

RYDAL PENRHOS PREPARATORY SCHOOL

Outline of Programmes of Study Year 3 Mathematics - Academic Year 2017-2018

YEAR 3 MATHEMATICS	
Strand	Summary
Mental addition and subtraction; Problem solving, reasoning and algebra	Use multiple of 5 and 10 bonds to 100 to solve additions and subtractions; add and subtract 1-digit numbers to and from 2-digit numbers
Number and place value; Mental addition and subtraction; Problem solving, reasoning and algebra	Compare and order 2- and 3- digit numbers; count on and back in 10s and 1s; add and subtract 2-digit numbers; solve problems using place value
Mental multiplication and division; Problem solving, reasoning and algebra	Know multiplication and division facts for the 5, 10, 2, 4 and 3 times-tables; doubling and halving
Problem solving, reasoning and algebra; Measurement; Geometry: properties of shapes; Statistics	Know and understand the calendar, including days, weeks, months, years; tell the time to the nearest 5 minutes on analogue and digital clocks; know the properties of 3D shapes
Number and place value; Mental addition and subtraction; Problem solving, reasoning and algebra	Comparing, ordering and understanding place value of 2- and 3-digit numbers; subtracting from 2- and 3-digit numbers; using prediction to estimate calculations
Mental multiplication and division; Fractions, ratio and proportion; Problem solving, reasoning and algebra	Doubling and halving numbers up to 100 using partitioning; understanding fractions and fractions of numbers
Measurement; Problem solving, reasoning and algebra; Mental addition and subtraction	Use money to add and subtract and record using the correct notation and place value; add and subtract 2-digit numbers using partitioning; add three 2-digit numbers by partitioning and recombining.
Measurement; Geometry: properties of shapes	Choose an appropriate instrument to measure a length and use a ruler to estimate, measure and draw to the nearest centimetre; know 1 litre = 1000 ml; estimate and measure capacity in millilitres
Number and place value; Mental addition and subtraction; Problem solving, reasoning and algebra	Place 2- and 3-digit numbers on a number line; round 3-digit numbers to nearest 100; use counting up to do mental subtractions with answers between 10 and 20, 10 and 30, and either side of 100
Mental multiplication and division; Problem solving, reasoning and algebra; Mental addition and subtraction	Revise times-tables learned and derive division facts; perform division with remainders; choose a mental strategy to solve additions and subtractions; solve word problems
Number and place value; Mental addition and subtraction; Problem solving, reasoning and algebra	Rehearse place value in 3-digit numbers, order them on a number line and find a number in between; compare number sentences; solve additions and subtractions using place value; multiply and divide by 10 (whole number answers); count in steps of 10, 50 and 100.
Mental addition and subtraction (MAS); Mental multiplication and division (MMD); Statistics (STA); Problem solving, reasoning and algebra (PRA)	Add pairs of 2-digit numbers using partitioning (crossing 10s, 100 or both) and then extend to add two 3-digit numbers (not crossing 1000); recognise and sort multiples of 2, 3, 4, 5, and 10; double the 4 times-table to find the 8 times-table; derive division facts for the 8 times-table; multiply and divide by 4 by doubling or halving twice
Fractions, ratio and proportion (FRP); Problem solving, reasoning and algebra (PRA)	Identify $\frac{1}{2}$ s, $\frac{1}{3}$ s, $\frac{1}{4}$ s, $\frac{1}{6}$ s, and $\frac{1}{8}$ s; realise how many of each make a whole; find equivalent fractions; place fractions on a 0 to 1 line; find fractions of amounts

