

Year 10 Foundation										
Half Term 7		Half Term 8		Half Term 9		Half Term 10		Half Term 11		Half Term 12
10.01	Rearrange formulae	10.05	Quadratic graphs, TP and roots	10.08	Probability	10.10	Simple interest	10.13	Statistics	EOY 10 Revision programme
10.02	Linear Graphs	10.06	Linear Simultaneous Equations	10.09	Standard Form	10.11	Ratio (further)			
10.03	$y = mx + c$	10.07	Further graphs			10.12	Growth & Decay			
10.04	Compound Measures									

Year 11 Foundation									
Half Term 13		Half Term 14		Half Term 15		Half Term 10	Half Term 11	Half Term 12	
11.01	Pythagoras	11.04	Transformations	11.06	Vectors	Revision programme	Revision programme	Revision programme	
11.02	Right angled Trigonometry	11.05	Congruence	11.07	Similar shapes				
11.03	Bearings & Scale Drawings			11.08	Constructions & Loci				

Overview

Half Term 1 Content

Half Term 1	Topic	Standard		Underlined		Bold	
			Sparx Topics		Sparx Topics		Sparx Topics
	Rearrange Formulae	Rearrange formulae to change the subject in a geometrical context Change the subject of a formula involving the use of square roots and squares	Changing the subjects of formulae (U556)	Calculate the radius or diameter when Sector area or Arc length is given	Finding the arc length of sectors (U221) Finding the area of sectors (U373)		
Linear Graphs	Plot and read Coordinates in all four quadrants Draw, label and scale axes Plot straight line graphs Recognise, sketch and interpret straight line graphs Find approximate solutions using a graph Find the coordinates of the midpoint of a line segment Real life graphs: ready reckoner graphs, conversion graphs, fuel bills graphs, fixed charge and cost per unit	Reading and plotting coordinates (U789) Plotting straight line graphs (U741) Calculating midpoints (U933) Solving shape problems involving coordinates (U889) Using and interpreting linear real-life graphs (U638)	Plot and draw graphs of straight lines in the form $ax + by = c$	Plotting straight line graphs (U741)			
$y = mx + c$	Identify and interpret gradients and intercepts of straight line graphs Identify and interpret gradient from an equation $y = mx + c$	Interpreting equations of straight line graphs (U669)	Find the equation of a straight line from a graph Use $y = mx + c$ to identify parallel lines Find the equation of a line through two given points or through one point with a given gradient Know that the gradient of a straight line is interpreted as a rate of change Identify and interpret the gradient from an equation $ax + by = c$	Finding equations of straight line graphs (U315) Equations of parallel lines (U377) Finding the equation of a straight line from its gradient and a point (U477) Finding the equation of a straight line from two points on the line (U848) Finding equations of linear real-life graphs (U862)			
Compound Measures	Interpret distance–time graphs, and calculate: the speed of individual sections, total distance and total time Change between standard units e.g. time, mass, length, money, volume, area Change between compound units e.g. speed, rates of pay, prices Work out time intervals for graph scales	Interpreting distance-time graphs (U914) Calculating speed from distance-time graphs (U462) Sketch graphs of water flows (U896) Reading, converting and calculating with time (U902) Converting units of length, mass and capacity (U388) Converting units of area (U248) Converting units of volume (U468) Calculating with speed (U151) Calculating with rates (U256) Plotting distance-time graphs (U403)	Change between standard units and compound units e.g. density and pressure	Calculating with density (U910) Calculating with pressure (U527)			
Quadratic graphs, turning points and roots	Recognise, sketch and interpret graphs of ... quadratic functions	Plotting graphs of quadratic functions (U989) Interpreting graphs of quadratic functions (U667) Solving quadratic equations graphically (U601)	Identify roots, intercepts and turning points of a quadratic function Find roots of a quadratic algebraically by factorisation Find approximate solutions using a graph Identify the line of symmetry of a quadratic graph	Interpreting graphs of quadratic functions (U667) Solving quadratic equations graphically (U601) Factorising quadratic expressions of the form Sx^2+bx+c (U178) Factorising the difference of two squares (U963) Factorising to solve quadratic equations of the form $Sx^2+bx+c=0$ (U228)			

