Year 10 Maths | Higher Tier | Term 2 knowledge organiser (January to April)

Algebraic Manipulation and Proof

1	Binomial	A polynomial with two terms
2	Quadratic	A polynomial with a squared term
3	Expand	Multiply out brackets
4	Factorise	Put brackets back in by finding common factors
5	Changing the subject	Rearranging a formula, using balancing, to make another variable the subject
6	Proof	Logical mathematical arguments used to show the truth of a statement
7	Verify	The process of making sure a solution is correct
8	Even number	Of the form 2n
9	Odd number	Of the form 2n + 1
10	Consecutive numbers	Written in the form n, n+1, n+2
10	Sum	Add
11	Product	Multiply
12	Difference	Subtract

Iteration and Functions

1	Iteration	Doing the same thing over and over again
2	Change of sign method	Make the equation equal zero and then substitute both values in. Show that there is a change in sign.
3	Recurrence relation	A sequence where each term is calculated from the previous term
4	Evaluate	Substitute the value into the expression for f(x)
5	Solve	Put f(x) equal to the value and solve the equation
6	Domain	All the values of x to which the function is applied
7	Range	All values of f(x)
8	Composite function	Combining two functions to make fg(x)
9	Fg(x)	Means f(g(x)) I.e. apply g first followed by f
10	$F^{-1}(x)$	The inverse function

Loci and Construction

1	Locus	Set of points with a common property
2	Equidistant	The same distance
3	Bisector	A line that divides something into two equal parts
4	Arc	Part of a curve
5	Perpendicular	Lines that meet at 90 degrees

Gradients and Rates of Change

1	Y = mx + c	M is the gradient, c is the y intercept
2	Gradient formula	$\text{Gradient} = \dfrac{y_2 - y_1}{x_2 - x_1}$
3	Parallel lines	Have the same gradient
4	Perpendicular lines	Gradients multiply to give -1
5	Distance time graph	Plots the distance an object travels against the time it takes it to travel
6	Speed	Distance ÷ time
7	Velocity time graph	Plots the velocity of an object against the time it takes it to travel
8	Velocity	Rate of travel of an object, along with its direction
9	Acceleration	Gradient of a velocity time graph or change in velocity ÷ change in time
10	Distance travelled	Area under the curve of a velocity time graph