

## Year 8 Maths Oak Academy Work Half Term 2

Patterns and Sequences				
4 to 5	6 to 7	8 to 9		
X			Recognising and completing sequences from shape patterns.	<a href="https://classroom.thenational.academy/lessons/growing-pattern-sequences-70w32t">https://classroom.thenational.academy/lessons/growing-pattern-sequences-70w32t</a>
X	x		Recognising and following term-to-term rules to create a sequence of numbers.	<a href="https://classroom.thenational.academy/lessons/finding-the-term-to-term-rule-6mwkgd">https://classroom.thenational.academy/lessons/finding-the-term-to-term-rule-6mwkgd</a>
X	X	x	Recognise square numbers.	<a href="http://corbettmaths.com/2012/08/11/1336/">http://corbettmaths.com/2012/08/11/1336/</a>
X	X	x	Recognise cube numbers.	<a href="http://corbettmaths.com/2012/08/20/cube-numbers/">http://corbettmaths.com/2012/08/20/cube-numbers/</a>
X	X	x	Recognise triangle numbers.	<a href="http://corbettmaths.com/2013/03/31/triangular-numbers/">http://corbettmaths.com/2013/03/31/triangular-numbers/</a>
X	X	X	Recognise and create Fibonacci sequences.	<a href="https://classroom.thenational.academy/lessons/triangular-and-fibonacci-style-sequences-69gk8d">https://classroom.thenational.academy/lessons/triangular-and-fibonacci-style-sequences-69gk8d</a>
X	X	X	Recognise arithmetic and geometric sequences.	<a href="https://corbettmaths.com/2019/04/24/geometric-progressions/">https://corbettmaths.com/2019/04/24/geometric-progressions/</a>
X	X	X	Form a sequence using the Nth Term	<a href="https://classroom.thenational.academy/lessons/the-nth-term-rule-position-to-term-for-arithmetic-sequences-65h3gr">https://classroom.thenational.academy/lessons/the-nth-term-rule-position-to-term-for-arithmetic-sequences-65h3gr</a>
X	X	X	Find the Nth Term of a linear sequence.	<a href="https://classroom.thenational.academy/lessons/descending-arithmetic-sequences-6rtked">https://classroom.thenational.academy/lessons/descending-arithmetic-sequences-6rtked</a>
x	X	X	Find any term in a linear sequence using Nth Term.	See find the nth term from a linear sequence
		X	Use quadratic nth terms to form quadratic sequences	<a href="https://classroom.thenational.academy/lessons/simple-quadratic-and-cubic-sequences-c9j6ac">https://classroom.thenational.academy/lessons/simple-quadratic-and-cubic-sequences-c9j6ac</a>

Rearranging Formulae and Coordinates				
4 to 5	6 to 7	8 to 9		
x	x	x	Add and Subtract Negative Numbers	<a href="https://classroom.thenational.academy/lessons/further-addition-6rwk2t">https://classroom.thenational.academy/lessons/further-addition-6rwk2t</a> <a href="https://classroom.thenational.academy/lessons/subtracting-negative-numbers-75gk4e">https://classroom.thenational.academy/lessons/subtracting-negative-numbers-75gk4e</a>
x			Multiply and Divide Negative Numbers	<a href="https://classroom.thenational.academy/lessons/further-multiplication-ccukac">https://classroom.thenational.academy/lessons/further-multiplication-ccukac</a>
	x	x		<a href="https://classroom.thenational.academy/lessons/further-division-6mwk6c">https://classroom.thenational.academy/lessons/further-division-6mwk6c</a>

## Year 8 Maths Oak Academy Work Half Term 2

x	x	x	Substitute Negative Numbers into Expressions	<a href="https://classroom.thenational.academy/lessons/substitute-a-negative-term-into-a-formula-75j3cc">https://classroom.thenational.academy/lessons/substitute-a-negative-term-into-a-formula-75j3cc</a>
x	x	x	Plot Coordinates in the 1 <sup>st</sup> Quadrant	<a href="https://classroom.thenational.academy/lessons/to-describe-positions-on-a-2d-grid-as-coordinates-c4w66r">https://classroom.thenational.academy/lessons/to-describe-positions-on-a-2d-grid-as-coordinates-c4w66r</a>
x	x	x	Plot Coordinates in all Quadrants	<a href="https://classroom.thenational.academy/lessons/to-plot-specified-points-and-draw-sides-to-complete-a-given-triangle-cgkter">https://classroom.thenational.academy/lessons/to-plot-specified-points-and-draw-sides-to-complete-a-given-triangle-cgkter</a>
x	x	x	Find the midpoint of a line segment	<a href="https://classroom.thenational.academy/lessons/finding-midpoints-71k38d">https://classroom.thenational.academy/lessons/finding-midpoints-71k38d</a>
x	x	x	Find coordinates based on geometrical properties of shapes.	<a href="https://classroom.thenational.academy/lessons/to-investigate-a-problem-describing-position-on-a-2-d-grid-as-coordinates-6mv3cr">https://classroom.thenational.academy/lessons/to-investigate-a-problem-describing-position-on-a-2-d-grid-as-coordinates-6mv3cr</a>