Half Term 1 Content

Half Term 1	Topic	Standard	Underlined		Bold	
		Sparx Topics		Sparx Topics		Sparx Topics
	Rearrange Formulae	Rearrange formulae to change the subject in a geometrical context Change the subject of a formula involving the use of square roots and squares	Changing the subjects of formulae (U556)	Calculate the radius or diameter when Sector area or Arc length is given Finding the arc length of sectors (U221) Finding the area of sectors (U373)	Rearrangement complex formulae involving fractions, roots and powers and where the subject appears on both sides of the formula Changing the subjects of formulae (U556)	
	Linear Graphs	Plot and read Coordinates in all four quadrants Draw, label and scale axes Plot straight line graphs Recognise, sketch and interpret straight line graphs Find approximate solutions using a graph Find the coordinates of the midpoint of a line segment Real life graphs: ready reckoner graphs, conversion graphs, fuel bills graphs, fixed charge and cost per unit	Reading and plotting coordinates (U789) Plotting straight line graphs (U741) Calculating midpoints (U933) Solving shape problems involving coordinates (U889) Using and interpreting linear real-life graphs (U638)	Recognise and interpret graphs that illustrate direct and inverse proportion Plot and draw graphs of straight lines in the form $ax + by = c$ Graphs of direct and inverse proportion (U238) Plotting straight line graphs (U741)		
	$y = mx + c$	Identify and interpret gradients and intercepts of straight line graphs Identify and interpret gradient from an equation $y = mx + c$	Interpreting equations of straight line graphs (U669)	Find the equation of a straight line from a graph Use $y = mx + c$ to identify parallel lines Find the equation of a line through two given points or through one point with a given gradient Know that the gradient of a straight line is interpreted as a rate of change Identify and interpret the gradient from an equation $ax + by = c$	Use $y = mx + c$ to identify perpendicular lines Generate equations of lines perpendicular to the given line Equations of parallel and perpendicular lines (U898)	
	Compound Measures	Interpret distance–time graphs, and calculate: the speed of individual sections, total distance and total time Change between standard units e.g. time, mass, length, money, volume, area Change between compound units e.g. speed, rates of pay, prices Work out time intervals for graph scales	Interpreting distance-time graphs (U914) Calculating speed from distance-time graphs (U462) Sketch graphs of water flows (U896) Reading, converting and calculating with time (U902) Converting units of length, mass and capacity (U388) Converting units of area (U248) Converting units of volume (U468) Calculating with speed (U151) Calculating with rates (U256) Plotting distance-time graphs (U403)	Change between standard units and compound units e.g. density and pressure Calculating with density (U910) Calculating with pressure (U527)		
	Quadratic graphs, turning points and roots	Recognise, sketch and interpret graphs of ... quadratic functions Plotting graphs of quadratic functions (U989) Interpreting graphs of quadratic functions (U667) Solving quadratic equations graphically (U601)	Plotting graphs of quadratic functions (U989) Interpreting graphs of quadratic functions (U667) Solving quadratic equations graphically (U601)	Identify roots, intercepts and turning points of a quadratic function Find roots of a quadratic algebraically by factorisation Find approximate solutions using a graph Identify the line of symmetry of a quadratic graph	Interpreting graphs of quadratic functions (U667) Solving quadratic equations graphically (U601) Factorising quadratic expressions of the form $\$x^2+bx+c\$$ (U178) Factorising the difference of two squares (U963) Factorising to solve quadratic equations of the form $\$x^2+bx+c=0\$$ (U228)	Find roots of a quadratic algebraically by factorisation - with rearrangement needed Factorising quadratic expressions of the form $\$x^2+bx+c\$$ (U178)

Half Term 2 Content- Foundation

Half Term 2 - Foundation	Topic		Standard		Underlined		Bold	
			Sparx Topics		Sparx Topics		Sparx Topics	
	Quadratic graphs, turning points and roots	Recognise, sketch and interpret graphs of ... quadratic functions	Plotting graphs of quadratic functions (U989)	Identify roots, intercepts and turning points of a quadratic function	Interpreting graphs of quadratic functions (U667)	Interpreting graphs of quadratic functions (U667)		
		Interpreting graphs of quadratic functions (U667)	Find roots of a quadratic algebraically by factorisation	Solving quadratic equations graphically (U601)	Solving quadratic equations graphically (U601)			
		Solving quadratic equations graphically (U601)	Find approximate solutions using a graph	Identify the line of symmetry of a quadratic graph	Factorising quadratic expressions of the form $Sx^2+bx+cS$ (U178)	Factorising quadratic expressions of the form $Sx^2+bx+c=0S$ (U228)		
Linear Simultaneous			Solve two simultaneous equations in two variables (linear/linear) algebraically	Solving simultaneous equations using elimination (U760)	Solving simultaneous equations using elimination (U760)			
			Find approximate solutions using a graph	Solving simultaneous equations using substitution (U757)	Solving simultaneous equations using substitution (U757)			
			Derive two simultaneous equations, solve the equation and interpret the solution	Solving simultaneous equations graphically (U836)	Solving simultaneous equations graphically (U836)			
Further Graphs			Recognise and sketch cubic graphs and the reciprocal graph	Constructing and solving simultaneous equations (U137)	Constructing and solving simultaneous equations (U137)			
			Plot and interpret ... reciprocal graphs	Graphs of cubic functions (U980)	Graphs of cubic functions (U980)			
			Recognise and interpret graphs that illustrate direct and inverse proportion	Graphs of reciprocal functions (U593)	Graphs of reciprocal functions (U593)			
			Graphs of direct and inverse proportion (U238)	Graphs of direct and inverse proportion (U238)				

