

Subject: Statistics **Year** 11 **Ability** All

Half Term 1 / weeks	Week 1-3	Week 4-5	Week 6
Topic	Block 1 – Coordinate Geometry	Block 2 – Functions	Reteach and Retention
Topic overview	To be able to identify and define straight line graphs as tangents and normals using $y-y_1=m(x-x_1)$, applying to curves and to circles.	To be able to define and draw compound functions and inverse functions	Focus on the process of reteach and retention, knitting together the learning in reaction to the assessments completed
Pupils will learn...			
Components	<ul style="list-style-type: none"> Know and use definition of gradient Know the relationship between the gradients of parallel and perpendicular lines The equation of straight line in the forms $y=mx+c$ and $y-y_1=m(x-x_1)$ Draw a straight line from given information Understand the equation of circle centered on the origin Understand the equation of a circle not centered on the origin The equation of a tangent and normal at any point on a curve 	<ul style="list-style-type: none"> Know and use the definition of a function on a limited domain Understand and use the domain and range of a function Combine functions into both composite and compound functions Define and find inverse functions 	Staff complete a program of adaptive reteaching on specific topics based on the individual/class needs within their groups. Regular assessments are used to identify gaps in learning. Any gaps found are then addressed in lessons to help support learning and retention. <ul style="list-style-type: none"> Clear areas for improvement are monitored by individual staff and at a departmental level.
What pupils should already know (prior learning components)	Students should know the equation of a line in the form $y = mx + c$. Students should also be able to find the gradient of a straight line and understand the definitions parallel and perpendicular and how the gradients are linked. Students should be able to complete the square.	Students should know the definition of single and composite functions and be able to find the inverse of it. Students should also be able to sketch graphs of straight line and quadratic functions.	All the half term content will have been covered by this point. Staff will use departmental tracking documents to analyse the gaps in learning from the most recent assessments and all previous assessments. The ability to structure and breakdown a problem-solving question as exemplified in the TFI questions throughout the course.
Transferrable knowledge (skills)	When using calculus, both later in the course and at A Level, being able to find the equation of a line through any point knowing only the point and the gradient of the line is essential. Being able to find the perpendicular to the straight line at any point becomes very important when it comes to finding normals to lines. These skills can also be used at GCSE level as a faster alternative. The equation of a circle is touched on at A Level but only on circles centred on the origin, this unit extends it to any circle which will be used at A Level.	This unit supports the GCSE maths function work and extends it towards A Level. It allows student to access the Factor theorem in the next unit. At A Level the students need to have the concept of a function being limited on a domain. They need to be able to sketch compound functions.	This activity should serve to highlight and address areas of weakness in teaching and learning or retention. This early intervention to understand specific key areas for improvement or development. This should help to build confidence and improve students' ability to answer these and directly sequential problems.
Key vocabulary pupil will know and learn	Gradient, parallel, perpendicular, tangent, normal, circle.	Function, domain, range, composite, inverse, compound	

Assessment activities	Homework: Coordinate Geometry Test : End of half term test.	Homework: Functions Test : End of half term test	AFL and adaptive teaching will continue to support staff to assess the address areas.
Resources available	Corbettmaths: Further Maths – coordinate geometry Hegartymaths: 320, 778, 779	Corbettmaths: Further Maths – algebra Hegartymaths: 288-297	Before any assessments are completed, revision and guidance materials are provided for students to assist in independent study.
Notes Why this topic is important...	The topic starts by revisiting GCSE concepts of gradient and a straight line in the form $y = mx + c$ before extending to the generalised equation of a straight line. This is vital for when calculus is encountered both later in this course and at A Level as finding tangents and normals to lines is a fundamental application following differentiation. The equation of a circle is also extended from GCSE so any circle can be defined which then allows for not only tangents and normals to be found but also for line and circle intersections to be explored.	This topic starts by reminding students of the GCSE function requirements focussing on composite functions and the key definitions of domain and range. Then the topic moves onto restricted functions and then compound functions where a function is made up of distinct parts. Students are expected to be able to sketch such functions.	This is an important point in the curriculum plan that enables individual teachers to review the gaps in learning for the classes they teach. The half-termly assessments are used to track students' progress and enable teachers to react quickly to any gaps in knowledge and prepare students for the next assessment. The feedback and modelling of the exam answers enables students to pick up exam techniques and the ability to communicate effectively.