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**Year 5 – Discrete Mathematical Knowledge**

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| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| Know Roman Numerals to 1000 Read, write and represent whole numbers to one million Recognise greater than / less than inequality symbols / order numbers in ascending and descending order Count forwards and backwards in 10’s from any number up to a millionKnow the part, part, whole relationship and use this to write number sentences Count forward and backwards including negative numbersRecap number bonds within 10 and 20What is the inverse of addition / subtraction? | Know what is the vertical and horizontal axis Recognise and name x and y axisKnow how to read a variety of timetables – present daily timetable.Know what multiples, factors, square numbers, cubed numbers, common multiples, common factors and factor pairs are.Recognise the notation used for squared and cubedUnderstanding prime numbers, prime factors and composite numbersUnderstand what perimeter and area areKnow how to find the area of rectangles and composite shapes | Understanding terminology : short and long multiplication, short division, remainderKnow which part of the calculation is the product.Why is the zero important in long multiplication? Understanding terminology : numerator, denominator, multiples, fractions, equivalent fractions, multiples, improper fractions, proper fractions, mixed numbers, Fractions to 1How manyquarters/halves/eighths/fifths are there in a whole? | Understanding terminology: decimals, fractions, scalingRecognising and working with up to 3 decimal placesKnow the relationships between tenths, hundredths and thousandths e.g. if 4 tenths = 0.4, 4 hundredths = 0.04, what is 4 thousandths equal to?How many tenths are in a whole? How many hundredths are there in 1 tenth? How many thousandths in 1 hundredth?Be able to write fractions as decimalsRecognising percentage symbol and what it meansLinks between fractions, decimals and percentages | Recap numberbonds to 10, 100 and 1000Find complements to 1, up to three decimal places.What is a whole number/integer?Recap acute and obtuse angles. Introduce reflex angles.Know a full turn as 360 degrees, a half turn as 180 degrees and a quarter turn (or right angle) as 90 degrees. What is an angle? Children define angles in terms of degrees and asfractions of a full turn.Understanding angles in a right angle, straight line, at a point (angles on intersecting lines)What is a parallel and perpendicular line?What is a polygon? What is a regular polygon? What is an irregular polygon?Have a secure understandingof language associated with the properties of 3 D shapes, for example, faces, curved surfaces, vertices, edges etc.Names and properties of 2D and 3D shape  | Know what the origin is.What is reflection? What is translation?Know that a ‘kilo’ means a thousand.Know how many grams in a kilogram.Know what the prefix milli ’ means when used at the start of a word?Know how many mm in a m, how many ml in a l What does centi ’ mean when used at the start of a word?Know how many cm in a mKnowing the equivalences between metric and imperial measuresChildren convert between different units of time includingyears, months, weeks, days, hours, minutes and seconds. What is volume? What is capacity?Understand and recognise symbols for measurement: length, mass, volume, money, decimals notation |