Overview

Half Term 2 Content- Higher

Half Term 2 - Higher	Topic	Standard	Underlined	Bold	
		Sparx Topics	Sparx Topics	Sparx Topics	
	Quadratic graphs, turning points and roots	Recognise, sketch and interpret graphs of ... quadratic functions	Plotting graphs of quadratic functions (U989) Interpreting graphs of quadratic functions (U667) Solving quadratic equations graphically (U601)	Identify roots, intercepts and turning points of a quadratic function Find roots of a quadratic algebraically by factorisation Find approximate solutions using a graph Identify the line of symmetry of a quadratic graph	Interpreting graphs of quadratic functions (U667) Solving quadratic equations graphically (U601) Factorising quadratic expressions of the form $\$x^2+bx+c\$$ (U178) Factorising to solve quadratic equations of the form $\$x^2+bx+c=0\$$ (U228)
Further Expanding, Factorising & Algebraic Fractions				Expanding more than two brackets Factorising quadratic expressions of the form $ax^2 + bx + c$ Deduce turning points by completing the square Simplify algebraic fractions Multiply, divide, add and subtract algebraic fractions	Expanding triple brackets (U606) Factorising quadratic expressions of the form $\$x^2+bx+c\$$ (U858) Completing the square (U397) Finding the turning point of a quadratic graph by completing the square (U769) Simplifying algebraic fractions by cancelling common factors (U103) Simplifying algebraic fractions by factorising into one bracket (U437) Simplifying algebraic fractions by factorising into two brackets (U294) Adding and subtracting algebraic fractions (U685) Multiplying algebraic fractions (U457)
Linear Simultaneous Equations			Solve two simultaneous equations in two variables (linear/linear) algebraically Find approximate solutions using a graph Derive two simultaneous equations, solve the equation and interpret the solution	Solving simultaneous equations using elimination (U760) Solving simultaneous equations using substitution (U757) Solving simultaneous equations graphically (U836) Constructing and solving simultaneous equations (U137)	
Further Graphs			Recognise and sketch cubic graphs and the reciprocal graph Plot and interpret ... reciprocal graphs Recognise and interpret graphs that illustrate direct and inverse proportion	Graphs of cubic functions (U980) Graphs of reciprocal functions (U593) Graphs of direct and inverse proportion (U238)	Sketch and interpret graphs of exponential functions $y = k^x$ for positive values of k and integer values of x Draw circles, centre the origin, equation $x^2 + y^2 = r^2$ Sketch graphs of simple cubic functions, given as three linear expressions

<u>Overview</u>	Half Term 3 Content- Foundation							
Half Term 3 - Foundation	Topic	Standard		Underlined		Bold		
			Sparx Topics			Sparx Topics		
	Probability	Apply systematic listing strategies	Using probability phrases (U803) Writing probabilities as fractions (U408) Writing probabilities as fractions, decimals and percentages (U510) Frequency trees (U280) Expected results from repeated experiments (U166) Probabilities of mutually exclusive events (U683) Experimental probabilities (U580) Venn diagrams (U476) Venn diagrams with set notation (U748) Sample space diagrams (U104)	Unbiased samples and effects of increasing sample size Probability tree diagrams for independent and dependent events Calculate the probability of independent and dependent combined events Sets and combinations of sets using Venn diagrams	Tree diagrams for independent events (U558) Tree diagrams for dependent events (U729) Using set notation (U296)			
		Describe probability using the probability scale, tables and frequency trees						
		Apply ideas of randomness, fairness and equally likely events to calculate expected outcomes of multiple future experiments						
		Calculate expected outcomes						
		Mutually exclusive events sum to one						
		Experimental and theoretical probability						
		Venn diagrams and appropriate notation						
		Possibility spaces/sample spaces						
Find a missing probability from a list or table including algebraic terms								
Standard Form	Convert large and small numbers into standard form and vice versa	Using standard form with positive indices (U330)						
	Add and subtract numbers in standard form	Using standard form with negative indices (U534)						
	Multiply and divide numbers in standard form	Adding and subtracting numbers in standard form (U290) Multiplying and dividing numbers in standard form (U264)						
	Use of a calculator in standard form calculations	Standard form with a calculator (U161)						

