Lode Heath School

Mathematics Department

**Year 9 Foundation
Summer Term**

Assignment Title	Unit 5: Equations, inequalities and sequences	Date set	Summer 1
Summary of Unit 6		**Key Words**	
Understand and use expressions, equations, formulae and inequalities. Manipulate formulae and solve linear equations. Create algebraic expressions or formulae. Solve linear inequalities and represent them on number lines. Generate and use rules for sequences.		Algebra, algebraic, algebraically, symbol, expression, variable, substitute, equation, unknown, enumerate.	
Prior Knowledge:			

1) Write > or < between each pair of numbers: a) 3.....5   b) 7.......6 c) 9.....-7 d) -6.....2

2) Write the next 2 terms and the term-to-term rule for each sequence.

    a) 2, 6, 10, 14, 18, ..., ...

    b) 32, 28, 24, 20, 16, ..., ... ,

    c) 5, 7, 9, 11, 13, ..., ...

LEARNING JOURNEY

Level	Task Description
1-4	**6.1 Solving equations 1** Understand and use inverse equations. Rearrange simple linear equations. Solve simple linear equations.
2	**6.2 Solving equations 2** Solve two-step equations.
2-3	**6.3 Solving equations with brackets** Solve linear equations with brackets. Solve equations with unknowns on both sides.
3-4	**6.4 Introducing inequalities** *(GCSE Statistics)* Use correct notation to show inclusive and exclusive inequalities. Solve simple linear inequalities. Write down whole numbers which satisfy an inequality. Represent inequalities on a number line.
3-4	**6.5 More inequalities** Solve two-sided inequalities.
3-5	**6.6 More formulae** *(GCSE Statistics)* Substitute values into formulae and solve equations. Change the subject of a formula. Know the difference between an expression, an equation, a formula and an identity.
2-3	**6.7 Generating sequences** Recognise and extend sequences.
4-5	**6.8 Using the nth term of a sequence** Use the nth term to generate terms of a sequence. Find the nth term of an arithmetic sequence.

Assignment Title	Unit 6: Angles	Date set	Summer 2

Summary of Unit 5	Key Words
Understand the differences in angles in different polygons and shapes. Understand angle properties between parallel lines and other polygons and be able to express your understanding using the correct mathematical notation.	Quadrilateral, angle, polygon, interior, exterior, proof, tessellation, rotational symmetry, parallel, corresponding, alternate, co-interior, vertices, edge, face, sides, triangle, perpendicular, isosceles, scalene, clockwise, anticlockwise, hexagons, heptagons, octagons, decagons, obtuse, acute, reflex, quadrilateral, triangle, regular, irregular, two-dimensional, three-dimensional, measure, line, angle, order, intersecting.

Prior Knowledge:

1) What are the names of these types of angles?
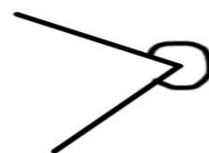
2) What are the names of these special triangles?
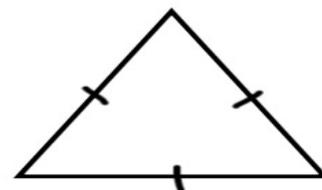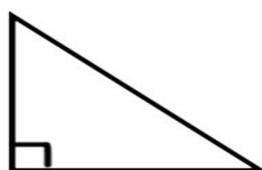
LEARNING JOURNEY

Level	Task Description
2-3	**5.1 Properties of shapes** Solve geometric problems using side and angle properties of quadrilaterals. Identify congruent shapes.
3-5	**5.2 Angles in parallel lines** Understand and use the angle properties of parallel lines. Find missing angles using corresponding and alternate angles.
2-4	**5.3 Angles in triangles** Solve angle problems in triangles. Understand angle proofs about triangles.
4-5	**5.4 Exterior and interior angles** Calculate the interior and exterior angles of regular polygons.
4-5	**5.5 More exterior and interior angles** Calculate the interior and exterior angles of polygons. Explain why some polygons fit together and some others do not
5	**5.6 Geometrical patterns** Solve angle problems using equations. Solve geometrical problems showing reasoning.

Assignment Title	Unit 7: Averages and range		Date Set	Summer 2

Summary of Unit 7	Key Words
Be able to work out the mean, median, mode and range from a variety of sources. Be able to draw and interpret a stem and leaf diagram. Understand why we take samples and how we can do it.	Mean, median, mode, range, average, discrete, continuous, qualitative, quantitative, data, sample, population, stem and leaf, frequency, table, sort, pie chart, estimate, primary, secondary, interval, midpoint, questionnaire, survey.

Prior Knowledge:

1) What is the midpoint of 7 and 11?

2) Use the following data to find: **2   7   4   6   9   2**

        a) Mode

        b) median

        c) mean

        d) range

LEARNING JOURNEY

Level	Task Description
3	**7.1 Mean and range** *(GCSE Statistics)* Calculate the mean from a list and from a frequency table. Compare sets of data using the mean and range.
3	**7.2 Mode, median and range** *(GCSE Statistics)* Find the mode, median and range from a stem and leaf diagram. Identify outliers. Estimate the range from a grouped frequency table.
2-3	**7.3 Types of average** *(GCSE Statistics)* Recognise the advantages and disadvantages of each type of average. Find the modal class. Find the median from a frequency table.
4-5	**7.4 Estimating the mean** *(GCSE Statistics)* Estimate the mean of grouped data.
3-4	**7.5 Sampling** *(GCSE Statistics)* Understand the need for sampling. Understand how to avoid bias.