Straight line graphs				
4 to 5	6 to 7	8 to 9		
X	x	x	Be able to plot the scales on an x and y axis accurately	<a href="https://classroom.thenational.academy/lessons/the-2-d-coordinate-axis-6hgp6d">https://classroom.thenational.academy/lessons/the-2-d-coordinate-axis-6hgp6d</a>
X	x	x	Drawing the graphs of named vertical and horizontal lines.	<a href="https://classroom.thenational.academy/lessons/equations-of-lines-64r64c">https://classroom.thenational.academy/lessons/equations-of-lines-64r64c</a>
				<a href="https://classroom.thenational.academy/lessons/exploring-horizontal-and-vertical-lines-70tpae">https://classroom.thenational.academy/lessons/exploring-horizontal-and-vertical-lines-70tpae</a>
X	X	x	Substitution with positive numbers.	<a href="https://classroom.thenational.academy/lessons/substitute-a-positive-term-into-a-formula-cdgkge">https://classroom.thenational.academy/lessons/substitute-a-positive-term-into-a-formula-cdgkge</a>
X	X	x	Substitution with negative numbers.	<a href="https://classroom.thenational.academy/lessons/substitute-a-negative-term-into-a-formula-75j3cc">https://classroom.thenational.academy/lessons/substitute-a-negative-term-into-a-formula-75j3cc</a>
X	X	x	Calculate gradients.	<a href="https://classroom.thenational.academy/lessons/gradient-1-60rp4r">https://classroom.thenational.academy/lessons/gradient-1-60rp4r</a>
				<a href="https://classroom.thenational.academy/lessons/gradient-part-2-cru62r">https://classroom.thenational.academy/lessons/gradient-part-2-cru62r</a>
X	X	X	Draw table of values and plot a straight line graph with and without a calculator.	<a href="https://classroom.thenational.academy/lessons/draw-graphs-of-the-form-ymxc-by-using-a-table-of-values-cnk68c">https://classroom.thenational.academy/lessons/draw-graphs-of-the-form-ymxc-by-using-a-table-of-values-cnk68c</a>
	X	X	Find the equation of a line using $y=mx+c$	<a href="https://classroom.thenational.academy/lessons/y-mx-c-61jk0r">https://classroom.thenational.academy/lessons/y-mx-c-61jk0r</a>
	X	X	Recognise equations of parallel lines	<a href="https://classroom.thenational.academy/lessons/write-the-equation-of-a-straight-line-if-parallel-to-a-line-and-passing-through-0n-6th62t">https://classroom.thenational.academy/lessons/write-the-equation-of-a-straight-line-if-parallel-to-a-line-and-passing-through-0n-6th62t</a>

## Year 8 Maths Oak Academy Work Half Term 2

		X	Find equations of lines that are parallel to one another going through a specific point	<a href="https://classroom.thenational.academy/lessons/write-the-equation-of-a-straight-line-if-parallel-to-a-line-and-passing-through-any-point-60t6ce">https://classroom.thenational.academy/lessons/write-the-equation-of-a-straight-line-if-parallel-to-a-line-and-passing-through-any-point-60t6ce</a>
		X	Solve simultaneous equations through plotting two straight line graphs.	<a href="https://classroom.thenational.academy/lessons/representing-simultaneous-equations-graphically-part-1-6gt36c">https://classroom.thenational.academy/lessons/representing-simultaneous-equations-graphically-part-1-6gt36c</a>
				<a href="https://classroom.thenational.academy/lessons/representing-simultaneous-equations-graphically-part-2-6dhp8e">https://classroom.thenational.academy/lessons/representing-simultaneous-equations-graphically-part-2-6dhp8e</a>