<u>Overview</u>	Half Term 3 Content- Higher						
Half Term 3 - Higher	Topic	Standard		Underlined		Bold	
			Sparx Topics		Sparx Topics		Sparx Topics
	Probability	Apply systematic listing strategies	Using probability phrases (U803) Writing probabilities as fractions (U408) Writing probabilities as fractions, decimals and percentages (U510) Frequency trees (U280) Expected results from repeated experiments (U166) Probabilities of mutually exclusive events (U683) Experimental probabilities (U580) Venn diagrams (U476) Venn diagrams with set notation (U748) Sample space diagrams (U104)	Unbiased samples and effects of increasing sample size Probability tree diagrams for independent and dependent events Calculate the probability of independent and dependent combined events Sets and combinations of sets using Venn diagrams	Tree diagrams for independent events (U558) Tree diagrams for dependent events (U729) Using set notation (U296)	Calculate and interpret conditional probabilities: · Use a two-way table to calculate conditional probability · Use a tree diagram to calculate conditional probability · Use a Venn diagram to calculate conditional probability	Conditional probabilities from tables (U246) Conditional probabilities from Venn diagrams (U699) Using the conditional probability formula (U821) Conditional probabilities from tree diagrams (U806)
		Describe probability using the probability scale, tables and frequency trees					
		Apply ideas of randomness, fairness and equally likely events to calculate expected outcomes of multiple future experiments					
		Calculate expected outcomes					
		Mutually exclusive events sum to one					
		Experimental and theoretical probability					
		Venn diagrams and appropriate notation					
		Possibility spaces/sample spaces					
Find a missing probability from a list or table including algebraic terms							
Capture & Recapture					Capture and recapture	Capture and recapture (U328)	
Standard Form	Convert large and small numbers into standard form and vice versa	Using standard form with positive indices (U330)					
	Add and subtract numbers in standard form	Using standard form with negative indices (U534)					
	Multiply and divide numbers in standard form	Adding and subtracting numbers in standard form (U290)					
	Use of a calculator in standard form calculations	Multiplying and dividing numbers in standard form (U264) Standard form with a calculator (U161)					
Proportion (further)			Interpret equations and graphs that describe direct and inverse proportion		Identify direct proportion from a table of values, by comparing ratios of values, for x squared and x cubed relationships	Constructing direct proportion equations (U407) Constructing inverse proportion equations (U138) Solving direct proportion word problems (U721) Solving inverse proportion word problems (U357)	
				Interpreting direct proportion equations (U640)	Write statements of proportionality for quantities proportional to the square, cube or other power of another quantity		
				Interpreting inverse proportion equations (U364)	Set up and use equations to solve word and other problems involving direct proportion or inverse proportion		
				Graphs of direct and inverse proportion (U238)	Use $y = kx$ to solve direct proportion problems, including questions where students find k , and then use k to find another value		
					Solve problems involving inverse proportionality		

<u>Overview</u>	Half Term 4 Content- Foundation							
Half Term 4 - Foundation	Topic	Standard		Underlined		Bold		
			Sparx Topics		Sparx Topics		Sparx Topics	
	Simple Interest	Use percentages in real-life situations e.g. price after VAT, value of profit or loss, simple interest, income tax	Finding percentages of amounts without a calculator (U554) Finding percentages of amounts with a calculator (U349) Percentage change without a calculator (U773) Percentage change with a calculator (U671) Simple interest calculations (U533)					
			Finding original values in percentage calculations (U286) Finding the percentage an amount has been changed by (U278)					
	Ratio (further)	Simplify ratios	Writing and simplifying ratios (U687)	Solve ratio problems involving the change of a ratio within a question				
		Divide a quantity into a given ratio	Sharing amounts in a given ratio (U577)	Relate ratios to fractions and to linear functions	Using equivalent ratios to find unknown amounts (U753)			
		Write ratios as fractions	Converting between ratios, fractions and percentages (U176)					
		Compare lengths, areas and volumes using ratio notation and scale factors						
	Growth & Decay			Set up, solve and interpret the answers in growth and decay problems, including compound interest				
				Identify the interest rate in compound interest questions	Compound interest calculations (U332) Growth and decay (U988)			
			Set up, solve and interpret the answers in growth and decay problems					

Overview

Half Term 4 Content- Higher

Half Term 4 - Higher	Topic	Standard		Underlined		Bold	
		Sparx Topics			Sparx Topics		Sparx Topics
	Simple interest	Use percentages in real-life situations e.g. price after VAT, value of profit or loss, simple interest, income tax	Finding percentages of amounts without a calculator (U554) Finding percentages of amounts with a calculator (U349) Percentage change without a calculator (U773) Percentage change with a calculator (U671) Simple interest calculations (U533) Finding original values in percentage calculations (U286) Finding the percentage an amount has been changed by (U278)				
Growth & Decay			Set up, solve and interpret the answers in growth and decay problems, including <u>compound interest</u> Identify the interest rate in compound <u>interest questions</u> Set up, solve and interpret the answers in growth and decay problems	Compound interest calculations (U332) Growth and decay (U988)			
Ratio (further)	Simplify ratios Divide a quantity into a given ratio Write ratios as fractions Compare lengths, areas and volumes using ratio notation and scale factors	Writing and simplifying ratios (U687) Sharing amounts in a given ratio (U577) Converting between ratios, fractions and percentages (U176)	Solve ratio problems involving the change of a ratio within a question Relate ratios to fractions and to linear functions	Using equivalent ratios to find unknown amounts (U753)	Solve complex multi-step problems involving fractions and probability	Problem solving: Sharing amounts in a given ratio (Higher) (U595) Combining ratios (U921) Calculating with ratios and algebra (U676) Changing ratios (U865)	
Recurring decimals					Change recurring decimals into their <u>corresponding fractions</u> By writing the denominator in terms of its prime factors, decide whether fractions can be converted to recurring or terminating decimals (Recognise that every terminating decimal has its fraction with a 2 and/or 5 as a common factor in the denominator)	Converting fractions to recurring decimals (U550) Converting recurring decimals to fractions (U689)	

