Lode Heath School

Mathematics Department

Year 11 Foundation
Spring Term

Assignment Title	Unit 3: More algebra	Set	Spring

Summary of Unit 3	Key Words
Draw and interpret non-linear graphs. Solve simultaneous equations using a graph and algebraically. Rearrange formulae.	Reciprocal, linear, gradient, functions, direct, indirect, estimate, cubic, subject, rearrange, simultaneous, substitution, elimination, proof

Prior Knowledge:

1) Describe the shape of the following types of graphs:

a) linear graph

b) Quadratic graphs

2) What is the reciprocal of 5?

3) If a = 4 and b = -3, what is the value of a + 3b?

4) In y = mx + c, what does the m and the c tell you about the line?

LEARNING JOURNEY

Level	Task Description
5	**3.1 Graphs of cubic and reciprocal functions** Draw and interpret graphs of cubic functions. Draw and interpret graphs of y = 1/x.
4-5	**3.2 Non-linear graphs** Draw and interpret non-linear graphs to solve problems.
5	**3.3 Solving simultaneous equations graphically** Solve simultaneous equations by drawing a graph. Write and solve simultaneous equations.
5	**3.4 Solving simultaneous equations algebraically** Solve simultaneous equations algebraically.
4-5	**3.5 Rearranging formulae** Change the subject of a formula.
4-5	**3.6 Proof** Identify expressions, equations, formulae and identities. Prove results using algebra.

Assignment Title	Unit 4: Constructions, loci and bearings	Set	Spring

Summary of Unit 4	Key Words
Accurate construction of shapes and diagrams including their use to model and solve problems.	Plan, elevation, accuracy, scale, exact, construct, bisector, perpendicular, angle, compass, loci, region, equidistance, bearing, parallel, triangle, vertices, faces, protractor, measure, symmetry, plane

Check in: What do you know already?

1. What is the name of a shape with 6 sides?

2. Write down 2 properties of an isosceles triangle.

3. Complete the sentences using one of these phrases: ***are equal*** ***add up to 180°***

   a) Corresponding angles _____.

   b) Angles on a straight line _____.

   c) Alternate angles _____.

LEARNING JOURNEY

Level	Task Description
2	**4.1 3D solids** Recognise 3D shapes and their properties. Describe 3D shapes using the correct mathematical words. Understand the 2D shapes that make up 3D objects.
2-3	**4.2 Plans and elevations** Identify and sketch planes of symmetry of 3D shapes. Understand and draw plans and elevations of 3D shapes. Sketch 3D shapes based on their plans and elevations.
3	**4.3 Accurate drawings 1** Make accurate drawings of triangles using a ruler, protractor and compasses. Identify SSS, ASA, SAS and RHS triangles as unique from a given description. Identify congruent triangles
2-3	**4.4 Scale drawings and maps** Draw diagrams to scale. Correctly interpret scales in real-life contexts. Use scales on maps and diagrams to work out lengths and distances. Know when to use exact measurements and estimations on scale drawings and maps. Draw lengths and distances correctly on given scale drawings.
3	**4.5 Accurate drawings 2** Accurately draw angles and 2D shapes using a ruler, protractor and compasses. Construct a polygon inside a circle. Recognise nets and make accurate drawings of nets of common 3D objects.
4-5	**4.6 Constructions** Draw accurately using rulers and compasses. Bisect angles and lines using rulers and compasses.
4-5	**4.7 Loci and regions** Draw loci for the path of points that follow a given rule. Identify regions bounded by loci to solve practical problems.
3-4	**4.8 Bearings** Find and use three-figure bearings. Use angles at parallel lines to work out bearings. Solve problems involving bearings and scale diagrams.

Assignment Title	Unit 5: Fractions, indices and standard form	Set	Spring

Summary of Unit 5	Key Words
Multiply and divide mixed numbers and fractions. Use the laws of indices. Use and understand standard form.	Multiply, divide, indices, standard form, power, negative, convert, law, mixed number, fraction, ordinary number, integer, operations, positive.

Prior Knowledge:

1. Write $\frac{26}{8}$ as a mixed number.

2. Write 10,000 as a power of 10 (e.g. 100 would be 10^2)

3. Write down the value of 6^2

4. Write down the value of 2^4

LEARNING JOURNEY

Level	Task Description
3-4	**5.1 Multiplying and dividing fractions** Multiply and divide mixed numbers and fractions.
3-5	**5.2 The laws of indices** To know and use the laws of indices.
3-5	**5.3 Writing large numbers in standard form** Write large numbers in standard form. Convert large numbers from standard form into ordinary numbers.
3-5	**5.4 Writing small numbers in standard form** Write small numbers in standard form. Convert numbers from standard form with negative powers of ordinary numbers
3-5	**5.5 Calculating with standard form** To multiply and divide numbers in standard form. To add and subtract numbers in standard form.

Assignment Title	Unit 6: Congruence, similarity and	Set	Spring

	vectors		

Summary of Unit 6	Key Words
Understand and use similarity to find angles and find scale factors of enlargements. Understand and use congruence to identify congruent shapes, find angles and find side lengths. Work with vectors: add and subtract vectors, find the resultant and multiples of a vector.	Similarity, congruence, enlargement, unknown, scale factor, side length, angle, vector, resultant, multiple, shape, problem, perimeter, operation, add, subtract, polygon, regular polygon.

Prior Knowledge:

1. Calculate $\frac{2}{3}$ of 60.

2. Calculate: a) 4^3 b) 0.5^2 c) $-3-5$ d) $9--2$

3. Describe what applying scale factor 3 does to a shape:

LEARNING JOURNEY

Level	Task Description
4	**6.1 Similarity and enlargement** Understand similarity. Use similarity to solve angle problems.
4-5	**6.2 More similarity** Find the scale factor of an enlargement. Use similarity to solve problems.
4-5	**6.3 Using similarity** Understand the similarity of regular polygons. Calculate perimeters of similar shapes.
4-5	**6.4 Congruence 1** Recognise congruent shapes. Use congruence to work out unknown angles.
4-5	**6.5 Congruence 2** Use congruence to work out unknown sides.
5	**6.6 Vectors 1** Add and subtract vectors. Find the resultant of two vectors.
5	**6.7 Vectors 2** Subtract vectors. Find multiples of a vector.