

How to Use these Sheets

The sheets contained in this document are intended to help you focus your intervention programme.

This Document contains:

- 1 - This sheet of 'Instructions'
- 2 - Student Tracker
- 3 - Teacher Tracker

The PiXL Process

At the heart of the PiXL process is the concept of **DIAGNOSIS - THERAPY - TESTING**.

If **DIAGNOSIS** is thorough and systematic then we are much more likely to be effective in targeting intervention, **THERAPY**, according to identified need, rather than relying upon a series of general revision sessions. It is crucial that objective **TESTING** takes place following interventions to confirm that what was a learning insecurity has been converted into a learning security.

This **PERSONALISED LEARNING CHECKLIST** will enable you to conduct a thorough and systematic **DIAGNOSIS** for your remaining target students according to their target status:

The diagnostic judgement results in 1 of 3 conclusions:

- An individual student is **'Secure'** in this topic. 'Secure' means they can recall this knowledge or skill: score 80% +
- A student is **'Insecure'** in this topic. 'Insecure' meaning that they have some grasp of the topic between 50% & 79%
- A student has **'No Understanding'** of this topic, meaning that they are scoring less than 50% and therefore cannot demonstrate secure understanding of that topic

The sheets contained in this document are **conditionally formatted**. Therefore, if you enter a **'1' for 'Secure', the cell will turn Green**; enter a **'2' for 'Insecure' and the cell will turn Yellow**. Enter a **'3' for 'No Recall' and the cell will turn Red**.

This exercise will identify two vital elements which will enable you to target intervention with laser precision:

- The specific individual learning needs of each student in the target group which can be addressed through small group intervention
- The topics which need to be taught to whole groups. This may be because they have yet to be taught or because they have been taught but not learned.

Testing (**Diagnosis**) should be regular and systematic:

- Knowledge tests**
- Recall questions at the start or end of the lesson**
- Short topic tests**

The emphasis will be on carefully **PLANNING** opportunities for testing throughout the lessons followed by systematic intervention.

How to Use these sheets

- 1 - Enter student names and target grades into the Teacher Tracker sheet
- 2 - Enter topic and knowledge into the Student Tracker - these will automatically feed into your Teacher Tracker Sheet



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Number	Round numbers to a given number of decimal places					
	Multiply decimal numbers					
	Divide decimal numbers					
	Round numbers up to 3 significant figures					
	Estimate answers to calculations					
	Use one calculation to find the answer to another					
	Understand & recognise prime numbers					
	Find factors of numbers					
	Find multiples of numbers					
	Find the HCF between numbers					
	Find the LCM between numbers					
	Find square and cube roots					
	Use & understand index notation					
	Write a number as a product of it's prime factors					
	Use Prime Factor Decomposition to find the HCF & LCM					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Algebra	Simplify Expressions					
	Multiply terms					
	Divide terms					
	Substitute into Expressions incl negative numbers					
	Substitute into simple formulae					
	Expand a single bracket & simplify expressions					
	Factorise an expression into a single bracket					
	Substitute into Scientific formulae					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Graphs, tables & charts	Design tables & data collection sheets					
	Design & use two way tables					
	Construct & interpret composite bar charts					
	Construct & interpret line graphs					
	Construct & interpret time series graphs					
	Construct & interpret stem & leaf diagrams incl back to back					
	Construct & interpret pie charts					
	Construct & interpret scatter graphs					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Fractions & Percentages	Add & subtract fractions with the same denominator					
	Compare Fractions					
	Add & subtract fractions with the different denominators					
	Convert between improper fractions & mixed numbers					
	Add & subtract mixed numbers					
	Calculate a fraction of an amount					
	Multiply fractions incl mixed numbers					
	Divide fractions incl mixed numbers					
	Write a number as a fraction of another					
	Convert between fractions and decimals					
	Convert between fractions and percentages					
	Write a number as a percentage of another					
	Calculate a % of an amount					
	Calculate simple interest					
	Calculate % increases & decreases					
Use %s in real life situations						



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Equations, Inequalities & Sequences	Solve simple, one step linear equations					
	Solve two step equations					
	Solve equations with brackets					
	Solve equations with unknown on both sides					
	Represent & interpret inequalities on a number line					
	Write all integers that satisfy an inequality					
	Solve inequalities					
	Substitute values into formulae					
	Change the subject of a formula					
	Recognise & extend sequences					
	Find & use the nth term of a sequence					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Angles	Solve geometric problems using angle properties of quadrilaterals					
	Identify congruent shapes					
	Solve problems involving angles on parallel lines					
	Solve problems involving angles in triangles					
	Calculate interior & exterior angles in regular polygons					
	Solve problems involving angles in polygons					
	Solve angle problems involving equations					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Averages & Range	Calculate averages & range from discrete data					
	Compare sets of data					
	Calculate the mean & median from a frequency table					
	Calculate mode, median & range from stem & leaf					
	Recognise advantages & disadvantages of each average					
	Estimate mean & from grouped data & find the modal class					
	Find class containing the median					
	Understand the need for sampling & avoiding bias					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Perimeter, Area & Volume 1	Calculate the perimeter of rectangles, parallelograms &					
	Calculate the area of rectangles, parallelograms & triangles					
	Solve problems for missing lengths given the area / perimeter of					
	Calculate area of trapezia					
	Calculate perimeter of trapezia					
	Solve problems for missing lengths given the area / perimeter of					
	Calculate the perimeter of compound shapes					
	Calculate the area of compound shapes					
	Convert between units of area					
	Calculate the surface area of prisms					
	Calculate the volume of prisms					
	Solve real life problems involving volume of prisms					
Convert between units of volume						



