Mathematics National 4 Course Outline and Revision Links

Numeracy (to be embedded throughout)

Topic	Skills	Links
Whole Numbers	- Rounding to nearest 10, 100, 1000 - Adding/Subtracting/Multiply/Dividing - Multiplying/Dividing by multiples of 10,100,1000 - Estimation - Order of Operation	Rounding multiply and divide by 10, 100, 1000 multiplying multiples of 10 order of operations
Negative Numbers	Reading and interpreting scales	adding and subtracting integers video
Decimals	- Rounding to 1,2 & 3 decimal places - Adding/Subtracting/Multiply/Dividing - Multiplying/Dividing by multiples of 10,100,1000 - Significant figures	Rounding
Time	- Use 12h and 24h time - Calculating time intervals (N)	time intervals game
	PRELIM (UNIT ASSESSMENT)	
	February	

Expressions & Formula (combined with Numeracy)

Topic	Skill	
Fractions	- Equivalence and Simplifying (N) - Fraction of a quantity (N) **Adding and Subtracting*** **Converting between mixed numbers and improper fractions***	adding and subtracting fractions video
Percentages	- Percentage of a quantity (N) - Percentage increase/decrease (N) - Ordering and converting fractions, decimals and percentages (N)	
Areas and Volumes	- Perimeter (N) - Area of square, rectangle, triangle (N) - Composite areas – including kites, parallelograms and trapezia **Quadrilaterals – creation and use of formulae*** - Volume of cube, cuboid (N)	Area of 2D Shapes Summary
Surface Area	Surface area of prisms	Surface Area Summary
Statistics	- Frequency Tables – grouped and ungrouped - Finding and interpreting Mean, Median, Mode and Range - Make comparisons on averages and range - Line/Bar Graph/Comparative Bar Graph (make comparisons on distribution) (N) - Stem & Leaf Diagram (N) - Probability (focus on justifying a decision) (N)	Statistics & Probability Statistics Support Notes
Measure	- Measuring length and reading scales (N) - Converting units of length (N) - Packaging Tasks (e.g. how many tins can you fit in a box) (N) - Measure angles using a	

	- protractor (N) - Interpret pie charts (N) - Construct pie charts using a protractor	
Money	- Commission (N) - Hire Purchase (N) - Comparisons – best deal (N) - Foreign Exchange (N)	
Ratio & Proportion	- Simplifying a ratio (N) - Ratio calculations including sharing in a given ratio (N) - Direct Proportion (N)	Ratio
Speed/Distance/Time	- Expressing hours and minutes as a decimal (& vice versa) (N) - Calculating D/S/T (N)	Distance, Speed & Time Distance, Speed & Time Support Notes
Algebra	- Calculations involving negatives (including subtracting a negative) - Simplifying expressions that have more than one variable i.e. 4x + 3y – 2x + 10y Multiplying out brackets in form a(bx + c) **Multiplying out brackets and simplifying up to and including*** $a(x + b) + c(x + d)$ - Substituting values and evaluating expressions - Factorising using a common factor	Brackets Summary Factorisation
Rotational Symmetry	- Review of Line Symmetry - Completing a drawing with rotational symmetry	Rotational Symmetry Summary
Circle	- Circumference - Area of a circle - Problems involving simple fractions of a circle and composites **Surface area of cylinders***	
Volume	- Volume of prisms, triangular prisms and cylinders - Finding missing values of 3D shapes based on volume	Volume of Solids Summary
Linear Patterns	Extending linear patterns and	Patterns & Relationships Summary

	finding a formula • Evaluating a formula to find unknown values	
Gradient	• Finding the gradient using vertical over horizontal approach • Finding the gradient on the coordinate axes	Introduction to Gradient video

Mathematics National 4 Timeline

Relationships

Topic	Lesson	Completed (✓ / ✕)
Straight Line	• Constructing a straight line graph (include negative co-ords) • Interpreting a straight line graph knowing $m \ and \ c$* • Graphs in the form $x = a \ and \ y = b$	Drawing Straight Lines Support Notes Gradient & Equation of a Line Summary Introduction to Gradient video The Equation of a Straight Line video Horizontal & Vertical Lines video
Statistics	• Construct a scatter graph • Describe a correlation • Draw line of best fit and use to make observations, estimates or decisions	Statistics & Probability Statistics Support Notes
Algebra	• Solving linear equations i.e. 3x + 2 = 2x + 10 • **Solving inequations*** • Change the subject of a linear formula	Changing the Subject of a Formula Summary Inequalities Summary
Pythagoras' Theorem	• Finding the hypotenuse • Finding any side • Finding the distance between two points (include negative co-ords)	Pythagoras Theorem Summary Pythagoras Theorem Support Notes Pythagoras Theorem Introduction video Pythagoras Repeated Use video Pythagoras in Disguise video Distance Between 2 Points video
Angles	• Review of angles: straight angles, angles round a point, alternative, corresponding and vertically opposite angles • Review of angles in triangles • Angles in a semi-circle	Angles & Circles Summary
Trigonometry	• Labelling the sides and identifying the correct ratio • Finding a side • Finding an angle • Justifying a decision using the result of a calculation	Trigonometry SOH CAH TOA SOHCAHTOA Support Notes SOHCAHTOA – Find a Missing Side video SOHCAHTOA – Find a Missing Angle video
Scale Factor	• Using a length scale factor to make calculations (include fractional scale factors) • Using a length scale factor	Scale Factors Summary

	to complete a drawing (rectilinear) (include fractional scale factors) • Investigating the difference between length scale factor and area scale factor • Reductions and Enlargements using length/area scale factor	
	NAB	
	Easter Holidays	
	Revision/ Past Paper Questions to Added Value	
	May	

* = extension to Nat 5

(N) = numeracy outcomes