EYFS

EYFS Knowledge:

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. The aim of this document is to help subject leaders to understand how the skills taught across EYFS feed into national curriculum subjects.

This document
demonstrates which statements from the 2020 Development Matters are prerequisite skills for mathematics within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for mathematics.

The most relevant statements for mathematics are taken from the following areas of learning:

- Communication and Language
- Mathematics

Mathematical Vocabulary			
Three- and Four-Year Olds	Communication and Language		• Use a wider range of vocabulary. • Understand 'why' questions, like: "why do you think the caterpillar is so fat?"
Reception	Communication and Language		• Learn new vocabulary. • Use new vocabulary throughout the day.
ELG	Communication and Language	Speaking	• Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.

Number and Place Value Counting			
Three- and Four-Year Olds	Mathematics		• Recite numbers past 5. • Say one number name for each item in order: 1, 2, 3, 4, 5. • Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').
Reception	Mathematics		• Count objects, actions and sounds. • Count beyond ten.
ELG	Mathematics	Numerical Patterns	• Verbally count beyond 20, recognising the pattern of the counting system.

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Maths Content Subject Organiser and End Points:

Number and Place Value Identifying Number			
Three- and Four-Year Olds	Mathematics		• Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). • Show 'finger numbers' up to 5. • Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Experiment with their own symbols and marks as well as numerals.
Reception	Mathematics		• Subitise. • Link the number symbol (numeral) with its cardinal number value.
ELG	Mathematics	Number	• Subitise (recognising quantities without counting) up to 5.

Number and Place Value Reading and Writing Numbers		
Three and Four-Year-Olds	Mathematics	• Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Experiment with their own symbols and marks as well as numerals.
Reception	Mathematics	• Link the number symbol (numeral) with its cardinal number value.

Number and Place Value Compare and Order Numbers			
Three- and Four-Year Olds	Mathematics		• Compare quantities using language: 'more than', 'fewer than'.
Reception	Mathematics		• Compare numbers.
ELG	Mathematics	Numerical Patterns	• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

Number and Place Value Understanding Place Value			
Reception	Mathematics		• Understand the 'one more than/one less than' relationship between consecutive numbers. • Explore the composition of numbers to 10.
ELG	Mathematics	Number	• Have a deep understanding of numbers to 10, including the composition of each number.

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Maths Content Subject Organiser and End Points:

Number and Place Value Solve Problems			
Three and Four-Year-Olds	Mathematics		• Solve real world mathematical problems with numbers up to 5.

Addition and Subtraction Mental Calculations			
Reception	Mathematics		• Automatically recall number bonds for numbers 0-5 and some to 10.
ELG	Mathematics	Number	• Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Addition and Subtraction Solve problems			
ELG	Mathematics	Numerical Patterns	• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.

Measurement Describe, Measure, Compare and Solve (All Strands)		
Three and Four-Year-Olds	Mathematics	• Make comparisons between objects relating to size, length, weight and capacity.
Reception	Mathematics	• Compare length, weight and capacity.

Telling the Time		
Three and Four-Year-Olds	Mathematics	• Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then…'

Properties of Shape Recognise 2D and 3D shapes and their Properties.		
Three and Four-Year-Olds	Mathematics	• Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round'. • Select shapes appropriately: flat surfaces for a building, a triangular pattern for a roof, etc. • Combine shapes to make new ones – an arch, a bigger triangle, etc.
Reception	Mathematics	• Select, rotate and manipulate shapes in order to develop spatial reasoning skills.

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Maths Content Subject Organiser and End Points:

Compare and classify Shapes		
Reception	Mathematics	• Compose and decompose shapes so that children can recognise a shape can have other shapes within it, just as numbers can.

Position and Direction Position, Direction and Movement		
Three and Four-Year-Olds	Mathematics	• Understand position through words alone – for example, "The bag is under the table," – with no pointing. • Describe a familiar route. • Discuss routes and locations, using words like 'in front of' and 'behind'.
Reception	Understanding the World	• Draw information from a simple map.

Patterns		
Three and Four-Year-Olds	Mathematics	• Talk about and identify the patterns around them. For example, stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern.
Reception	Mathematics	• Continue, copy and create repeating patterns.