Overview

Half Term 5 Content- Foundation

Half Term 5 - Foundation	Topic	Standard		Underlined		Bold	
		Sparx Topics		Sparx Topics			Sparx Topics
	Statistics	<p>Draw and Interpret Frequency tables, bar charts, composite bar charts, pie charts, pictograms, vertical line charts, stem and leaf (including back-to-back)</p> <p>Mean, mode, median, modal class</p> <p>Range and outliers</p> <p>Compare the mean, median, mode and range (as appropriate) of two distributions using bar charts, dual bar charts, pictograms and back-to-back stem and leaf</p> <p>Recognise the advantages and disadvantages between measures of average</p> <p>Scatter graphs - recognise correlation</p> <p>Recognise types of data: primary secondary, quantitative and qualitative</p> <p>Understand sample and population</p> <p>Listing combinations</p>	<p>Interpreting frequency tables and two-way tables (U981)</p> <p>Drawing bar charts (U363)</p> <p>Interpreting bar charts (U557)</p> <p>Drawing pie charts (U508)</p> <p>Interpreting pie charts (U172)</p> <p>Drawing and interpreting tally charts (U653)</p> <p>Drawing and interpreting pictograms (U506)</p> <p>Drawing stem-and-leaf diagrams (U200)</p> <p>Interpreting stem-and-leaf diagrams (U909)</p> <p>Calculating the mean (U291)</p> <p>Finding the mode (U260)</p> <p>Calculating the median (U456)</p> <p>Calculating the range (U526)</p> <p>Finding averages from frequency tables (U569)</p> <p>Finding averages from diagrams (U854)</p> <p>Finding averages from grouped data (U877)</p> <p>Choosing suitable averages and solving problems (U717)</p> <p>Types of data (U322)</p> <p>Selecting sampling techniques (U162)</p>	<p>Sampling - infer properties of populations or distributions from a sample, while knowing the limitations of sampling</p> <p>Interpret and construct tables and line graphs for time series data</p> <p>Scatter graphs - draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends while knowing the dangers of so doing</p>	<p>Selecting sampling techniques (U162)</p>		

Half Term 5 Content- Higher

Half Term 5 - Higher	Topic	Standard		Underlined		Bold	
			Sparx Topics		Sparx Topics		Sparx Topics
	Statistics	Draw and Interpret Frequency tables, bar charts, composite bar charts, pie charts, pictograms, vertical line charts, stem and leaf (including back-to-back)	Interpreting frequency tables and two-way tables (U981)	Sampling			
Mean, mode, median, modal class		Drawing bar charts (U363) Interpreting bar charts (U557)		Interpret and construct tables and line graphs for time series data			
Range and outliers		Drawing pie charts (U508) Interpreting pie charts (U172)		Scatter graphs - draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends while knowing the dangers of so doing			
Compare the mean, median, mode and range (as appropriate) of two distributions using bar charts, dual bar charts, pictograms and back-to-back stem and leaf		Drawing and interpreting tally charts (U653) Drawing and interpreting pictograms (U506) Drawing stem-and-leaf diagrams (U200)			Selecting sampling techniques (U162)		
Recognise the advantages and disadvantages between measures of average		Interpreting stem-and-leaf diagrams (U909) Calculating the mean (U291) Finding the mode (U260) Calculating the median (U456) Calculating the range (U526) Finding averages from frequency tables (U569)					
Scatter graphs - recognise correlation		Finding averages from diagrams (U854) Finding averages from grouped data (U877)					
Recognise types of data: primary secondary, quantitative and qualitative		Choosing suitable averages and solving problems (U717)					
Understand sample and population		Types of data (U322)					
Listing combinations		Selecting sampling techniques (U162)					
Surds				Simplify and manipulate algebraic expressions involving surds		Simplify surd expressions involving squares (e.g. $\sqrt{12} = \sqrt{4 \times 3} = \sqrt{4} \times \sqrt{3} = 2\sqrt{3}$)	Simplifying surds (U338)
				Multiplying and dividing surds (U633)	Understand surd notation, e.g. calculator gives answer to sq. rt 8 as 4 rt 2	Expanding brackets with surds (U499)	
				Adding and subtracting surds (U872)	Expand and simplify single and double brackets involving surd manipulation	Rationalising denominators containing a single term (U707)	
					Rationalise denominators	Rationalising denominators containing two terms (U281)	
Bounds					Calculate the upper and lower bounds of numbers given to varying degrees of accuracy		
					Calculate the upper and lower bounds of an expression involving the four operations		
					Find the upper and lower bounds in real-life situations using measurements given to appropriate degrees of accuracy	Finding error intervals (U657)	
					Find the upper and lower bounds of calculations involving perimeters, areas and volumes of 2D and 3D shapes	Finding error intervals for calculations (U587)	
					Calculate the upper and lower bounds of calculations, particularly when working with measurements		

Overview	Half Term 6 Content- Foundation			
Half Term 6 - Foundation	Topic	Standard	Underlined	Bold
	<h1>EOY 10 Revision Programme</h1>			

