Year 3 Maths Objectives

Place Value

COUNTING	count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Count on/back in 10s, 100s from any two and three-digit number. Count larger collections by grouping them in tens, then other numbers. Recognise two-digit and three-digit multiples of 2, 5, and 10 and three-digit multiples of 50 and 100.
COMPARING NUMBERS	compare and order numbers up to 1000 and position them on a number line. Order a set of three-digit numbers, saying which one is more or less, and give a number which lies between them. Read and write the vocabulary of comparing and ordering numbers, including ordinal numbers to 100. Recognise odd/even numbers to 100.
IDENTIFYING, REPRESENTING & ESTIMATING NUMBERS	identify, represent and estimate numbers using different representations Read and begin to write the vocabulary of estimation and approximation. Estimate up to 100 objects.
READING & WRITING NUMBERS	read and write numbers up to 1000 in numerals and in words *tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks* (copied from Measurement)
UNDERSTANDING PLACE VALUE	recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
ROUNDING	Round any two – digit number to the nearest 10 or 100 Round any three-digit number to the nearest 100.
PROBLEM SOLVING	solve number problems and practical problems involving these ideas. Solve number puzzles. Explain methods and reasoning orally and in writing. Investigate general statements about familiar numbers, and give examples that match them.

Addition & Subtraction

NUMBER BONDS	Recall addition, subtraction facts for each number up to at least 20. Recall pairs that make 20. Recall pairs of multiples of 100 that make 1000. Recall pairs of multiples of 5 with a total of 100. Revision: bonds to 20. Within 1000, subtract any multiple of 100

MENTAL CALCULATION	add and subtract numbers mentally, including:
	  * a three-digit number and ones
	  * a three-digit number and tens
	  * a three-digit number and hundreds
	  * adding three two-digit numbers
	Partition into tens and units and recombine.
	Round up or down and adjust:

	127 + 49 (127 + 50 – 1) Or 139 + 45 (140 + 45 – 1) Add or subtract a near multiple of 10 to a two-digit number, by adding or subtracting the nearest multiple of 10, and adjusting. Add/subtract 1, 10, 100 to any whole number. Add/subtract 9, 19, 29… and 11, 21, 31… Recognise that addition can be done in any order. Put larger number first in order to count on. Identify near doubles. Bridge through a multiple of 10 and adjust. Add three then four single–digit numbers mentally. Add three or four small numbers by putting the largest number first and/or finding pairs that total 10. Partition into 5 and a bit to add 6, 7 or 8. Understand that subtraction is the inverse of addition. Say a subtraction statement equivalent to an addition statement and vice versa. Find a small difference by counting up from the smaller number.
WRITTEN METHODS	add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Use partitioning and numberline as back ups Use informal pencil and paper methods to support, record or explain TU + TU, HTU + TU and HTU + HTU. Use informal pencil and paper methods to support, record or explain TU – TU and HTU – TU.
INVERSE OPERATIONS, ESTIMATING & CHECKING ANSWERS	estimate the answer to a calculation and use inverse operations to check answers Check sums by adding in different order. Check subtraction with addition.
PROBLEM SOLVING	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction Choose appropriate number operations and calculation methods to solve word problems with one or more steps. Explain and record methods informally.

Multiplication & Division

MULTIPLICATION & DIVISION FACTS	count from 0 in multiples of 4, 8, 50 and 100 (copied from Number and Place Value) Recall multiplication facts up to 5 x 5. Recall multiplication facts in x10 table and derive division facts. Recall multiplication facts in x2 table and derive division facts. recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Derive doubles of whole numbers to 15, corresponding halves.

	Derive doubles of whole numbers to 20, corresponding halves. Derive doubles of multiples of 5 to 50. Derive doubles of multiples of 50 to 500. Derive near doubles. Understand multiplication as repeated addition and as an array. Read and begin to write related vocabulary. Recognise that multiplication can be done in any order. To multiply by 10/100, shift the digits one / two places to the left. Begin to find remainders after division. Round up or down after division.
MENTAL CALCULATION	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Written Methods) Understand division as grouping or sharing. Read and begin to write the related vocabulary. Recognise division is inverse of multiplication.
WRITTEN CALCULATION	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Mental Methods) Say or write division statement corresponding to multiplication statement.
PROBLEM SOLVING	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects
INVERSE OPERATIONS, ESTIMATING & CHECKING ANSWERS	*estimate the answer to a calculation and use inverse operations to check answers* (copied from Addition and Subtraction) Check multiplication in a different order.

Algebra

EQUATIONS	solve problems, *including **missing number** problems, using number facts, place value, and more complex addition and subtraction.* (copied from Addition and Subtraction) *solve problems, including **missing number** problems, involving multiplication and division, including integer scaling* (copied from Multiplication and Division)
FORMULAE	Use formulae to find perimeter.
SEQUENCES	Completing number and shape patterns. Create and describe simple number sequences. Finding all the possible sequences. e.g: RTR, TRR...