Statistics Record, Present and Interpret Data		
Three and Four-Year-Olds	Mathematics	• Experiment with their own symbols and marks, as well as numerals.

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Maths Content Subject Organiser and End Points:

KS1		Number and Place value	Number – Addition and subtraction	Number – multiplication and division	Number - Fractions	Measurement	Geometry – properties of shape	Geometry – position and direction	Statistics
Year 1 + 2	Year 1	To count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. To count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. When given a number, identify one more and one less. To identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. To read and write numbers from 1 to 20 in numerals and words.	To read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs. To represent and use number bonds and related subtraction facts within 20. To add and subtract one-digit and two-digit numbers to 20, including zero. To solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9.	To solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	To recognise, find and name a half as one of two equal parts of an object, shape or quantity. To recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	To compare, describe and solve practical problems for: ▪ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]. ▪ mass/weight [for example, heavy/light, heavier than, lighter than]. ▪ capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]. ▪ time [for example, quicker, slower, earlier, later]. To measure and begin to record the following: ▪ lengths and heights ▪ mass/weight ▪ capacity and volume ▪ time (hours, minutes, seconds) To recognise and know the value of different denominations of coins and notes. To sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]. To recognise and use language relating to dates, including days of the week, weeks, months and years. To tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	To recognise and name common 2-D and 3-D shapes, including: - 2-D shapes [for example, rectangles (including squares), circles and triangles] - - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	To describe position, direction and movement, including whole, half, quarter and three-quarter turns.	
	Year 2	To count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward To recognise the place value of each digit in a two-digit number (tens, ones). To identify, represent and estimate numbers using different representations, including the number line. To compare and order numbers from 0 up to 100; use and = signs To read and write numbers to at least 100 in numerals and in words. To use place value and number facts to solve problems.	To solve problems with addition and subtraction: To use concrete objects and pictorial representations, including those involving numbers, quantities and measures. To apply their increasing knowledge of mental and written methods. To recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. To add and subtract numbers using concrete objects, pictorial representations, and mentally, including: ▪ a two-digit number and ones ▪ a two-digit number and tens ▪ two two-digit numbers ▪ adding three one-digit numbers To show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	To recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. To calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. To show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. To solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	To recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity. To write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½.	To choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. To compare and order lengths, mass, volume/capacity and record the results using >, < and = . To recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. To find different combinations of coins that equal the same amounts of money. To solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. To compare and sequence intervals of time. To tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. To know the number of minutes in an hour and the number of hours in a day.	To identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. To identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. To identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]. To compare and sort common 2-D and 3-D shapes and everyday objects.	To order and arrange combinations of mathematical objects in patterns and sequences. To 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 anticlockwise).	To interpret and construct simple pictograms, tally charts, block diagrams and simple tables. To ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. To ask and answer questions about totalling and comparing categorical data.

St Patrick's Catholic Voluntary Academy
Maths Content Subject Organiser and End Points:

Lower KS2		Number and Place value	Number – Addition and subtraction	Number – multiplication and division	Number - Fractions	Measurement	Geometry – properties of shape	Geometry – position and direction	Statistics
Year 3 + 4	Year 3	To count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. To recognise the place value of each digit in a three-digit number (hundreds, tens, ones). To compare and order numbers up to 1000. To identify, represent and estimate numbers using different representations. To read and write numbers up to 1000 in numerals and in words. To solve number problems and practical problems involving these ideas.	To add and subtract numbers mentally, including: ▪ a three-digit number and ones ▪ a three-digit number and tens ▪ a three-digit number and hundreds To add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. To estimate the answer to a calculation and use inverse operations to check answers. To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. To 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. To 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.	To count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. To recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. To recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. To recognise and show, using diagrams, equivalent fractions with small denominators. To add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7]. To compare and order unit fractions, and fractions with the same denominators. To solve problems that involve all of the above.	To measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) To measure the perimeter of simple 2-D shapes. To add and subtract amounts of money to give change, using both £ and p in practical contexts. To tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. To estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. To know the number of seconds in a minute and the number of days in each month, year and leap year. To compare durations of events [for example to calculate the time taken by particular events or tasks].	To draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. To recognise angles as a property of shape or a description of a turn. To 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. To identify horizontal and vertical lines and pairs of perpendicular and parallel lines.		To interpret and present data using bar charts, pictograms and tables. To solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.
	Year 4	To count in multiples of 6, 7, 9, 25 and 1000. To find 1000 more or less than a given number. To count backwards through zero to include negative numbers. To recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). To order and compare numbers beyond 1000. To identify, represent and estimate numbers using different representations. To round any number to the nearest 10, 100 or 1000 To solve number and practical problems that involve all of the above and with increasingly large positive numbers. To read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	To add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. To estimate and use inverse operations to check answers to a calculation. To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	To recall multiplication and division facts for multiplication tables up to 12 × 12. To use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. To recognise and use factor pairs and commutativity in mental calculations. To multiply two-digit and three-digit numbers by a one-digit number using formal written layout. To solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	To recognise and show, using diagrams, families of common equivalent fractions. To count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. To solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. To add and subtract fractions with the same denominator. To recognise and write decimal equivalents of any number of tenths or hundredths. To recognise and write decimal equivalents to 1/4, 1/2, 3/4. To find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. To round decimals with one decimal place to the nearest whole number. To compare numbers with the same number of decimal places up to two decimal places. To solve simple measure and money problems involving fractions and decimals to two decimal places.	To convert between different units of measure [for example, kilometre to metre; hour to minute]. To measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. To find the area of rectilinear shapes by counting squares. To estimate, compare and calculate different measures, including money in pounds and pence. To read, write and convert time between analogue and digital 12- and 24-hour clocks. To solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	To compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. To identify acute and obtuse angles and compare and order angles up to two right angles by size. To identify lines of symmetry in 2-D shapes presented in different orientations. To complete a simple symmetric figure with respect to a specific line of symmetry.	To describe positions on a 2-D grid as coordinates in the first quadrant. To describe movements between positions as translations of a given unit to the left/right and up/down. To plot specified points and draw sides to complete a given polygon.	To interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

St Patrick's Catholic Voluntary Academy
Maths Content Subject Organiser and End Points:

Upper KS2		Number and Place value	Number – Addition and subtraction	Number – multiplication and division	Number – Fractions, Decimals and Percentages	Ratio and Proportion	Algebra	Measurement	Geometry – properties of shape	Geometry – position and direction	Statistics
Year 5 + 6	**Year 5**	To read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. To count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. To interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. To round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. To solve number problems and practical problems that involve all of the above. To read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	To add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). To add and subtract numbers mentally with increasingly large numbers. To use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	To identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. To know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers. To establish whether a number up to 100 is prime and recall prime numbers up to 19. To multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. To multiply and divide numbers mentally drawing upon known facts. To 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. To multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. To recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3). To solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. To solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. To solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	To compare and order fractions whose denominators are all multiples of the same number. To identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. To recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5]. To add and subtract fractions with the same denominator and denominators that are multiples of the same number. To multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. To read and write decimal numbers as fractions [for example, 0.71 = 71/100]. To recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. To round decimals with two decimal places to the nearest whole number and to one decimal place. To read, write, order and compare numbers with up to three decimal places. To solve problems involving number up to three decimal places. To recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal. To solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.			To convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). To understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. To measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. To calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. To estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]. To solve problems involving converting between units of time. To use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	To identify 3-D shapes, including cubes and other cuboids, from 2-D representations. To know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. To draw given angles, and measure them in degrees (°). To identify: ▪ angles at a point and one whole turn (total 360°) ▪ angles at a point on a straight line and ½ a turn (total 180°) ▪ other multiples of 90° To use the properties of rectangles to deduce related facts and find missing lengths and angles. To distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	To 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.	To solve comparison, sum and difference problems using information presented in a line graph. To complete, read and interpret information in tables, including timetables.

St Patrick's Catholic Voluntary Academy
Maths Content Subject Organiser and End Points:

		Number and Place value	Number – Addition and subtraction	Number – multiplication and division	Number – Fractions, Decimals and Percentages	Ratio and Proportion	Algebra	Measurement	Geometry – properties of shape	Geometry – position and direction	Statistics
	Year 6	To read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. To round any whole number to a required degree of accuracy. To use negative numbers in context, and calculate intervals across zero. To solve number and practical problems that involve all of the above.	To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. To divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. To divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. To perform mental calculations, including with mixed operations and large numbers. To identify common factors, common multiples and prime numbers. To use their knowledge of the order of operations to carry out calculations involving the four operations. To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. To solve problems involving addition, subtraction, multiplication and division. To use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.		To use common factors to simplify fractions; use common multiples to express fractions in the same denomination. To compare and order fractions, including fractions > 1. To add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. To multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8]. To divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6]. To associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8]. To identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. To multiply one-digit numbers with up to two decimal places by whole numbers. To use written division methods in cases where the answer has up to two decimal places. To solve problems which require answers to be rounded to specified degrees of accuracy. To recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	To solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. To solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. To solve problems involving similar shapes where the scale factor is known or can be found. To solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	To use simple formulae. To generate and describe linear number sequences. To express missing number problems algebraically. To find pairs of numbers that satisfy an equation with two unknowns. To enumerate possibilities of combinations of two variables.	To solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. To use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places To convert between miles and kilometres To recognise that shapes with the same areas can have different perimeters and vice versa. To recognise when it is possible to use formulae for area and volume of shapes. To calculate the area of parallelograms and triangles. To calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3].	To draw 2-D shapes using given dimensions and angles. To recognise, describe and build simple 3-D shapes, including making nets. To compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. To illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. To recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	To describe positions on the full coordinate grid (all four quadrants). To draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	To interpret and construct pie charts and line graphs and use these to solve problems. To calculate and interpret the mean as an average.

St Patrick's Catholic Voluntary Academy
Maths Content Subject Organiser and End Points:

Assessment framework – Maths

By the end of Y2, children can:	*Working at ARE*	*Working at Greater Depth (Above ARE)*
	Place Value (Y1) - count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. - count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. - When given a number, identify one more and one less. - identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. - read and write numbers from 1 to 20 in numerals and words.	- explain how the position a digit is placed in a number determines its value. - describe how the language used to name numbers does not always expose the place value, for example the word 'twelve' does not make it transparent that the value of this number is ten and two. - understand place value is based on unitising: treating a group of things as one 'unit'. In mathematics, units can be any size, for example units of 1, 2, 5 and 10 are used in money. In place value units of 1, 10 and 100 are used.
	Place Value (Y2) - count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. - recognise the place value of each digit in a two-digit number (tens, ones). - identify, represent and estimate numbers using different representations, including the number line. - compare and order numbers from 0 up to 100; use and = signs. - read and write numbers to at least 100 in numerals and in words. - use place value and number facts to solve problems.	- explain that the position (place) of a digit in a number determines its value. Hence the term place value and provide reasons / examples to outline this. - use knowledge of place value to reason and problem solve in real life contexts.
	Addition and Subtraction (Y1) - read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs. - represent and use number bonds and related subtraction facts within 20. - add and subtract one-digit and two-digit numbers to 20, including zero. - solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9.	- explain how previous knowledge like relating numbers to 5 and 10 can help develop knowledge of the number bonds within 20. - describe part whole relationships when thinking about addition and subtraction.
	Addition and Subtraction (Y2) - solve problems with addition and subtraction: - use concrete objects and pictorial representations, including those involving numbers, quantities and measures. - apply their increasing knowledge of mental and written methods. - recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. - add and subtract numbers using concrete objects, pictorial representations, and mentally, including: ▪ *a two-digit number and ones* ▪ *a two-digit number and tens* ▪ *two two-digit numbers* ▪ *adding three one-digit numbers* - show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. - recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	- understand that addition of two or more numbers can be done in any order. - explain why, when adding two numbers it can be more efficient to put the larger number first. - explain why, when adding three or more numbers it is helpful to look for pairs of numbers that are easy to add. - show understanding of the importance of the equals sign meaning 'equivalent to'. - solve empty box problems using reasoning and problem-solving skills. - correct use of the equals sign at all times and solve problems where the position of the equals sign is changed.
	Multiplication and Division (Y1) - solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	- explain the commutative properties of multiplication
	Multiplication and Division (Y2) - recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. - calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. - show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. - solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	- demonstrate they have committed multiplication facts to memory and also developed an understanding of conceptual relationships. - explain how to use known facts to work out unknown facts in solving problems. - understand how to look for and recognise patterns within tables and connections between them (e.g. 5× is half of 10×). - recognise multiplication and division as inverse operations and use this knowledge to solve problems. - recognise division as both grouping and sharing.
	Fractions (Y1) - recognise, find and name a half as one of two equal parts of an object, shape or quantity. - recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	- describe how fractions express a relationship between a whole and equal parts of the whole. - describe how halving involves partitioning an object, shape or quantity into two equal parts and the two parts need to be equivalent in, for example, area, mass or quantity.
	Fractions (Y2) - recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity - write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½.	- explain that fractions involve a relationship between a whole and parts of a whole. - express this relationship when talking about fractions. For example, 'If the bag of 12 sweets is the whole, then 4 sweets are one third of the whole.'