Overview	Half Term 6 Content- Higher						
Half Term 6 - Higher	Topic	Standard		Underlined		Bold	
			Sparx Topics		Sparx Topics		Sparx Topics
	Right angled trigonometry			Trigonometry in right angled triangles Know the exact values of $\sin\theta$ and $\cos\theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ$ and 90° . Know the exact value of $\tan\theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ$ and 60°	Understanding \sin , \cos and \tan (U605) Finding unknown sides in right-angled triangles (U283) Finding unknown angles in right-angled triangles (U545) Using the exact values of trigonometric ratios (U627)		
	Similar Shapes			Use formal geometric proof for the similarity of two given triangles Identify the scale factor of an enlargement of a similar shape as the ratio of the lengths of two corresponding sides, using integer or fraction scale factors Find missing lengths in similar 3D solids	Understanding similarity (U551) Finding unknown sides in similar shapes (U578)	Relationships between areas and volumes in similar figures Understand the effect of enlargement on angles, perimeter, area and volume of shapes and solids Write the lengths, areas and volumes of two shapes as ratios in their simplest form Find missing areas and volumes in similar 3D solids Know the relationships between linear, area and volume scale factors of mathematically similar shapes and solids Use the relationship between enlargement and areas and volumes of simple shapes and solids Solve problems involving frustums of cones where you have to find missing lengths first using similar triangles	Finding the perimeter and area of similar shapes (U630) Finding the surface area and volume of similar shapes (U110) Finding the volume of frustums (U350) Finding the surface area of frustums (U334)
	Quadratic Sequences			Continue a quadratic sequence and use the n^{th} term to generate terms	Position-to-term rules for quadratic sequences (U206)	Find the n^{th} term of quadratic sequences	Position-to-term rules for quadratic sequences (U206)

Overview

Half Term 7 Content- Foundation

Overview	Topic	Standard	Underlined	Bold
		Sparx Topics	Sparx Topics	Sparx Topics
	Pythagoras		Calculate with roots, and with integer indices Leave answers in surd form Given 3 sides of a triangle, justify if it is right-angled or not Apply Pythagoras' Theorem with a triangle drawn on a coordinate grid Calculate the length of a line segment AB given pairs of points	Calculating with roots and powers (U851) Using Pythagoras' theorem in 2D (U385)
Right Angled Trigonometry		Trigonometry in right angled triangles Know the exact values of $\sin\theta$ and $\cos\theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ$ and 90° . Know the exact value of $\tan\theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ$ and 60° Find angles of elevation and depression	Understanding sin, cos and tan (U605) Finding unknown sides in right-angled triangles (U283) Finding unknown angles in right-angled triangles (U545) Using the exact values of trigonometric ratios (U627)	
Bearings & Scale drawings	Interpret maps and scale drawings Estimate lengths using a scale diagram Make an accurate scale drawing from a diagram Know and use compass directions Use three-figure bearings to specify direction Mark on a diagram the position of point B given its bearing from point A Give a bearing between the points on a map or scaled plan Given the bearing of a point A from point B, work out the bearing of B from A Use accurate drawing to solve bearings problems Solve locus problems including bearings	Drawing and interpreting scale diagrams (U257) Measuring and drawing bearings (U525) Calculating bearings (U107)		

Half Term 7 Content- Higher

Half Term 7 - Higher	Topic	Standard		Underlined		Bold	
			Sparx Topics		Sparx Topics		Sparx Topics
	Algebraic Proof					Language of proof: odd, even, product, sum, integer, consecutive, square, difference etc. Solve 'Show that' and proof questions using consecutive integers $(n, n + 1)$, squares a^2, b^2 , even numbers $2n$, odd numbers $2n + 1$	Writing algebraic proofs (U582)
Solving Quadratics & Further SE			Solve quadratic equations algebraically by factorising (no rearrangement required)		Solve quadratic equations (that also require rearrangement) by factorising, completing the square and by using the quadratic formula	Solving quadratic equations by completing the square (U589) Solving quadratic equations using the quadratic formula (U665) Solving simultaneous equations involving quadratics (U547)	
			Find approximate solutions to quadratic equations using a graph	Factorising to solve quadratic equations of the form $ax^2+bx+c=0$ (U228) Factorising to solve quadratic equations of the form $Sax^2+bx+c=0$ (U960) Solving quadratic equations graphically (U601)	Solve linear/quadratic simultaneous equations		
					Solve quadratic equations arising from algebraic fraction equations		
					Be able to identify from a graph if a quadratic equation has any real roots		
					Solve linear/circles simultaneous equations		
Functions					Find $f(x) + g(x)$ and $f(x) - g(x)$, $2f(x)$, $f(3x)$ etc. algebraically	Substituting into functions (U637) Substituting into composite functions (U895) Finding composite functions (U448) Finding inverse functions (U996)	
					Find the inverse of a linear function		
					Know that $f^{-1}(x)$ refers to the inverse function		
Iteration					Composite functions - for two functions $f(x)$ and $g(x)$, find $gf(x)$	Substituting into iterative formulae (U434) Finding approximate solutions to equations using iteration (U168)	
					Find approximate solutions to equations numerically using iteration Use iteration with simple converging sequences		
Quadratic Inequalities					Sketch a graph of a quadratic function, by factorising or by using the formula, identifying roots, y-intercept and turning point by completing the square	Plotting graphs of quadratic functions (U989) Interpreting graphs of quadratic functions (U667) Finding the turning point of a quadratic graph by completing the square (U769) Solving quadratic inequalities (U133)	
					Solve quadratic inequalities in one variable, by factorising and sketching the graph to find critical values		
					Represent the solution set for inequalities using set notation, i.e. curly brackets and 'is an element of' notation e.g. the solution set of $x^2 - 3x - 10 < 0$ as $\{x: x < -3\}$ $\{x: x > 5\}$		

