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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 million  Know the part, part, whole relationship and use this to write number sentences  Count forward and backwards including negative numbers  Recap number bonds within 10 and 20  What is the inverse of addition / subtraction? | Know what is the vertical and horizontal axis  Recognise and name x and y axis  Know 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 cubed  Understanding prime numbers, prime factors and composite numbers  Understand what perimeter and area are  Know how to find the area of rectangles and composite shapes | Understanding terminology : short and long multiplication, short division, remainder  Know 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 1  How many  quarters/halves/eighths/fifths are there in a whole? | Understanding terminology: decimals, fractions, scaling  Recognising and working with up to 3 decimal places  Know 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 decimals  Recognising percentage symbol and what it means  Links between fractions, decimals and percentages | Recap number  bonds to 10, 100 and 1000  Find 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 as  fractions 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 understanding  of 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 m  Knowing the equivalences between metric and imperial measures  Children convert between different units of time including  years, 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 |