



CASTLETOWN PRIMARY SCHOOL



Numeracy - Year 5

Children will work towards achieving the following learning outcomes.

NUMBER: NUMBER & PLACE VALUE				
Counting	Comparing Numbers	Reading	Rounding	Understanding Place Value
1. Interpret negative numbers in context (KPI) 2. Count forwards with positive and negative whole numbers, including through zero (KPI) 3. Count backwards with positive and negative whole numbers, including through zero (KPI) 4. Count forwards in steps of powers of 10 for any given number up to 1 000 000. 5. Count backwards in steps of powers of 10 for any given number up to 1 000 000.	6. Compare and order numbers to at least 1 000 000 (KPI) 7. Compare and order numbers with up to three decimal places (KPI)	9. Read numbers to at least 1 00 00 000 (KPI) 10. Read numbers with up to three decimal places (KPI) 11. Read Roman numerals to 1 000 (M) 12. Recognise years written in Roman numerals.	15. Round any number up to 1 000 000 to the nearest 10. 16. Round any number up to 1 000 000 to the nearest 100. 17. Round any number up to 1 000 000 to the nearest 1 000. 18. Round any number up to 1 000 000 to the nearest 10 000. 19. Round any number up to 1 000 000 to the nearest 100 000 20. Round decimals with two places to the nearest whole number. 21. Round decimals with two decimal places to one decimal place.	22. Identify the value of each digit in numbers given to two decimal place. 23. Determine the value of each digit in numbers to at least 1 000 000 (KPI)
	Identifying, representing & estimating	Writing		Problem Solving
	8. Identify, represent and estimate numbers using different representations.	13. Write numbers to at least 1 000 000 (KPI) 14. Write numbers with up to three decimal places (KPI)		24. Solve number problems and practical problems involve all of the Y5 number criteria.

Number Bonds & Rapid Recall Skills	Mental calculation	Written calculation	Problem Solving	
1. Derive and recall what must be added to any four-digit number to make the next multiple of 1000. 2. Derive and recall sums and differences of decimals to one decimal place. 3. Derive and recall doubles and halves of decimals to one decimal place. 4. Derive and recall what must be added to a one decimal place number to make the next whole number.	5. Add numbers mentally with increasingly large numbers (KPI) 6. Subtract numbers mentally with increasingly large numbers (KPI) 7. Add any pair of decimals up to one decimal place. 8. Subtract any pair of decimals up to one decimal place. 9. Double decimals up to one decimal place. 10. Add near doubles of decimals to one decimal place.	12. Add whole numbers with more than four digits, including using formal written methods (columnar addition) KPI 13. Subtract whole numbers with more than four digits, including using formal written methods (columnar subtraction) KPI	14. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	
	Inverse operations, estimating and checking answers			
	11. Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.			

NUMBER: MULTIPLICATION & DIVISION			
Rapid recall and mental calculation	Written Calculation	Properties of numbers, multiples, factors etc.	Problem Solving
1. Double three-digit multiples of 10 to 500 and find corresponding halves. 2. Multiply and divide two-digit numbers by 4 and 6. 3. Multiply two-digit numbers by 5 and 20. 4. Multiply by 25 and 50. 5. Double three-digit multiples of 10 to 500 and find the corresponding halves. 6. Multiply pairs of multiples of 10. 7. Multiply whole numbers by 1000. 8. Divide whole numbers by 1000. 9. Multiply numbers involving decimals by 10, 100 and 1000. 10. Divide numbers involving decimals by 10, 100 and 1000.	12. Multiply numbers up to 4 digits by a one-digit number using a formal written method. 13. Multiply numbers up to 4 digits by a two-digit number using a formal written method of long multiplication. 14. Divide numbers 3 digits by a one-digit numbers using the formal written method short division and interpret remainders appropriately for the context. 15. Divide numbers up to 4 digits by a one digit number using the formal written method of short division and interpret remainders appropriately for the context.	16. Identify multiples and factors (KPI) 17. Find all factor pairs of a number (KPI) 18. Find common factors of two numbers (KPI) 19. Know the vocabulary of prime numbers, prime factors and composite (non-prime) numbers using the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. 20. Establish whether a number up to 100 is a prime. 21. Recall prime numbers to 19. 22. Recognise square numbers. 23. Use square numbers and the notation for squared. 24. Recognise cube numbers. 25. Use cube numbers & the notation for cubed.	26. Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes (KPI) 27. Solve problems involving addition, subtraction, multiplication and division and combination of these, including understanding the meaning of the equals sign. 28. Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates (KPI)
Inverse operations, estimating & checking			
11. Estimate and use inverse operations to check answers to multiplication and division calculations with Y5 criteria.			