[Overview](#)

Half Term 8 Content- Foundation

Half Term 8 - Foundation	Topic	Standard	Underlined	Bold
		Sparx Topics	Sparx Topics	Sparx Topics
	Transformations	Reflection and rotation symmetry Transformations - rotation, reflection, translation, enlargement (with a positive scale factor) Identify the equation of a line of symmetry Identify the scale factor of an enlargement of a shape as the ratio of the lengths of two corresponding sides, simple integer scale factors, or simple fractions	Symmetry (U849) Rotation (U696) Reflection (U799) Translation (U196) Enlargement by a positive scale factor (U519)	Enlargements with a fractional scale factors Enlargement by a positive scale factor (U519)
Congruence	Identify congruent shapes by eye Understand that distances and angles are preserved under reflections, so that any figure is congruent under this transformation	Understanding congruence (U790)	Congruence criteria for triangles (SSS, SAS, ASA, RHS) Solve angle problems involving congruence	Congruent triangles (U866)

Overview

Half Term 8 Content- Higher

Half Term 8 - Higher	Topic	Standard	Underlined	Bold
		Sparx Topics	Sparx Topics	Sparx Topics
	Bearings & Scale drawings	Interpret maps and scale drawings Estimate lengths using a scale diagram Make an accurate scale drawing from a diagram Know and use compass directions Use three-figure bearings to specify direction Mark on a diagram the position of point B given its bearing from point A Give a bearing between the points on a map or scaled plan Given the bearing of a point A from point B, work out the bearing of B from A Use accurate drawing to solve bearings problems Solve locus problems including bearings	Drawing and interpreting scale diagrams (U257) Measuring and drawing bearings (U525) Calculating bearings (U107)	
Circle Theorems			Apply and prove the standard circle theorems concerning angles, radii, tangents and chords, and use them to prove related results: · the angle subtended by an arc at the centre of a circle is twice the angle subtended at any point on the circumference; · the angle in a semicircle is a right angle; · the perpendicular from the centre of a circle to a chord bisects the chord; · angles in the same segment are equal; · alternate segment theorem; · opposite angles of a cyclic quadrilateral sum to 180°; · understand and use the fact that the tangent at any point on a circle is perpendicular to the radius at that point;	Angles subtended at the centre or circumference of a circle (U459) Angles in segments and cyclic quadrilaterals (U251) Circle theorems for chords and tangents (U489) Alternate segment theorem (U130) Mixed problems: Circle theorems (U808) Proving the circle theorems (U807)
Further Trigonometry & Trigonometric Graphs			Sine rule and cosine rule Area of a triangle using trigonometry. Also use to find sides or angles of any triangle Sketch and interpret graphs of the trigonometric functions $y = \sin x$, $y = \cos x$ and $y = \tan x$ Apply sine and cosine rule to questions involving bearings Trigonometry in 3D configurations	The sine rule (U952) The cosine rule (U591) The area rule (U592) Graphs of trigonometric functions (U450) Calculating with trigonometry and bearings (U164) Trigonometry in 3D shapes (U170)

Half Term 9 Content- Foundation

Half Term 9 - Foundation	Topic	Standard		Underlined		Bold	
			Sparx Topics		Sparx Topics		Sparx Topics
	Vectors				Addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors Be able to represent information graphically given column vectors Identify two column vectors which are parallel	Understanding column vectors (U632) Adding and subtracting column vectors (U903) Multiplying column vectors by a scalar (U564) Identifying parallel vectors (U660)	
Similar Shapes	Understand that similar shapes are enlargements of each other and angles are preserved – define similar in this unit Identify shapes which are similar; including all circles or all regular polygons with equal number of sides	Understanding similarity (U551)	Apply the concepts similarity, including the relationships between lengths in similar figures Understand similarity of triangles and of other plane shapes, use this to make geometric inferences, and solve angle problems using similarity Understand the effect of enlargement on perimeter of shapes Solve problems to find missing lengths in similar shapes	Finding unknown sides in similar shapes (U578)			
Constructions & Loci	Draw circles and arcs to a given radius or given the diameter Measure and draw lines, to the nearest mm Measure and draw angles, to the nearest degree	Using a pair of compasses (U678) Understanding, measuring and drawing angles (U447)	Use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle) Construct angles of 90°, 45° Use constructions to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line Construct: - a region bounded by a circle and an intersecting line - a given distance from a point and a given distance from a line - equal distances from two points or two line segments - regions which may be defined by 'nearer to' or 'greater than'	Constructing bisectors of angles (U787) Constructing perpendicular bisectors and lines (U245) Constructing triangles (U187) Mixed problems: Constructing bisectors and perpendicular lines (U979) Constructing loci (U820)			