Quadratics and Real life graphs				
4 to 5	6 to 7	8 to 9		
x	x	x	Substitute positive and negative numbers into expressions involving indices.	<a href="https://classroom.thenational.academy/lessons/substitute-a-positive-term-into-a-formula-cdgkge">https://classroom.thenational.academy/lessons/substitute-a-positive-term-into-a-formula-cdgkge</a>
				<a href="https://classroom.thenational.academy/lessons/substitute-a-negative-term-into-a-formula-75j3cc">https://classroom.thenational.academy/lessons/substitute-a-negative-term-into-a-formula-75j3cc</a>
x	x	x	Use the table function on a calculator to create a table of values for an equation.	N/A
x	x	x	Create a table of values without a calculator for simple quadratic equations e.g. $y = x^2$ , $y = x^2 - 3$	<a href="https://classroom.thenational.academy/lessons/plot-simple-quadratic-equations-6gr32e">https://classroom.thenational.academy/lessons/plot-simple-quadratic-equations-6gr32e</a>
	x	x	Create a table of values without a calculator for more complex quadratic equations e.g. $y = x^2 + 3x - 2$	<a href="https://classroom.thenational.academy/lessons/plot-other-quadratic-equations-65h3ed">https://classroom.thenational.academy/lessons/plot-other-quadratic-equations-65h3ed</a>
		x	Solve a quadratic equation by factorising.	<a href="https://classroom.thenational.academy/lessons/factorise-a-quadratic-cgukjt">https://classroom.thenational.academy/lessons/factorise-a-quadratic-cgukjt</a>
				<a href="https://classroom.thenational.academy/lessons/solve-a-quadratic-equation-by-factorising-cnk36c">https://classroom.thenational.academy/lessons/solve-a-quadratic-equation-by-factorising-cnk36c</a>
		x	Find the y-intercept on a quadratic graph	<a href="https://classroom.thenational.academy/lessons/interpret-gradient-and-intercept-on-real-life-graphs-6xgkjd">https://classroom.thenational.academy/lessons/interpret-gradient-and-intercept-on-real-life-graphs-6xgkjd</a>
		x	Find the x-intercept on a quadratic graph	<a href="https://classroom.thenational.academy/lessons/interpret-gradient-and-intercept-on-real-life-graphs-6xgkjd">https://classroom.thenational.academy/lessons/interpret-gradient-and-intercept-on-real-life-graphs-6xgkjd</a>
x	x	x	Read values off a real-life graph such as distance-time.	<a href="https://classroom.thenational.academy/lessons/displacement-time-graphs-part-1-6gr68d">https://classroom.thenational.academy/lessons/displacement-time-graphs-part-1-6gr68d</a>

## Year 8 Maths Oak Academy Work Half Term 2

x	x	x	Be able to interpret and describe what is happening at different points of a graph based on its appearance.	<a href="https://classroom.thenational.academy/lessons/displacement-time-graphs-part-2-6rrkcc">https://classroom.thenational.academy/lessons/displacement-time-graphs-part-2-6rrkcc</a>
				<a href="https://classroom.thenational.academy/lessons/interpret-gradient-and-intercept-on-real-life-graphs-6xgkjd">https://classroom.thenational.academy/lessons/interpret-gradient-and-intercept-on-real-life-graphs-6xgkjd</a>
x	x	x	Be able to draw a real-life graph with units of time on the x-axis.	<a href="https://classroom.thenational.academy/lessons/displacement-time-graphs-part-2-6rrkcc">https://classroom.thenational.academy/lessons/displacement-time-graphs-part-2-6rrkcc</a>
x	x	x	Convert values from reading off a conversion graph. (Interpolation)	<a href="https://classroom.thenational.academy/lessons/exchange-rates-with-graphs-6cv36d">https://classroom.thenational.academy/lessons/exchange-rates-with-graphs-6cv36d</a>
		x	Recognise the relationship between gradient and speed of a distance time graph.	<a href="https://classroom.thenational.academy/lessons/speed-as-rate-distance-time-graphs-6nhk2r">https://classroom.thenational.academy/lessons/speed-as-rate-distance-time-graphs-6nhk2r</a>

3D shapes, Volume and Surface Area				
4 to 5	6 to 7	8 to 9		
x			Recognise and name common 3D shapes - cuboids, cubes, prisms, pyramids, cones, spheres	<a href="https://classroom.thenational.academy/lessons/2d-and-3d-shape-classifying-shapes-crrk8d">https://classroom.thenational.academy/lessons/2d-and-3d-shape-classifying-shapes-crrk8d</a>
x	x	x	Sketch three-dimensional (3-D) solids	See Recognise 3D shapes
x			Find the volume of a solid by counting cubes and stating units	<a href="https://classroom.thenational.academy/lessons/counting-cubes-part-1-c5jp8d">https://classroom.thenational.academy/lessons/counting-cubes-part-1-c5jp8d</a>
				<a href="https://classroom.thenational.academy/lessons/counting-cubes-part-2-61j3er">https://classroom.thenational.academy/lessons/counting-cubes-part-2-61j3er</a>
x	x	x	Find the area of rectangles, triangles, circles, parallelograms, trapezium	<a href="https://classroom.thenational.academy/lessons/exploring-rectangles-69k64d">https://classroom.thenational.academy/lessons/exploring-rectangles-69k64d</a>
				<a href="https://classroom.thenational.academy/lessons/rectilinear-shapes-6wr34r">https://classroom.thenational.academy/lessons/rectilinear-shapes-6wr34r</a>
				<a href="https://classroom.thenational.academy/lessons/area-of-parallelograms-6wup2e">https://classroom.thenational.academy/lessons/area-of-parallelograms-6wup2e</a>
				<a href="https://classroom.thenational.academy/lessons/area-of-triangles-6cwkar">https://classroom.thenational.academy/lessons/area-of-triangles-6cwkar</a>
				<a href="https://classroom.thenational.academy/lessons/further-triangles-68u6ae">https://classroom.thenational.academy/lessons/further-triangles-68u6ae</a>
				<a href="https://classroom.thenational.academy/lessons/area-of-a-trapezium-70r34c">https://classroom.thenational.academy/lessons/area-of-a-trapezium-70r34c</a>