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Geometry: properties of shapes; Geometry: position and direction; Measurement	Recognise right angles and know they are 90° ; understand angles are measured in degrees; recognise $^\circ$ as the symbol for the measurement of degrees; name and list simple properties of 2D shapes; begin to understand and use the term perimeter to mean the length/distance around the edge (border) of a 2D shape; begin to calculate using a ruler; know a right angle is a quarter turn; know 360° is a full turn; begin to understand angles and identify size of angles in relation to 90°
Number and place value; Mental addition and subtraction	Place 3-digit numbers on empty 100 number lines; begin to place 3-digit numbers on 0-1000 landmarked and empty number lines; round 3-digit numbers to the nearest ten and to the nearest hundred; use counting up as a strategy to perform mental subtraction (Frog); subtract pounds and pence from five pounds; use counting up (Frog) as a strategy to perform mental subtraction of amounts of money; subtract pounds and pence from ten pounds
Number and place value; Problem solving, reasoning and algebra; Written addition and subtraction	Understand place-value in 3-digit numbers; separate 3-digit numbers into hundreds, tens, and ones; add two 3-digit numbers using vertical written addition (expanded); add 2- and 3- digit numbers using vertical written addition (expanded)
Mental addition and subtraction; Written addition and subtraction; Problem solving, reasoning and algebra	Add two 2-digit numbers mentally; add 2-digit to 3-digit numbers mentally using place value and rounding; add two 3-digit numbers using expanded written method (answers under 1000); begin to move tens and hundreds moving towards formal written addition; add two 3-digit numbers using expanded column addition; investigate patterns in numbers when adding them; choose to solve addition using a mental method or expanded column addition (written method)
Measurement	Tell the time to the nearest minute on analogue and digital clocks (minutes past and minutes to); time events in minutes and seconds; find a time after a given interval (not crossing the hour); calculate time intervals; solve word problems involving time
Number and place value; Mental addition and subtraction; Problem solving, reasoning and algebra	Order 3-digit numbers and find numbers between; solve subtractions of 3-digit - 3-digit numbers using counting up (Frog); use counting up and counting back as strategies to perform mental subtractions; choose to solve a given subtraction by counting up or counting back
Mental multiplication and division; Written multiplication and division; Problem solving, reasoning and algebra	Double and halve numbers up to 100 by partitioning; solve word problems involving doubling and halving; multiply numbers between 10 and 25 by 1-digit numbers using the grid method; divide multiples of 10 by 1-digit numbers using known tables facts; see the relation between multiplication and division
Mental addition and subtraction; Problem solving, reasoning and algebra; Fractions, ratio and proportion	Add 3-digit and 1-digit numbers mentally, using number facts; subtract 1-digit numbers from 3-digit numbers mentally using number facts; add and subtract multiples of 10 by counting on and back in 10s and using number facts to cross 100s; compare and order fractions with the same denominator; begin to recognise equivalences of $\frac{1}{2}$; add and subtract fractions with the same denominator
Mental multiplication and division; Problem solving, reasoning and algebra; Written multiplication and division	Use function machines to multiply by 2, 3, 4, 5 and 8 and understand the inverse; use scaling to multiply heights and weights by 2, 4, 8, 5 and 10; use known facts to multiply multiples of 10 by 2, 3, 4 and 5; multiply numbers between 10 and 30 by 3, 4 and 5 using the grid method; multiply 2-digit numbers by 3, 4, 5 and 8 using the grid method
Mental multiplication and division; Written multiplication and division	Divide without remainders, just beyond the 12th multiple; division using chunking, with remainders; use the grid method to multiply 2-digit numbers by 3, 4, 5 and 8; begin to estimate products
Statistics; Problem solving, reasoning and algebra; Measurement	Draw and interpret bar charts and pictograms where one square/symbol represents two units; compare and measure weights in multiples of 100g; know how many grams are in a kilogram; estimate and weigh objects to the nearest 100g; draw and interpret bar charts where one square represents one hundred units

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Mental addition and subtraction; Written addition and subtraction; Problem solving, reasoning and algebra	Add 3-digit and 2-digit numbers using mental strategies; add two 3-digit numbers using mental strategies or by using column addition; use reasoning, trial and improvement to solve problems involving more complex addition
Written addition and subtraction; Mental addition and subtraction	Use column addition to add three 2- and 3-digit numbers together and four 2- and 3-digit numbers together; subtract 3-digit numbers using counting up; solve word problems choosing an appropriate method
Written addition and subtraction; Measurement; Mental addition and subtraction; Problem solving, reasoning and algebra	Add 3-digit numbers using column addition; solve problems involving measures; solve subtractions of 3-digit numbers using counting up on a line and work systematically to find possibilities; choose an appropriate strategy to solve addition or subtraction
Geometry: properties of shapes; Measurement	Identify, name and draw horizontal, vertical, perpendicular, parallel and diagonal lines, angles and symmetry in 2D shapes; measure the perimeter of 2D shapes by counting and measuring with a ruler; tell the time on analogue and digital clocks to the minute, begin to tell the time 5, 10, 20 minutes later, recognise am and pm and 24-hour clock times
Written multiplication and division; Problem solving, reasoning and algebra; Mental multiplication and division; Fractions, ratio and proportion; Decimals, percentages and their equivalence to fractions	Use the grid method to multiply 2-digit numbers by 3, 4, 5, 6 and 8; estimate products; divide using chunking, with and without remainders; decide whether to use multiplication or division to solve word problems; recognise tenths and equivalent fractions; find one-tenth and several tenths of multiples of 10 and begin to find one-tenth of single-digit numbers
Mental addition and subtraction; Written addition and subtraction; Problem solving, reasoning and algebra; Written multiplication and division; Mental multiplication and division	Revise column addition for adding three 3-digit numbers; revise mental strategies for addition; subtract 3-digit numbers using written and mental methods; find change using counting up; check subtraction using addition; multiply numbers between 10 and 40 by 1-digit numbers using grid method; solve division problems just beyond the known tables facts