

KS4 Learning Journey
GCSE Crossover Tier – Year 11 Learning Cycle 1

Please watch the video on www.corbettmaths.com for each topic. *Topics in italics are extension topics.*

Advanced Percentages	Video number
Solve reverse percentage problems	240
Solve growth and decay problems including compound interest	236

Further Quadratics	Video number
Plot a quadratic graph from a table of values	264
Find the roots of a quadratic from the graph	266
Solve a quadratic equation using the quadratic formula	267
Complete the square for a quadratic	10
<i>Use the completed square form to solve a quadratic equation</i>	267a
<i>Use the completed square form to deduce the turning point of a quadratic graph</i>	371
<i>Solve a quadratic equation which requires rearranging into the form $ax^2 + bx + c = 0$</i>	

Statistical Diagrams	Video number
Infer properties of populations from a sample whilst knowing the limitations of sampling	282
Use statistics to describe a population	
Use and interpret scatter graphs	165,166
Recognise correlation and understand that it does not indicate causation	168
Draw lines of best fit and use them to make predictions	167
Construct and interpret line graphs and time series graphs	382
Construct and interpret histograms	157-159
Construct and interpret cumulative frequency diagrams	153,154
Construct and interpret box plots	149,150

Simultaneous Equations	Video number
Solve simultaneous equations algebraically	295
Construct two simultaneous equations, solve them and interpret them	295
Find approximate solutions from a graph	297
<i>Solve a linear equation and quadratic equation simultaneously</i>	298
<i>Use the above to find the intersection coordinates of a straight line and a curve including circles</i>	298

Area & Volume	Video number
Area of triangles	49
Area of parallelograms	44
Area of trapezia	48
Area of circles	40
Identify properties of the faces, surfaces, edges and vertices of 3D shapes	5
Volume of cuboids	355
Volume of prisms	356
Volume of cylinders	357

Advanced Trigonometry	Video number
Apply trigonometry to find angles and lengths in right-angled triangles in 3D	332
Know the exact values of $\sin x$, $\cos x$ and $\tan x$ for $x = 0^\circ, 30^\circ, 45^\circ, 60^\circ$ and 90°	341
Know and apply the sine rule to find angles and sides	333,334
Know and apply the cosine rule to find sides	336
Know and apply the trigonometric formula for area of a triangle	337
Recognise and sketch the graphs of $y = \cos x$, $y = \sin x$, $y = \tan x$	338-340
Know and apply the cosine rule to find angles	335
Sketch translation and reflections of a given function	323,324

Indices and Standard Form	Video number
Understand and calculate with negative indices	173
Understand and calculate with fractional indices	175
Write numbers in standard form	300
Add numbers given in standard form	301
Multiply numbers given in standard form	302
Divide numbers given in standard form	303

Bounds	Video number
Use inequalities to represent error bounds when rounding numbers	377
State and use error bounds	377

Inequalities	Video number
Interpret inequalities	176
Solve simple inequalities	178
Represent inequalities on a number line	177
Solve quadratic inequalities	378
Represent inequalities using set notation and on a graph	180-182

KS4 Learning Journey

GCSE Crossover Tier – Year 11 Learning Cycle 2

Please watch the video on www.corbettmaths.com for each topic. *Topics in italics are extension topics.*

Other Graphs	Video number
Recognise, sketch and interpret cubic graphs	344
Recognise, sketch and interpret reciprocal graphs	346
Recognise the equation of a circle including identifying its radius	12
<i>Find the equation of a tangent to a circle at a given point</i>	372

Advanced Probability	Video number
Use and construct sample space diagrams to work out specific probabilities	246
Read, use and construct two-way tables and work out specific probabilities	319
Use and interpret Venn diagrams and work out specific probabilities	380
Use and construct tree diagrams to work out probabilities of two events	252
Calculate the probability of independent and dependent combined events	249

3D Shapes	Video number
Construct and interpret plans and elevations of 3D shapes	354
Calculate surface area of a sphere	313
Calculate volume of a sphere	361
Calculate volume of a pyramid	360
Calculate volume of a cone	359
Calculate surface area of a cone	314
Calculate the volume of spheres, pyramids and 3D shapes made from combinations of these shapes	359-361

Kinematics	Video number
Plot and interpret graphs in real contexts	160
Plot and interpret distance-time graphs	171
Know that the gradient of a distance-time graph represents speed	
Plot and interpret speed-time graphs	
Know that the gradient of a speed-time graph represents acceleration	
Calculate the distance travelled by calculating the area under a speed-time graph (made up of triangles and rectangles or trapezia)	389
Calculate speed using speed = distance \div time	299
<i>Estimate gradients of graphs</i>	389
<i>Interpret the gradient of a straight-line graph as a rate of change</i>	189
<i>Use the gradients of chords and tangents to find average and instantaneous rates of change</i>	390a

KS4 Learning Journey
GCSE Crossover Tier – Year 11 Learning Cycle 3

Please watch the video on www.corbettmaths.com for each topic. *Topics in italics are extension topics.*

Vectors	Video number
Add and subtract vectors	353
Multiply vectors by a scalar	
Represent vectors in diagrams and columns	353a
<i>Use of vectors to construct geometric arguments and proofs</i>	<i>353</i>

Functions	Video number
Interpret an expression as functions with an input and an output	386
Find an inverse function using function machines	369
<i>Find an inverse function by rearranging a formula</i>	<i>369</i>
<i>Find a composite function</i>	<i>370</i>

Iteration	Video number
Work with general iterative processes	373
Use systematic trial and improvement to find approximate solutions to equations where there is no simple analytical method	116

Proof	Video number
Argue mathematically to show algebraic expressions are equivalent	
Use algebra to support and construct arguments to include proof	365
Apply angle facts, triangle congruence and similarity to obtain simple proofs	
Understand Pythagoras' theorem and the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs	