visually. Lesson 9 - Solvina Word Problems To apply the guess-and-check and advanced bar model heuristic to ratio word problems. Chapter consolidation To practise various concepts covered in the chapter.



Spring Term – Textbook 6b			
Algebra: Algebra	Algebra: Algebra		
Maths — No Problem! Book Reference	Lesson Name	Lesson Objective	
Chapter 9 - Algebra	Lesson 1 - Describing a Pattern	To determine a pattern using concrete materials and pictorial representation; to use a table to identify a repeating pattern; to express a rule using a letter or symbol.	
	Lesson 2 - Describing a Pattern	To determine a pattern using concrete materials and pictorial representation; to use a table to identify a repeating pattern; to express the relationship between consecutive numbers in terms of a symbol or letter.	
	Lesson 3 - Describing a Pattern	To determine a pattern using concrete materials and pictorial representation; to use a table to identify a pattern; to express the relationship between consecutive numbers in terms of a symbol or letter.	
	Lesson 4 - Describing a Pattern	To determine a pattern using concrete materials and pictorial representation; to use a table to identify a pattern; to express unknown numbers in terms of a letter or symbol, including using a number before a letter for multiplication.	
	Lesson 5 - Writing Algebraic Expressions	To use a table to identify a pattern; to write algebraic expressions using each of the four operations.	
	Lesson 6 - Writing and Evaluating Algebraic Expressions	To use examples to identify rules; to write algebraic expressions using each of the four operations; to evaluate algebraic expressions including the use of inverse operations.	
	Lesson 7 - Writing and Evaluating Algebraic Expressions	To recognise patterns; to write algebraic expressions with two steps; to evaluate algebraic expressions with two steps.	
	Lesson 8 - Writing Formulae	To recognise patterns; to write and evaluate algebraic expressions with two steps; to write and use formulae.	
	Lesson 9 - Using Formulae	To use formulae to solve problems; to replace a letter/variable with a number then solve the equation; to use inverse operations to solve equations.	
	Lesson 10 - Solving Equations	To solve equations; to use equations to find unknown values.	
	Chapter consolidation	To practise various concepts covered in the chapter.	



#### Spring Term - Textbook 6b Measurement: Area and Perimeter Maths — No Problem! **Lesson Name Lesson Objective Book Reference** Chapter 10 Lesson 1 - Finding the Area and To find the area and perimeter of rectangles: to calculate perimeter using the known area and vice versa. - Area and Perimeter the Perimeter of Rectangles Lesson 2 - Finding the Area To find and calculate the area of a parallelogram: to use concrete materials and prior understanding of area to construct a formula for Lessons 1-6 of Parallelograms the area. To use prior knowledge of area to determine and solve the area of a triangle; to use and apply the formula for the area Lesson 3 - Finding the Area of Triangles of a rectangle to solve problems involving triangles. Lesson 4 - Finding the Area To calculate the area of a triangle using a formula; to calculate the area of a triangle in multiple ways. of Triangles Lesson 5 - Finding the Area To use multiple methods to solve the area of a triangle. of Triangles Lesson 6 - Finding the Area To find the area of a parallelogram using an understanding of triangles; to use concrete materials to find the area of Parallelograms of a parallelogram. To practise various concepts covered in the chapter. Chapter consolidation 3 consolidation days To be used if lessons take longer than expected or a topic needs to be revisited.



### Spring Term – Textbook 6b

**Geometry - Properties and Shapes: Geometry** 

Maths — No Problem! Book Reference	Lesson Name	Lesson Objective
Chapter 12 - Geometry	Lesson 1 - Investigating Vertically Opposite Angles	To investigate opposite angles; to use prior knowledge of angles to solve problems involving angles.
Lessons 1–5	Lesson 2 - Solving Problems Involving Angles	To solve problems involving angles using the bar model heuristic; to solve problems involving angles without protractors.
	Lesson 3 - Investigating Angles in Triangles	To determine and show the sum of the angles inside a triangle.
	Lesson 4 - Investigating Angles in Quadrilaterals	To investigate and determine angles in quadrilaterals.
	Lesson 5 - Solving Problems Involving Angles in Triangles and Quadrilaterals	To use the knowledge of angles inside a triangle and a quadrilateral to solve problems involving angles in other shapes.



#### Spring Term - Textbook 6b Geometry - Position and Direction: Position and Movement Maths — No Problem! **Lesson Name Lesson Objective** Book Reference Chapter 12 Lesson 1 - Showing To represent negative numbers on both vertical and horizontal number lines. - Position and **Negative Numbers** Movement Lesson 2 - Describing Position To describe the positions of objects on a coordinate grid; to use x and y axes to determine the position of objects on a grid. Lessons 1-5 Lesson 3 - Describing Position To describe the position of points using coordinates on a grid. Lesson 4 - Drawing Polygons To draw polygons on a coordinate grid: to recognise polygons on a coordinate grid. on a Coordinate Grid Lesson 5 - Describing Translations To describe the translation of shapes on a coordinate grid.