St Patrick's Catholic Voluntary Academy
Maths Content Subject Organiser and End Points:

	Measures (Y1) - compare, describe and solve practical problems for: ▪ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] ▪ mass/weight [for example, heavy/light, heavier than, lighter than] ▪ capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] ▪ time [for example, quicker, slower, earlier, later] - measure and begin to record the following: ▪ lengths and heights ▪ mass/weight ▪ capacity and volume ▪ time (hours, minutes, seconds) - recognise and know the value of different denominations of coins and notes. - sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]. - recognise and use language relating to dates, including days of the week, weeks, months and years. - tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	- understand measurement is about comparison, for example measuring to find out which rope is the longest. - explain how measurement is about equivalence, for example how many cubes are equivalent to the length of the table or the mass of the teddy?
	Measures (Y2) - choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. - compare and order lengths, mass, volume/capacity and record the results using >, < and = - recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value - find different combinations of coins that equal the same amounts of money - solve simple problems in. a practical context involving addition and subtraction of money of the same unit, including giving change - compare and sequence intervals of time - tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times - know the number of minutes in an hour and the number of hours in a day.	- explain why standard units of measure are necessary. - use reasoning skills to apply their knowledge to solve problems.
	Properties of Shape (Y1) - recognise and name common 2-D and 3-D shapes, including: - 2-D shapes [for example, rectangles (including squares), circles and triangles] - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	- identify a range of shapes in varying orientations using mathematical descriptions and justifications. - use mathematical language in context when describing the properties of shape.
	Properties of shape (Y2) - identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line - identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces - identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] - compare and sort common 2-D and 3-D shapes and everyday objects.	- articulate the properties that make up certain polygons. - describe differences between polygons and non-polygons using mathematical language. - use the properties of shapes to identify them in varying orientations.
	Position and direction (Y1) - describe position, direction and movement, including whole, half, quarter and three-quarter turns.	- use specific mathematical language in context when describing position and movement.
	Position and direction (Y2) - order and arrange combinations of mathematical objects in patterns and sequences. - 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 anticlockwise).	- use reasoning and problem solving to demonstrate knowledge of position and direction.
	Statistics (Y2) - interpret and construct simple pictograms, tally charts, block diagrams and simple tables. - ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. - ask and answer questions about totalling and comparing categorical data.	- explain that data needs to be collected with a question or purpose in mind. - discuss how tally charts are used to collect data over time (cars passing the school, birds on the bird table).

St Patrick's Catholic Voluntary Academy
Maths Content Subject Organiser and End Points:

By the end of Y4, children can:	Working at ARE	Working at Greater Depth (Above ARE)
	Place Value (Y3) - count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. - recognise the place value of each digit in a three-digit number (hundreds, tens, ones). - compare and order numbers up to 1000. - identify, represent and estimate numbers using different representations. - read and write numbers up to 1000 in numerals and in words. - solve number problems and practical problems involving these ideas.	- explain that the value of a digit is determined by its position in a number. - describe how place value is based on unitising, treating a group of things as one 'unit'. This generalises to 3 units + 2 units = 5 units (where the units are the same size). - describe reasons for selections when comparing and ordering numbers.
	Place Value (Y4) - count in multiples of 6, 7, 9, 25 and 1000. - find 1000 more or less than a given number. - count backwards through zero to include negative numbers. - recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). - order and compare numbers beyond 1000. - identify, represent and estimate numbers using different representations. - round any number to the nearest 10, 100 or 1000 To solve number and practical problems that involve all of the above and with increasingly large positive numbers. - read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	- explain that the value of a digit is determined by its position within a number. - use reasoning and problem-solving skills with place value knowledge to solve multi step problems. - describe reasoning when comparing and ordering numbers.
	Addition and Subtraction (Y3) - add and subtract numbers mentally, including: ▪ a three-digit number and ones ▪ a three-digit number and tens ▪ a three-digit number and hundreds - add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. - estimate the answer to a calculation and use inverse operations to check answers. - solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	- estimate calculations to assess a reasonable answer. - explain how addition can be completed in any order. - explain why it could be useful to place the largest number first in an addition. - use reasoning and problem solving to solved multi step and missing number equations. - suggest and give reasons for multiple answers to a question.
	Addition and Subtraction (Y4) - add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. - estimate and use inverse operations to check answers to a calculation. - solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	- suggest and explain why options for solutions could be wrong. - use estimation to assess a reasonable answer. - solve missing number and multi-step problems using reasoning skills.
	Multiplication and Division (Y3) - recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. - 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. - 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.	- understand and explain commutative relationships within times tables. - use known facts to work out unknown facts. - make conscious decisions of when to use mental calculations or written methods.
	Multiplication and Division (Y4) - recall multiplication and division facts for multiplication tables up to 12 × 12. - use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. - recognise and use factor pairs and commutativity in mental calculations. - multiply two-digit and three-digit numbers by a one-digit number using formal written layout. - solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	- understand and explain commutative relationships within times tables. - use known facts to work out unknown facts. - make conscious decisions of when to use mental calculations or written methods. - use reasoning skills to solve and explain problems in context.
	Fractions (Y3) - count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. - recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. - recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. - recognise and show, using diagrams, equivalent fractions with small denominators. - add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7]. - compare and order unit fractions, and fractions with the same denominators. - solve problems that involve all of the above.	- recognise and explain fractions are part of a whole. - describe how two seemingly different shaped 'pieces' can be the same fraction based on area of the segments. - explain why fractions must be of equal size.

St Patrick's Catholic Voluntary Academy
Maths Content Subject Organiser and End Points:

	Fractions and Decimals (Y4) - recognise and show, using diagrams, families of common equivalent fractions. - count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. - solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. - add and subtract fractions with the same denominator. - recognise and write decimal equivalents of any number of tenths or hundredths. - recognise and write decimal equivalents to 1/4, 1/2, 3/4. - find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. - round decimals with one decimal place to the nearest whole number. - compare numbers with the same number of decimal places up to two decimal places. - solve simple measure and money problems involving fractions and decimals to two decimal places.	- recognise and explain fractions are part of a whole. - describe how two seemingly different shaped 'pieces' can be the same fraction based on area of the segments. - explain why fractions must be of equal size. - recognise, explain and convert between decimal and fraction equivalences.
	Measurement (Y3) - measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). - measure the perimeter of simple 2-D shapes. - add and subtract amounts of money to give change, using both £ and p in practical contexts. - 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 and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. - know the number of seconds in a minute and the number of days in each month, year and leap year. - compare durations of events [for example to calculate the time taken by particular events or tasks].	- measure accurately – not necessarily from the zero mark. - use known facts to solve more complex problems. - reason within measures.
	Measurement (Y4) - convert between different units of measure [for example, kilometre to metre; hour to minute]. - measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. - find the area of rectilinear shapes by counting squares. - estimate, compare and calculate different measures, including money in pounds and pence. - read, write and convert time between analogue and digital 12- and 24-hour clocks. - solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	- understand and explain there is an inverse relationship between size of unit and measure. - use information given to solve reasoning problems using measures.
	Properties of Shape (Y3) - draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them - recognise angles as a property of shape or a description of a turn. - 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. - identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	- recognise and explain how angles are measures of turn. - use properties of shape to draw accurately.
	Properties of Shape (Y4) - compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. - identify acute and obtuse angles and compare and order angles up to two right angles by size. - identify lines of symmetry in 2-D shapes presented in different orientations. - complete a simple symmetric figure with respect to a specific line of symmetry.	- explain differences between regular and irregular shapes. - Solve reasoning problems using knowledge of properties of shapes.
	Position and Direction (Y4) - describe positions on a 2-D grid as coordinates in the first quadrant. - describe movements between positions as translations of a given unit to the left/right and up/down. - plot specified points and draw sides to complete a given polygon.	- translate shapes over one quadrant when given a 'formula'. - reason using prior knowledge to answer 'what if…' questions.
	Statistics (Y3) - interpret and present data using bar charts, pictograms and tables. - solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	- collect and present data in tables and charts. - create pictograms and charts from a given data set.
	Statistics (Y4) - interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. - solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	- Use and explain discrete data and continuous data. - Hypothesise beyond the data provided to answer 'what if….' questions.