Fractions (including decimals & percentages)

COUNTING IN FRACTIONAL STEPS	count up and down in tenths
RECOGNISING FRACTIONS	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators Recognise unit fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{10}$, and use them to find fractions of shapes and numbers. Begin to recognise fractions that are several parts of a whole $\frac{2}{3}$, $\frac{3}{4}$, $\frac{3}{10}$. Know that 1/2 lies between 1/4 and 3/4. Estimate a simple fraction (proportion) of a shape.
COMPARING FRACTIONS	compare and order unit fractions, and fractions with the same denominators Compare two familiar fractions.
COMPARING DECIMALS	Ordering decimals
ROUNDING INCLUDING DECIMALS	Rounding whole numbers to the nearest 10, 100, 1000 Rounding decimals to the nearest 1 decimal place.
EQUIVALENCE	recognise and show, using diagrams, equivalent fractions with small denominators Begin to recognise simple equivalent fractions, e.g. 5/10 is equivalent to 1/2, 5/5 to 1 whole.
ADDITION & SUBTRACTION OF FRACTIONS	add and subtract fractions with the same denominator within one whole (e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$)
PROBLEM SOLVING	solve problems that involve all of the above

Geometry: Position & Direction

POSITION, DIRECTION & MOVEMENT	use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise). Begin to talk about degrees and relate them to above angles. Use N, S, E, W to track and create a pathway or route (mapwork)
PATTERN	Make and describe shapes and patterns. Solve shape problems or puzzles. Explain reasoning and methods.

Geometry: Properties of shape

IDENTIFYING SHAPES & THEIR PROPERTIES	Classify and describe 3-D and 2-D shapes, referring to reflective symmetry, faces, sides/edges, vertices, angles. Identify and sketch lines of symmetry, recognise shapes with no line of symmetry. Sketch reflection of simple shape in a mirror. Relate solid shapes to pictures of them.
DRAWING & CONSTRUCTING	draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
COMPARING & CLASSIFYING	compare and sort common 2-D and 3-D shapes and everyday objects. Use data handling to compare and sort shapes (a Venn diagram or Carroll Diagram). Investigate general statements about shapes, and suggest examples to match them. Explain reasoning.
ANGLES	recognise angles as a property of shape or a description of a turn Identify right angles in 2-D shapes and in the environment. identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle Recognise that a straight line is two right angles. Compare angles with a right angle, saying whether they are more or less. identify horizontal and vertical lines and pairs of perpendicular and parallel lines

Measurement

COMPARING & ESTIMATING	compare durations of events, for example to calculate the time taken by particular events or tasks estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time)
MEASURING & CALCULATING	measure, compare, add and subtract: **lengths** (m/cm/mm); Use ruler to draw and measure lines to nearest half cm. Read and begin to write the vocabulary related to length. Choose an appropriate number operation and calculation method to solve word problems. Explain and record method informally. Measure and compare using m, cm. Know relationship m, cm; km, m. Use decimal notation for m and cm. Suggest suitable units and equipment to estimate or measure lengths, including km.

	Read scales and dials. Identify unlabelled divisions on a number line or measuring scale. Record to nearest whole / half unit, or as mixed units (e.g. 3 m 20 cm). **mass** (kg/g); Read and begin to write the vocabulary related to mass. Measure and compare using kilograms and grams, and know the relationship between them. Suggest suitable units and equipment to estimate or measure mass. Read scales. Record measurements using mixed units, or to the nearest whole/half unit (e.g. 3.5 kg). **volume/capacity** (l/ml) Read scales to the nearest division. Read and begin to write the vocabulary related to capacity. Measure and compare using litres and millilitres, and know the relationship between them. Suggest suitable units and equipment to estimate or measure capacity. Read scales. Record measurements using mixed units, or to the nearest whole/half unit (e.g. 3.5 litres). Choose appropriate number operations and calculation methods to solve measurement word problems with one or more steps. Explain and record method. measure the **perimeter** of simple 2-D shapes add and subtract amounts of **money** to give change, using both £ and p in practical contexts Recognise all coins and notes. Find totals, give change and work out how to pay. Solve problems involving money.
TELLING THE TIME	tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Comparing and Estimating) Read time to 5 minutes on analogue and 12-hour digital clocks (e.g. 9:40). Read and begin to write the vocabulary related to and time. Use a calendar. Choose appropriate number operations and calculation methods to solve time word problems with one or two steps. Explain and record method. Check results.
CONVERTING	know the number of seconds in a minute and the number of days in each month, year and leap year Use units of time and relationship between them.

Statistics

INTERPRETING, CONSTRUCTING & PRESENTING DATA	interpret and present data using bar charts, pictograms and tables Solve a given problem by organising and interpreting data in bar charts – intervals labelled in ones then twos.
SOLVING PROBLEMS	solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. Solve a given problem by organising and interpreting data in frequency tables, and in pictograms with the symbol representing two units. Solve a given problem by organising and interpreting data in Venn and Carroll diagrams – one criterion.