Home-School Learning Collaboration – Mathematics

Topics in this cycle: **Number properties (Lower)** / **Lines and angles (Core)**/ **Constructions and Loci (Upper)**	**Taught:** Spring 2	**Year Group: Year 8**
Key knowledge/concepts to be learnt ('Tell me about….')		**Websites/blogs/YouTube links and further reading to deepen and consolidate learning**
• **Squares, Cubes and Roots** Calculate squares and square roots, mentally and using a calculator. Calculate cubes and cube roots, mentally and using a calculator. • **Calculating with Brackets and Indices** Do calculations involving brackets and square numbers. Use the brackets keys on a calculator. Use index notation. • **Lowest Common Multiple and Highest Common Factor** Find the factor pairs of any whole number. Use the lowest common multiple (LCM) and highest common factor (HCF) to solve problems. • **Prime Factor Decomposition** Find the factor pairs of any whole number. Use the lowest common multiple (LCM) and highest common factor (HCF) to solve problems. • **Quadrilaterals** Matching quadrilaterals to their descriptions. Using known facts about quadrilaterals to solve problems. • **Alternate Angles and Proof** Using alternate angles to find unknown angles. Using reasoning to complete mathematical proofs.		Squares, Cubes and Roots https://youtu.be/63qQOYbZS0g https://youtu.be/2Xn_mYEoct4 https://youtu.be/YgxUCo94-xk LCM/ HCF https://youtu.be/DW_yEg6VGac https://youtu.be/gASAc6_kBL4 Product of Primes https://youtu.be/velLCLvH198 Angles in Parallel Lines https://youtu.be/mM-PU6hmkrg

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• **Geometrical Problems** Solving geometrical problems using side and angle properties of triangles and quadrilaterals. Identifying corresponding angles. Solving problems using properties of angles in parallel and intersecting lines. • **Exterior and Interior angles** Calculating the sum of the interior and exterior angles of a polygon. Calculating the interior and exterior angles of a polygon. • **Solving geometric problems** Finding unknown angles by forming and solving equations. Solving geometrical problems showing reasoning. • **Accurate Drawings** Draw triangles accurately using a ruler and a protractor. Draw diagrams to scale. • **Constructing Shapes** Draw accurate nets of 3D solids. Construct triangles using a ruler and compass. Construct nets of 3D solids. • **Constructions** Bisect a line using a ruler and compass. Construct perpendicular lines using a ruler and a compass. Bisect angles using a ruler and compass. Draw accurate diagrams to solve problems. • **Loci** Draw a locus. Use loci to solve problems.	Exterior and Interior angles https://youtu.be/gVo8ZrtlSp0 Constructions (lines) https://youtu.be/1beKcgU9ogE https://youtu.be/XjluAXtpbPI https://youtu.be/EudHqBNyoWM Loci https://youtu.be/BWj041al8z8 https://youtu.be/0OnH72_OFaE https://youtu.be/34CV0SnRoGg

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Key Vocabulary and Definitions To Be Learnt	
Multiple	A number that can be divided by another without a remainder e.g: 10 is a multiple of 5
Factor	A number when multiplied with another number to produce a given number e.g: 5 is a factor of 10
Prime Number	A whole number greater than 1 that can only be divided by 1 and itself e.g: 13
BIDMAS	Refers to the order of priority of operations (Brackets, Indices, Division and Multiplication, Addition and Subtraction)
Polygon	A 2-D shape with at least 3 straight sides and angles e.g: a triangle, rectangle, etc
Quadrilateral	A four-sided polygon
Parallel	Two or more lines that have the same distance continuously between them (parallel lines never meet)
Perpendicular	Two lines that meet at a right angle (90°)
Transversal	A line that cuts through a system of lines
Scale drawing	An image where all the features are proportional to a given scale or ratio
Intersect	Where two or more lines cross each other or meet
Bisect	To divide (a line, angle, or shape) into two exactly equal parts
Equidistant	At equal distances
Locus	A point or line (including curved line) that represents the path of a point that maintains a specific distance from another point
Loci	Plural of locus

What Will The Assessment Look Like?

End of topic assessment including fluency/reasoning and problem-solving questions

Family Learning Opportunities

Create Art using a compass:

https://www.youtube.com/watch?v=ppdRr5XZ46I

https://www.youtube.com/watch?v=x4lxZA2JKHU

Prime Number Game:

https://www.youtube.com/watch?v=SP7N5lvgGBc