#### Summer Term - Textbook 6b Statistics: Graphs and Averages Maths — No Problem! Lesson Name **Lesson Objective** Book Reference Chapter 14 Lesson 1 - Understanding Averages To calculate the average (mean) of sets of values. - Graphs and Averages Lesson 2 - Calculating the Mean To calculate the mean. Lessons 1-10 Lesson 3 - Calculating the Mean To calculate the mean Lesson 4 - Solving Problems To solve problems involving the mean: to use the mean and the number of values to calculate the total; to use given information to find unknown values. Involving the Mean Lesson 5 - Showing Information To show information on graphs; to transfer information from a table to a pie chart. on Graphs Lesson 6 - Reading Pie Charts To read and interpret pie charts. Lesson 7 - Reading Pie Charts To read and interpret pie charts; to use percentages in pie charts. Lesson 8 - Reading Pie Charts To read and interpret pie charts; to use knowledge of angles to interpret pie charts. To read line graphs; to interpret the information in line graphs that show distance and time. Lesson 9 - Reading Line Graphs Lesson 10 - Reading Line Graphs To read and interpret line graphs; to answer questions about the information in line graphs.



#### Summer Term - Textbook 6b Number and Place Value: Negative Numbers Maths — No Problem! Lesson Name **Lesson Objective Book Reference** Chapter 15 Lesson 1 - Adding and Subtracting To add and subtract negative numbers using a number line. - Negative Numbers **Negative Numbers** Lesson 2 - Using Negative Numbers To create number stories using negative numbers. Chapter consolidation To practise various concepts covered in the chapter. 2 consolidation days To be used if lessons take longer than expected or a topic needs to be revisited. Week 4 SATs



Summer Term – Textbook 6b		
Measurement: Volume		
Maths — No Problem! Book Reference	Lesson Name	Lesson Objective
Chapter 11 - Volume	Lesson 1 - Finding the Volume of Cubes and Cuboids	To find the volume of cubes and cuboids using concrete materials.
	Lesson 2 - Finding the Volume of Cubes and Cuboids	To determine the formula for the volume of cubes and cuboids and apply it to calculate the volume of shapes.
	Lesson 3 - Finding the Volume of Cubes and Cuboids	To estimate the volume of objects and spaces; to calculate the volume of boxes using the formula for volume of cubes and cuboids.
	Lesson 4 - Finding the Volume of Cubes and Cuboids	To calculate the volume of boxes using the formula for volume of a cube; to expose common misconceptions in volume through a 3-box arrangement.
	Lesson 5 - Solving Problems Involving the Volume of Solids	To solve word problems involving the volume of cubes and cuboids; to apply the formula for the volume of a cube or cuboid.
	Chapter consolidation	To practise various concepts covered in the chapter.



#### Summer Term - Textbook 6b Geometry - Properties and Shapes: Geometry Maths — No Problem! Lesson Name **Lesson Objective** Book Reference Chapter 12 Lesson 6 - Naming Parts of a Circle To name the parts of a circle: to calculate diameter and radius using parts of a circle. - Geometry Lesson 7 - Solving Problems To solve problems involving angles in a circle. Involving Angles in a Circle Lessons 6-12 To draw quadrilaterals with specific side lengths and parallel lines: to find the perimeter of shapes and name trapeziums Lesson 8 - Drawing Quadrilaterals and parallelograms. Lesson 9 - Drawing Triangles To draw triangles using measurements and angles as the starting point; to use a protractor to draw triangles using angles. Lesson 10 - Drawing Triangles To construct triangles using a protractor and ruler; to use ratio to determine the dimensions of a triangle. Lesson 11 - Drawing Nets To construct the nets of 3-D shapes by identifying the faces and the 2-D shapes that construct them. of Three-Dimensional Shapes Lesson 12 - Drawing Nets To construct the nets of 3-D shapes by identifying the faces and the 2-D shapes that construct them. of Three-Dimensional Shapes To practise various concepts covered in the chapter. Chapter consolidation 2 consolidation days To be used if lessons take longer than expected or a topic needs to be revisited.



#### Summer Term - Textbook 6b Geometry - Position and Direction: Position and Movement Maths — No Problem! Lesson Name **Lesson Objective** Book Reference Chapter 13 Lesson 6 - Describing Reflections To describe reflection using a mirror line and the terms 'object' and 'image'. - Position and Movement Lesson 7 - Describing Movements To reposition objects so they can be reflected in the x and y axis as the mirror line. Lessons 6-10 To describe the movement of objects using the terms 'translation' and 'reflection'. Lesson 8 - Describing Movements Lesson 9 - Using Algebra To use algebra to describe the positions of coordinates in relationship to one another. to Describe Position Lesson 10 - Using Algebra To represent translation and reflection using algebraic notation. to Describe Movements Chapter consolidation To practise various concepts covered in the chapter.



#### Summer Term - Textbook 6b **Statistics: Graphs and Averages** Maths — No Problem! Lesson Name **Lesson Objective Book Reference** Chapter 14 Lesson 11 - Converting Miles To convert miles into kilometres and kilometres into miles. - Graphs and Averages into Kilometres Lesson 12 - Reading Line Graphs To read and interpret line graphs. Lessons 11-12 Chapter consolidation To practice various concepts covered in the chapter. 2 consolidation days To be used if lessons take longer than expected or a topic needs to be revisited. **Revisit Topics** Week 10 Week 11 Revision And End-Of-Year (B) Tests Week 12 **Revisit Topics**



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