S4 National 4 Course Notes

National 4 Numeracy

<u>Whole Numbers and Negative Numbers</u>
 	
<u>Money and Percentages</u>
Use Basic percentages and VAT
Foreign Exchange
Hire Purchase
 	
<u>Time, Distance and Speed</u>
12 - 24 hour time
Time intervals
Speed, distance, time calculations
Distance time graphs
 	
<u>Ratio and Proportion</u>
Direct proportion
Divide a quantity in a given ratio
 	
<u>Length and Measurement</u>
Calculate the perimeter of a composite shape
Measure length, angle and capacity
 	
<u>Graphs, Charts and Tables</u>
Extraction and interpretation of data <u>and</u> making and explaining decisions based on interpretation of data from:
- Tables with at least 4 categories of information
- Charts where the values are given or where the scale is
  obvious e.g.pie
- Graphs where the scale is obvious e.g. bar, pie, scatter,
  or line graph
- Diagrams such as Stem & leaf , maps or plans
 	
<u>Probability</u>
Calculation of Probability
Convert equivalences between fractions
Making and explaining decisions based on comparison of probabilities

National 4 Expressions and Formulae	
Expressions and Formulae 1.1	
Simplifying Expressions in the form $a+4b-a+6b$	TJ Nat4-1 Ch 7, TJ Nat4-2 Ch 17
Expanding brackets in the form $5(a \pm 2c)$ or $3(4x \pm 2)$	TJ Nat4-1 Ch 7, TJ Nat4-2 Ch 1
Evaluating an expression $4w+6t-3k$	TJ Nat4-2 Ch 14
Factorising expressions $9c + 27$, $6a - 8$, $x^2 -2x$	TJ Nat 4-2 Ch 17
Extending a straightforward number or diagrammatic pattern $(1,3,5,7, . . .)$ and determining its formula Evaluate the determined formula for a given value	TJ Nat4-1 Ch 16, TJ Nat4-2 Ch 15
Calculate gradient - <u>Vertical distance</u> horizontal distance	TJ Nat4-2 Ch 4
Expressions and Formulae 1.2	
Calculate circumference & area of a circle	TJ Nat4-1 Ch 9, TJ Nat4-2 Ch 11
Calculating the area of a parallelogram, kite & trapezium	
Investigate the surface area of a prism	TJ Nat4-1 Ch 14 & 26,
Calculate the volume of Cylinders and other prisms	TJ Nat4-2 Ch 6 & 8
Using rotational symmetry with straightforward linear shapes	TJ Nat4-2 Ch 3
Expressions and Formulae 1.3	
Frequency tables from raw data	TJ Nat4-2 Ch 16
Calculate, use and understand Mean, median, mode & range	TJ Nat4-1 Ch 12 & 24
Stem and Leaf Diagrams Pie charts – calculation of sector angles and drawing Pie Charts	TJ Nat4-1 Ch 12 & 24
Calculation of Probability and Interpret probability in the context of risk	TJ Nat4-1 Ch 17

National 4 Relationships	
Relationships 1.1 Solving Linear Equations ax+b=c, ax+b=cx +d Solving Equations with brackets a(x + b) = c Solving Inequations	TJ Nat 4-1 Ch 7 & 22
Draw a graph of $y = mx +c$ for chosen values of x Recognise the equation of a straight line $y = mx +c$ and know the meaning of m and c Recognise and use $y=a$, $x=b$	TJ Nat4-2 Ch 4
Change the subject of the formulae: - $G=x + a$ to x - $h =$ nv to n - $E=3wk − 3$ to w	TJ Nat4-2 Ch 4
	TJ Nat 4-2 Ch 14
Relationships 1.2 Using Pythagoras Theorem to calculate the hypotenuse and shorter sides if given measurements and coordinates	TJ Nat4-1 Ch 13 & 21
Enlarge/ reduce shapes given scale factor, including fractional scale factor Scale Drawings	TJ Nat 4-1 Ch 5 & 21
Combination of angle properties associated with: - Intersecting and parallel lines - Triangles and quadrilaterals	TJ Nat4-1 Ch 2
Circles: angles in a semi-circle relationship between tangent and radius	TJ Nat4-2 Ch 7 & 13
Relationships 1.3 Tan, Sine and Cosine Ratio - Finding a side - Finding an angle Using SohCahToa to choose the correct ratio	TJ Nat4-2 Ch 5 & 9
Relationships 1.4 Scatter graphs and Line of Best Fit	TJ Nat4-1 Ch 12, TJ Nat4-2 Ch 16