NUMBER: FRACTIONS			
Recognising Fractions	Equivalence	Addition and subtraction of decimals	Problem Solving
1. Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalence.	3. Identify, name and write equivalent fractions of a given fraction. 4. Read decimal numbers as fractions (KPI) 5. Write decimal numbers as fractions (KPI) 6. Recognise and use thousands and relate them to tenths, hundredths and decimal equivalents. 7. Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred'.	10. Add fractions with the same denominator and multiples of the same number. 11. Subtract fractions with the same denominator and multiples of the same number. 12. Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number.	14. Solve problems involving numbers up to three decimal places. 15. Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$, and those with denominator of a multiple of 10 or 25.
Comparing Fractions		Multiplication and division of fractions	
2. Compare and order fractions whose denominations are all multiples of the same number (KPI)	8. Write percentages as a fraction with denominator 100 as a decimal fraction. 9. Write percentages as a decimal fraction.	13. Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	

MEASUREMENT			
Comparing & Estimating	Measuring & Calculating	Telling the Time	Converting
<ol style="list-style-type: none"> 1. Compare the area of squares and rectangles. 2. Estimate the area of irregular shapes. 3. Estimate volume 4. Estimate capacity. 	<ol style="list-style-type: none"> 5. Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation. 6. Measure and calculate the perimeter of composite rectilinear shapes in cm and m. 7. Calculate the area of squares and rectangles including using standard units, square centimetres and square metres and estimate the area of irregular shapes. 		<ol style="list-style-type: none"> 8. Convert between different units of metric measure for length km and m; cm and m; cm and mm. 9. Convert between different units of metric measure for mass g and kg 10. Convert between different units of metric measure for capacity l and ml 11. Solve problems involving converting between units of time. 12. Understand and use equivalences between metric units and common imperial units; inches, pounds and pints.

GEOMETRY: PROPERTIES OF SHAPE	GEOMETRY: POSITION & DIRECTION	STATISTICS
<p>Identifying their shapes and properties.</p> <ol style="list-style-type: none"> 1. Identify 3D shapes. 	<ol style="list-style-type: none"> 1. Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. 	<p>Interpreting, constructing & representing data.</p> <ol style="list-style-type: none"> 1. Read and complete information in tables, including timetables. 2. Read and interpret information in tables, including timetables.
<p>Comparing and Classifying</p> <ol style="list-style-type: none"> 2. Use the properties of rectangles to deduce related facts and find missing lengths and angles. 3. Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. 		<p>Problem Solving</p> <ol style="list-style-type: none"> 3. Solve comparison, sum and difference problems using information presented in line graph.
<p>Drawing and constructing</p> <ol style="list-style-type: none"> 4. Draw given angles. 5. Measure angles in degrees. 		
<p>Angles</p> <ol style="list-style-type: none"> 6. Know angles are measured in degrees. 7. Estimate and compare acute, obtuse and reflex angles. 8. Identify: angles at a point and one whole turn (360); angles at a point on a straight line and $\frac{1}{2}$ turn (180); other multiples of 90 degrees. 		

trial and improvement		working systematically	pattern spotting	visualising	working backwards	conjecturing	generalising and proving	reasoning: step 1: describing, step 2: explaining, step 3: convincing, step 4: justifying step 5: proving
Stage	Year Group	Problem Solving			Communicating		Reasoning	
Stage 3	Y4 into Y5	<ul style="list-style-type: none"> • use classroom discussion as support to break into a problem and make connections to previous work <ul style="list-style-type: none"> - put the problem into their own words - use mathematical content from previous year groups and their own year group to solve problems and investigate • work systematically from the beginning • choose concrete and visual equipment appropriate to the task • pattern spot in results and use patterns to then find other possibilities 			<ul style="list-style-type: none"> • organise and represent work using pictorial and abstract representations <ul style="list-style-type: none"> - working systematically • independently check results <ul style="list-style-type: none"> - look for repeats, errors and ways to improve - make reference to recording system used • use and interpret diagrams (pictorial representations) and mathematical symbols (abstract) • discuss mathematical work and begin to explain thinking <i>(REASONING STEP 1 & STEP 2)</i> <ul style="list-style-type: none"> - use appropriate mathematical vocabulary - talk about their findings by referring to their work • reflect on others' explanations/methods/strategies and use this to improve their own 		<ul style="list-style-type: none"> • provide a convinced argument for methods/solutions <i>(REASONING STEP 3)</i> <ul style="list-style-type: none"> - confident that their chain of reasoning is right and may use words such as: 'I reckon' or 'without doubt' - the underlying mathematical argument may or may not be accurate - the argument is likely to have more coherence and completeness than the explaining stage • respond to 'What if?' questions • when they have solved a problem, pose a similar problem for a partner • with support understand a general statement by finding particular examples that match it <ul style="list-style-type: none"> - with assistance of probing questions and prompts 	