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Graphs	Find the midpoint of a line segment					
	Recognise and plot straight line graphs parallel to the axes					
	Recognise & plot $y=x$ & $y=-x$					
	Plot straight graphs from a rule					
	Calculate the gradient of a line					
	Understand that parallel lines have the same gradient					
	Understand what m & c represent in $y=mx + c$					
	Sketch graphs given the values of m & c					
	Find the equation of straight line graphs					
	Draw & interpret graphs from real life data					
	Construct & interpret distance-time graphs					
	Interpret rate of change on graphs					
Draw & interpret real life graphs						



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER						
Unit of Work:							
Topic	Knowledge	RAG					
Transformations	Translate a shape & describe a translation using vector notation						
	Reflect a shape & describe a reflection incl equation of mirror line						
	Rotate a shape & describe a rotation						
	Enlarge a shape given a scale factor						
	Enlarge a shape given a scale factor & centre of enlargement						
	Describe an enlargement						
	Transform shapes using multiple transformations						



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Ratio & Proportion	Write a ratio in it's simplest form & solve simple problems					
	Solve problems involving ratio using a calculator					
	Use ratios to convert between units including shapes & their					
	Share a quantity in a given ratio					
	Compare ratios					
	Solve ratio & proportion problems where proportion is given as					
	Apply the unitary method to solve ratio problems					
	Calculate best value for money					
	Recognise & use direct proportion on a graph					
	Solve word problems involving direct & inverse proportion					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Right-angled Triangles	Calculate lengths of right angled triangles using Pythagoras					
	Apply Pythagoras in context situations					
	Calculate the length of a line segment					
	Calculate missing lengths using trigonometric ratios					
	Calculate missing angles using trigonometric ratios					
	Know the exact trigonometric values for 30°, 45°, 60° & 90°					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Probability	Calculate simple probabilities from equally likely outcomes					
	Understand mutually exclusive & exhaustive outcomes					
	Construct & interpret two way tables & sample space diagrams					
	Find & interpret probabilities based on experimental data					
	Use Venn diagrams to calculate probabilities					
	Understand the language & of sets for Venn diagrams					
	Construct & use frequency tree diagrams for probability					
	Construct and use tree diagrams for probability					
	Construct & interpret tree diagrams when events are not independent					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Multiplicative Reasoning	Calculate % profit or loss					
	Express a number as a % of another incl those in complex situations					
	Calculate the original amount given a % change					
	Find an amount after repeated % change					
	Solve problems involving growth & decay					
	Solve problems involving density					
	Solve problems involving pressure					
	Solve problems involving speed					
	Convert between metric speed measures					
	Use ratio & proportion in measures & conversions					
	Use inverse proportions					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Construction, Loci & Bearings	Recognise 3D shapes & their properties					
	Draw & interpret plans & elevations of 3D shapes					
	Make accurate drawings of triangles & quadrilaterals (using ASA, SAS & SSS for triangles)					
	Identify congruent triangles					
	Construct & interpret scale drawings & maps					
	Recognise & construct nets of 3D objects					
	Construct the perpendicular bisector					
	Construct an angle bisector					
	Construct a perpendicular from a point to a line					
	Draw loci from a given rule					
	Identify regions bounded by loci					
	Construct and calculate bearings					
	Solve problems involving bearings					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Quadratic Equations & Graphs	Expand a pair of brackets incl squared brackets					
	Plot graphs of quadratic functions					
	Know the properties of quadratic graphs					
	Solve quadratics using a graph					
	Factorise quadratic expressions					
	Solve quadratic functions algebraically					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Perimeter, Area & Volume 2	Calculate the circumference of a circle					
	Solve problems involving the circumference of a circle					
	Calculate the area of a circle					
	Solve problems involving the area of a circle					
	Calculate the perimeter of sectors					
	Calculate the area of sectors					
	Calculate the volume of cylinders					
	Calculate the surface area of cylinders					
	Calculate the volume of pyramids & cones					
	Calculate the surface area of pyramids & cones					
	Calculate the volume of spheres & hemispheres					
	Calculate the surface area of spheres & hemispheres					
Calculate the volume & surface area of composite solids						



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Fractions, Indices & Standard Form	Multiply fractions & mixed numbers					
	Divide fractions & mixed numbers					
	Apply the laws of indices					
	Write large and small numbers in standard form					
	Write a value given in standard form as an ordinary number					
	Multiply & divide numbers in standard form					
	Add & subtract numbers in standard form					



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER						
Unit of Work:							
Topic	Knowledge	RAG					
Congruence, Similarity & Vectors	Use similarity to solve problems with enlarged shapes						
	Calculate perimeters of similar shapes						
	Recognise congruence & apply to calculate missing angles						
	Use congruence to calculate missing lengths						
	Add & subtract vectors						
	Find the resultant of two vectors						
	Find multiples of a vector						



Personalised Learning Checklist

Course and Examining Board:	GCSE EDEXCEL MATHEMATICS - FOUNDATION TIER					
Unit of Work:						
Topic	Knowledge	RAG				
Further Algebra	Draw & interpret graphs of cubic functions					
	Draw & interpret graphs of simple reciprocal functions					
	Draw & interpret non-linear graphs to solve problems					
	Solve simultaneous equations graphically					
	Solve simultaneous equations algebraically					
	Change the subject of a formula					
	Know the difference between expressions, equations, formula					
	Prove results using algebra					