St Patrick's Catholic Voluntary Academy
Maths Content Subject Organiser and End Points:

By the end of Y6, children can:	Working at ARE	Working at Greater Depth (Above ARE)
	Place Value (Y5) - read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. - count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. - interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. - round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. - solve number problems and practical problems that involve all of the above. - read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	- explain large numbers of six digits are named in a pattern of three: hundreds of thousands, tens of thousands, ones of thousands, mirroring hundreds, tens and ones. - relate large numbers to real-world contexts, for example the number of people that a local sports arena can hold. - reason using place value when comparing or ordering numbers.
	Place Value (Y6) - read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. - round any whole number to a required degree of accuracy. - use negative numbers in context, and calculate intervals across zero. - solve number and practical problems that involve all of the above.	- describe and explain how whole number place value differs from decimal place value – more digits in a whole number = larger number but this is not necessarily true for decimals. - use place value reasoning when ordering, creating or comparing numbers.
	Addition and Subtraction (Y5) - add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). - add and subtract numbers mentally with increasingly large numbers. - use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	- use structure and relationships between numbers to reason true or false statements. - make conscious selection between mental or written calculations and explain their reasons.
	Addition, Subtraction, Multiplication and Division (Y6) - multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. - divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. - divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. - perform mental calculations, including with mixed operations and large numbers. - identify common factors, common multiples and prime numbers. - use their knowledge of the order of operations to carry out calculations involving the four operations. - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. - solve problems involving addition, subtraction, multiplication and division. - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	- deciding which calculation method to use is supported by being able to take apart and combine numbers in many ways. For example, calculating 8·78 + 5·26 might involve calculating 8·75 + 5·25 and then adjusting the answer. - the associative rule helps when adding three or more numbers: 367 + 275 + 525 is probably best thought of as 367 + (275 + 525) rather than (367 + 275) + 525. - describe how standard written multiplication method involves a number of partial products. For example, 36 × 24 is made up of four partial products 30 × 20, 30 × 4, 6 × 20, 6 × 4. - explain there are connections between factors, multiples and prime numbers and between fractions, division and ratios.
	Multiplication and Division (Y5) - identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. - know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers. - establish whether a number up to 100 is prime and recall prime numbers up to 19. - multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. - multiply and divide numbers mentally drawing upon known facts. - 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. - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. - recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3). - solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. - solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. - solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	- use and explain a range of methods for both multiplication and division and explain their selections in calculations. - describe cumulative relationships in multiplication. - derive unknown facts from known facts and use these within reasoning activities.
	Fractions, Decimals and Percentages (Y5) - compare and order fractions whose denominators are all multiples of the same number. - identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. - recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5]. - add and subtract fractions with the same denominator and denominators that are multiples of the same number. - multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. - read and write decimal numbers as fractions [for example, 0.71 = 71/100]. - recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. - round decimals with two decimal places to the nearest whole number and to one decimal place.	- explain how representations that may appear different sometimes have similar underlying ideas. For example: 1/4, 0·25 and 25% are used in different contexts but are all connected to the same idea. - reason using equivalence between fractions, decimals and percentages. - explain the relationship between and find equivalence between fractions decimals and percentages to solve more complex problems.

St Patrick's Catholic Voluntary Academy
Maths Content Subject Organiser and End Points:

	- read, write, order and compare numbers with up to three decimal places. - solve problems involving number up to three decimal places. - recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal. - solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	
	Fractions, Decimals and Percentages (Y6) - use common factors to simplify fractions; use common multiples to express fractions in the same denomination. - compare and order fractions, including fractions > 1. - add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. - multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8]. - divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6]. - associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction. [for example, 3/8]. - identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. - multiply one-digit numbers with up to two decimal places by whole numbers. - use written division methods in cases where the answer has up to two decimal places. - solve problems which require answers to be rounded to specified degrees of accuracy. - recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	- describe how fractions express a relationship between a whole and equal parts of a whole. Pupils should recognise this and speak in full sentences when answering a question involving fractions. For example, in response to the question 'What fraction of the journey has Tom travelled?' the pupil might respond, 'Tom has travelled two thirds of the whole journey.' - equivalent fractions are connected to the idea of ratio: keeping the numerator and denominator of a fraction in the same proportion creates an equivalent fraction. - putting fractions in place on the number lines helps understand fractions as numbers in their own right. - use knowledge of fractions, percentages and decimals and their equivalences to solve more complex problems.
	Ratio and Proportion (Y6) - solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. - solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. - solve problems involving similar shapes where the scale factor is known or can be found. - solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	- explain why it is important to distinguish between situations with an additive change or a multiplicative change (which involves ratio). For example, if four children have six sandwiches to share and two more children join them, although two more children have been added, the number of sandwiches then needed for everyone to still get the same amount is calculated multiplicatively.
	Algebra (Y6) - use simple formulae - generate and describe linear number sequences. - express missing number problems algebraically. - find pairs of numbers that satisfy an equation with two unknowns. - enumerate possibilities of combinations of two variables.	- describe the differences between algebra and standard calculation. - use information provided to reason and solve problems to find unknown integers.
	Measures (Y5) - convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). - understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. - measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. - calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. - estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]. - solve problems involving converting between units of time. - use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	- reason with measurements to solve more complex problems.
	Measures (Y6) - solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. - use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places. - convert between miles and kilometres. - recognise that shapes with the same areas can have different perimeters and vice versa. - recognise when it is possible to use formulae for area and volume of shapes. - calculate the area of parallelograms and triangles. - calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3].	- select the most appropriate unit. - relate measure to scale and convert between units. - use both standard and none standard units of measure to solve problems. - use reasoning skills to solve more complex measurement problems.

St Patrick's Catholic Voluntary Academy
Maths Content Subject Organiser and End Points:

	Properties of Shape (Y5) - identify 3-D shapes, including cubes and other cuboids, from 2-D representations. - know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. - draw given angles, and measure them in degrees (°). - identify: - angles at a point and one whole turn (total 360°). - angles at a point on a straight line and ½ a turn (total 180°). - other multiples of 90°. - use the properties of rectangles to deduce related facts and find missing lengths and angles. - distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	- use knowledge of shape and angles to answer more complex reasoning problems.
	Properties of Shape (Y6) - draw 2-D shapes using given dimensions and angles. - recognise, describe and build simple 3-D shapes, including making nets. - compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. - illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. - recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	- be accurate in their drawings of 2d shapes. - use information and prior knowledge to find missing angles or solve problems relating to shape. - use reasoning skills to solve more complex shape problems.
	Position and Direction (Y5) - 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.	- translate accurately when given a 'formula'. - create 'formulas' for translations. - solve more complex problems using reasoning skills.
	Position and Direction (Y6) - describe positions on the full coordinate grid (all four quadrants). - draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	- translate accurately when given a 'formula'. - create 'formulas' for translations. - solve more complex problems using reasoning skills.
	Statistics (Y5) - solve comparison, sum and difference problems using information presented in a line graph. - complete, read and interpret information in tables, including timetables.	- interpret, create and collect data and tables / charts to answer 'what if…' questions. - reason using data to solve more complex problems.
	Statistics (Y6) - interpret and construct pie charts and line graphs and use these to solve problems. - calculate and interpret the mean as an average.	- interpret, create and collect data and tables / charts to answer 'what if…' questions. - reason using data to solve more complex problems.