Jesmond Gardens Primary School
Maths

Year 6

Number and Place Value	Addition and Subtraction
*To read and write numbers up to 10,000,000 and know the value of an underlined digit *To order and compare (<>) numbers up to 10,000,000 and know the value of an underlined digit *To round any whole number to 10,100,1000,10,000 and 100,000 *To find the difference between whole and negative numbers and calculate through zero, using number line if needed *To solve problems using knowledge and understanding of number and place value *To identify factors, common factors, multiples and common multiples of numbers *To know and use the order of operations (BIDMAS) and use brackets correctly *To estimate to check my answer to a calculation and determine an appropriate degree of accuracy *To know and use all mathematical symbols (including < > ≤ ≥ ^{2} ^{3} √ √ ^{3} %) *To know square numbers to 121, primes to 20 and to know that prime numbers only have 2 factors *To know the first 6 cube numbers and what cubed means	*To perform mental calculations involving addition and subtraction of larger numbers *To solve multi-step problems involving all 4 operations *To use column addition to add numbers, including large numbers and decimals *To use column subtraction to subtract numbers, including large numbers and decimals *To know that addition is commutative, subtraction is not and they are inversely related *To add and subtract positive and negative numbers

Emerging = 1-50% of number and 1-50% of everything else **Developing**= 51-99 % of number and around 51-99 % of everything else
Secure = 100% of number and around 100% of other objectives (best fit)

*To read roman numerals to 1000 (M) and recognise years written in roman numerals *To solve problems using inverse operations	
Multiplication and Division	**Fractions, Decimals and Percentages and Ratio and Proportion**
*To multiply and divide whole numbers and decimals by 10,100 and 1000 *To multiply multi-digit numbers (up to 4 digits) by 1 and 2 digit numbers, using short and long multiplication To divide multi-digit numbers (up to 4 digits) by 1 and 2 digit numbers, using 'bus stop' method and 'chunking' method for longer division To use a written method of division and give answer with decimal remainder (initially in the context of money and measures) To divide numbers and give remainders as whole numbers and fractions *To perform mental calculations involving multiplication and division of larger numbers To solve multi-step problems involving all 4 operations *To know all multiplication tables and related division facts *To count in multiples of any number	To use common factors to simplify (cancel) fractions To use common multiples to change fractions so they have the same denominator (for ordering and operations) To compare (< >) and order fractions, including fractions smaller than 1 To add and subtract fractions with different denominators, by converting them so they have the same denominator To add and subtract mixed numbers, converting when necessary to give the same denominator or into improper fractions To multiply pairs of proper fractions, writing answer in simplest form To convert improper fractions into mixed numbers and vice versa To divide proper fractions by whole numbers (e.g. 1/3 ÷2 = 1/6) To associate a fraction with division to calculate decimal fraction equivalents (e.g. 3/8=0.375) To identify equivalent fractions, % and decimals

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To work out a whole amount when given a fraction of an amount *To know that multiplication is commutative, division is not and they are inversely related	To find and create equivalent fractions *To know the value of digits in decimal numbers with up to 3dp *To multiply and divide decimal numbers by 10,100 and 1000, giving answers in up to 3dp *To multiply numbers with 2dp by 1 and 2 digit whole numbers *To round decimals to nearest whole, 1, 2 or 3dp To solve ratio problems by using a 2 or 3 columnar table and multiplying or dividing to find missing values To find 1% and 10% of any number and use these facts to find any percentage of any given number To use ratio and proportion to solve problems involving unequal sharing and grouping To adjust and amend recipes and other quantities in the same ratio (for every…) To solve problems with fractions and decimals
Measure	**Geometry**
To be able to convert units of measure up to 3dp (mm-cm, cm-m, m-km, g-kg, ml-l mins-hrs, miles-km and vice-versa) To solve problems involving the conversion of measures	To solve problems involving similar shapes where the scale factor is known or can be found To estimate the area of irregular shapes To use formulae to calculate the area of parallelograms, rectangles and triangles

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To use miles per hour and the formula of speed=distance÷time to calculate the speed of a movement To compare, describe and order measures *To estimate, measure and read scales *To solve problems involving money To tell the time in 12h, 24h, analogue and digital and solve problems involving time (using timeline) To complete, read and interpret information presented in tables and timetables To convert some metric and imperial measures (inches-cm, pints-litres, pounds-kg, miles-km, feet-metres) *To know the number of days in each month, in a week and a year	To recognise when it is possible to use the formulae for the volume of shapes To calculate the volume of cubes and cuboids by using length x width x height in mm^3, cm^3, m^3, km^3 To find the area and perimeter of shapes including compound shapes To recognise that shapes with the same areas can have different perimeters and vice versa To draw 2d shapes using given dimensions and angles To name and describe 3d shapes and their properties To build 3d shapes using cubes and nets To identify 2d shapes and their properties and to know the difference between irregular and irregular shapes To find missing angles in triangles, quadrilaterals and regular polygons To use algebraic representations to find unknown angles and lengths To know the parts of a circle (radius, diameter, circumference, (diameter=half the radius, d=2xr))

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	To calculate missing angles on lines, around a point and opposites (same) To describe positions on a 4-quadrant co-ordinate grid To work out missing co-ordinates of shapes on a co-ordinate grid, using given facts and shape properties To draw and label a 4-quadrant co-ordinate grid with equal scaling To translate shapes on a co-ordinate grid (reflection in the axes, rotation, translation RLUD) To recognise and draw lines of symmetry and complete symmetrical shapes To identify acute, right, obtuse and reflex angles and know properties To measure and draw acute, obtuse, right and reflex angles To describe position, direction and movement (NSEW, right, left, full, half and quarter turns) To identify horizontal, vertical, parallel and perpendicular lines
Algebra	**Statistics**
To know that symbols and letters can be used to represent variables and unknowns To use simple formulae (area of 2d shapes, speed=distance÷time) expressed in words *To create, find the rule for, extend and complete linear number sequences To express missing number problems algebraically (20-y=16 so y=4)	To use their understanding of 360 degrees to calculate angles in a pie chart To show the conversion of km into miles in a line graph To draw pie charts, using their knowledge of angles, fractions and percentages To draw line graphs relating to 2 variables (link to PE/Science – heart rate and time graph)

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To find pairs of numbers that satisfy an equation with 2 unknowns (Ben thinks of 2 numbers, they total 10 and when multiplied make 24. What are his numbers?) (x+y=20, what could x and y be?) To find all possibilities of combinations of 2 variables (as above)	To understand tally charts, pictograms and bar graphs in different orientations To calculate the mean of a set of data

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