## Year 8 Maths Oak Academy Work Half Term 2

				<a href="https://classroom.thenational.academy/lessons/area-of-a-circle-6ww3ge">https://classroom.thenational.academy/lessons/area-of-a-circle-6ww3ge</a>
x	x	x	Draw a cuboid on an isometric grid and mark its dimensions	N/A
x	x	x	Draw plans and front & side elevations of three-dimensional (3-D) solids on squared paper	<a href="http://corbettmaths.com/2014/01/16/views-and-elevations/">http://corbettmaths.com/2014/01/16/views-and-elevations/</a>
x	x		Find the volume and surface area of a given cube or cuboid	<a href="https://classroom.thenational.academy/lessons/volume-of-prisms-and-cylinders-6nhpat">https://classroom.thenational.academy/lessons/volume-of-prisms-and-cylinders-6nhpat</a>
x	x	x	Find the height of a cuboid, given volume, length and breadth	Q7 onwards <a href="https://corbettmaths.com/wp-content/uploads/2013/02/volume-of-a-cuboid-pdf.pdf">https://corbettmaths.com/wp-content/uploads/2013/02/volume-of-a-cuboid-pdf.pdf</a>
x	x	x	Surface area of a cuboid and cube	<a href="https://classroom.thenational.academy/lessons/surface-area-of-cuboids-6mrk0d">https://classroom.thenational.academy/lessons/surface-area-of-cuboids-6mrk0d</a>
x	x	x	Calculate volumes of prisms including cylinders	<a href="https://classroom.thenational.academy/lessons/volume-of-prisms-and-cylinders-6nhpat">https://classroom.thenational.academy/lessons/volume-of-prisms-and-cylinders-6nhpat</a>
	x	x	Calculate surface area of prisms including cylinders	<a href="https://classroom.thenational.academy/lessons/surface-area-of-cylinders-70t68c">https://classroom.thenational.academy/lessons/surface-area-of-cylinders-70t68c</a>
				<a href="https://classroom.thenational.academy/lessons/finding-the-surface-area-of-triangular-prisms-6dh3ae">https://classroom.thenational.academy/lessons/finding-the-surface-area-of-triangular-prisms-6dh3ae</a>
	x	x	Change between measures of volumes such as 2.6m <sup>3</sup> to cm <sup>3</sup> or change 2700cm <sup>3</sup> to litres	<a href="http://corbettmaths.com/2013/12/13/converting-between-metric-units-for-area/">http://corbettmaths.com/2013/12/13/converting-between-metric-units-for-area/</a>
				<a href="http://corbettmaths.com/2013/12/15/converting-metric-units-for-volume/">http://corbettmaths.com/2013/12/15/converting-metric-units-for-volume/</a>
	x	x	Solve problems involving surface areas of prisms and cylinders	<a href="https://corbettmaths.com/wp-content/uploads/2013/02/surface-area-of-a-cylinder-pdf.pdf">https://corbettmaths.com/wp-content/uploads/2013/02/surface-area-of-a-cylinder-pdf.pdf</a>
	x	x	Calculate volume of cones, spheres and pyramids when given a formula	<a href="https://classroom.thenational.academy/lessons/volume-and-surface-area-of-a-pyramid-ccr6ct">https://classroom.thenational.academy/lessons/volume-and-surface-area-of-a-pyramid-ccr6ct</a>
				<a href="https://classroom.thenational.academy/lessons/volume-and-surface-area-of-a-cone-70v68t">https://classroom.thenational.academy/lessons/volume-and-surface-area-of-a-cone-70v68t</a>
				<a href="https://classroom.thenational.academy/lessons/volume-and-surface-area-of-a-sphere-6rvp6t">https://classroom.thenational.academy/lessons/volume-and-surface-area-of-a-sphere-6rvp6t</a>
		x	Calculate the volumes of frustums	<a href="https://corbettmaths.com/2019/04/24/volume-of-a-frustum/">https://corbettmaths.com/2019/04/24/volume-of-a-frustum/</a>