<u>Overview</u>	Half Term 9 Content- Higher						
Half Term 9 - Higher	Topic	Standard		Underlined		Bold	
			Sparx Topics		Sparx Topics		Sparx Topics
	Statistics (Further)					Draw and interpret Histograms	Drawing histograms with equal class widths (U185) Drawing histograms with unequal class widths (U814) Interpreting histograms (U983) Calculating averages from histograms (U267)
						Cumulative frequency graphs	Interpreting cumulative frequency graphs (U642) Drawing cumulative frequency graphs (U182)
						Draw, interpret and compare Box plots	Interpreting box plots (U837) Drawing box plots (U879)
						Range, quartiles and inter-quartile range	Comparing populations using box plots and
	Transformations	Reflection and rotation symmetry	Symmetry (U849) Rotation (U696) Reflection (U799) Translation (U196) Enlargement by a positive scale factor (U519)	Enlargements with a fractional scale factors	Enlargement by a positive scale factor (U519)	Enlargement - negative scale factors	Enlargement by a positive or negative scale factor (U134) Combining transformations (U766)
		Transformations - rotation, reflection, translation, enlargement (with a positive scale factor)				Describe the changes and invariance achieved by combinations of rotations, reflections and translations	
		Identify the equation of a line of symmetry					
		Identify the scale factor of an enlargement of a shape as the ratio of the lengths of two corresponding sides, simple integer scale factors, or simple fractions					
Congruence	Identify congruent shapes by eye	Understanding congruence (U790)	Congruence criteria for triangles (SSS, SAS, ASA, RHS)	Congruent triangles (U866)			
	Understand that distances and angles are preserved under reflections, so that any figure is congruent under this transformation		Solve angle problems involving congruence				
Vectors			Addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors	Understanding column vectors (U632) Adding and subtracting column vectors (U903)	Solve geometric problems in 2D where vectors are divided in a given ratio	Solving geometric problems using vectors (U781) Geometric proofs with vectors (U560)	
			Be able to represent information graphically given column vectors	Multiplying column vectors by a scalar (U564) Identifying parallel vectors (U660)	Produce geometrical proofs to prove points are collinear and vectors/lines are parallel		
			Identify two column vectors which are parallel				

Half Term 10 Content- Higher

Half Term 10 - Higher

Topic	Standard		Underlined		Bold	
		Sparx Topics		Sparx Topics		Sparx Topics
Gradients (Further), and area under a graph					Recognise and use the equation of a circle with centre at the origin	Equations of circles and tangents (U567) Estimating areas under non-linear graphs (U882) Estimating gradients of non-linear graphs using tangents (U800)
					Find the equation of a tangent to a circle at a given point, by:	
					· finding the gradient of the radius that meets the circle at that point (circles all centre the origin)	
					· finding the gradient of the tangent perpendicular to it	
					· using the given point	
					Estimate area under a quadratic or other graph by dividing it into trapezia. Interpret the results in cases such distance–time graphs, velocity–time graphs and graphs in financial contexts	
					Interpret the gradient of linear or non-linear graphs, and estimate the gradient of a quadratic or non-linear graph at a given point by sketching the tangent and finding its gradient	
Kinematics					Interpret the gradient of non-linear graph in curved distance–time and velocity–time graphs	
					Use kinematics formulae from the formulae sheet to calculate speed, acceleration, etc. (with variables defined in the question)	
Graphical transformations					Translations and reflections of functions:	Translating graphs (U598) Reflecting graphs (U487) Transforming graphs (U455)
					· apply to the graph of $y = f(x)$ the transformations $y = -f(x)$, $y = f(-x)$ for linear, quadratic, cubic functions	
					· apply to the graph of $y = f(x)$ the transformations $y = f(x) + a$, $y = f(x + a)$ for linear, quadratic, cubic functions	
					· apply to the graph of $y = f(x)$ the transformations $y = -f(x)$, $y = f(-x)$ for sine, cosine and tan functions $f(x)$	
					· apply to the graph of $y = f(x)$ the transformations $y = f(x) + a$, $y = f(x + a)$ for sine, cosine and tan functions $f(x)$	
Constructions & Loci	Draw circles and arcs to a given radius or given the diameter	Using a pair of compasses (U678) Understanding, measuring and drawing angles (U447)	Use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle)	Constructing bisectors of angles (U787) Constructing perpendicular bisectors and lines (U245) Constructing Triangles (U187) Mixed problems: Constructing bisectors and perpendicular lines (U979) Constructing loci (U820)		
	Measure and draw lines, to the nearest mm		Construct angles of 90°, 45°			
	Measure and draw angles, to the nearest degree		Use constructions to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line			
			Construct:			
			· a region bounded by a circle and an intersecting line			
			· a given distance from a point and a given distance from a line			
			· equal distances from two points or two line segments			
			· regions which may be defined by 'nearer to' or 'greater than'			