

**Subject:** Maths      **Year** 11      **Ability** Foundation

Half Term 1 / weeks	Week 1-2	Week 3-4	Week 5-6	
<b>Topic</b>	Unit 32 - Straight line graphs	Unit 33 - Surds	Unit 34 - Sequences	Reteach and Retention
Topic overview	To draw and understand straight line graphs understanding and using $y=mx+c$	To use and understand surds in maths and how this can be helpful for accuracy.	Students should be able identify sequences and the rules they work to.	Focus on the process of reteach and retention, knitting together the learning in reaction to the assessments completed
<b>Pupils will learn...</b>				
<b>Components</b>	<ul style="list-style-type: none"> <li>To plot and draw linear graphs.</li> <li>To find the gradient and y intercept from a diagram.</li> <li>To rearrange equations to find the gradient.</li> <li>To understand gradients of parallel and perpendicular lines.</li> <li>To draw and interpret distance time graphs.</li> </ul>	<ul style="list-style-type: none"> <li>To simplify surds.</li> <li>To add and subtract surds.</li> <li>To expand and simplify brackets involving surds.</li> <li>To rationalise the denominator.</li> </ul>	<ul style="list-style-type: none"> <li>To find the nth term of a sequence.</li> <li>To generate sequences using an nth term.</li> <li>To know the difference between arithmetic sequences and geometric sequences.</li> <li>To find the common ratio of a geometric sequence.</li> </ul>	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. Clear areas for improvement are monitored by individual staff and at a departmental level.
<b>What pupils should already know (prior learning components)</b>	Students should be able to plot coordinates and read scales Students should be able to substitute into a formula.	Students will have encountered squares, square roots, cubes and cube roots and have knowledge of classifying integers.	Students should be able to use inequality signs between numbers. Students should be able to deal with decimals and negatives on a calculator. Students should be able to use index laws numerically. Students should be able to draw a number line.	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.
<b>Transferrable knowledge (skills)</b>	The topic will build pupils' confidence with basic formula manipulation. Elements of this unit will be built on when learning about quadratic graphs The gradient aspects will be used further in variable rates of change	surds are used in many harder questions in algebra when answering some of the higher level questions on the tier. The exact answer element should be stressed showing students how errors can be formed	The creation and use of formulae in this unit will be used in other contexts that are unrelated, however sequences will be extended into quadratics a Fibonacci.	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.
<b>Key vocabulary pupil will know and learn</b>	Drawing, Linear graph, Straight line graph, $y=mx+c$ , Gradient, Interpreting, Perpendicular, Parallel, Distance time graph, Average, Speed,	Surds, Simplify, Express, Square numbers, Add, Subtract, Multiply, Divide, Rationalise, Denominator,	Arithmetic, Sequences, Nth term, Rule, Pattern, Fractional, Geometric,	
<b>Assessment activities</b>	Year 11 Test 14 Homework 32 Straight line graphs	Year 11 Test 14 Homework 33 Surds	Year 11 Test 14 Homework 34 Sequences	AFL and adaptive teaching will continue to support staff to assess the address areas.

<b>Resources available</b>	Maths Watch clip 96, 97, 143, 159	Maths Watch clip 207	Maths Watch clip 37, 102, 103, 163	Before any assessments are completed, revision and guidance materials are provided for students to assist in independent study.
Notes <b>Why this topic is important...</b>	<p>The entry to this unit uses the skills to create and plot a coordinate through the use of a table of values. Once this is grasped move to understanding the role of these in terms of <math>y=mx+C</math>.</p> <p>This then moves to finding the gradient from points and using this with <math>y -y_1=m(x-x_1)</math> to find equations including perpendiculars.</p> <p>The unit finishes with the use and understanding real life graphs using m and c where needed from earlier in the unit</p>	Handling surds in this unit is one of the harder topics for many students as they require more abstract knowledge that is use to solve increasingly harder questions including within other questions.	The unit starts with students understanding that sequences have a link and how this can be used to find the next term. This is then moved to an algebraic form to allow a wide range of values to be found with ease. The use of the nth term to establish if a number is or is not in a given sequences provides the first elements to proof.	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.