Year 11 Autumn 1 Data and Constructions

Themes	Objectives (TG 1-9)	Homework Sheets	Interventions - Mathswatch video and worksheet
Data	- Produce and *interpret:* pictograms; *bar charts,* bar-line charts; vertical line charts; line graphs for time–series data; stem and leaf (TG1) - Write simple lists and combinations (TG1) - Recognise types of data (TG2) - Understand sample and population, bias, how sample sizes affect reliability, identify sources of bias and plan to minimise it (TG2) - Produce and interpret: composite bar charts; dual/comparative bar charts for categorical and ungrouped discrete data (TG2) - *Calculate the averages and range for discrete data (TG2)* - Interpret two way tables and frequency trees (TG2) - *Draw and interpret pie charts (TG3)* - Construct/design a two-way table (TG4) - Design and use data-collection sheets (TG4) - Interpret and find a range of averages: median, mean and range from a (discrete) frequency table; mode and range from a bar chart; median and range from stem and leaf diagrams (TG4) - Evaluate different measures of average (TG4) - Evaluate charts on their appropriate-ness (TG4) - Draw scatter graphs; **draw the line of best fit by eye**, and understand what it represents (TG4) - Identify all permutations and combinations in a scenario (TG4) - Construct and **interpret grouped frequency tables for continuous data;** for grouped data: find the interval containing the median and **modal class; estimate the mean (TG5)** - **Use line of best fit to predict values of a variable (TG5)** - **Understand all types of correlation; interpret scatter graphs in terms of the relationship; interpret correlation in terms of the problem. Comment on the strength of correlation (TG5)**	*Green homework sheet 1* **Green homework sheet 2** ***Green homework sheet 3***	15 Tally Charts and Bar Charts 16 Pictograms 57 Frequency Trees 58 Listing Outcomes 61 Two-Way Tables 62 Averages and the Range 63 Data - Discrete and Continuous 64 Vertical Line Charts 65a Frequency Diagrams 65b Frequency Polygons 128a Pie Charts 128b Stem and Leaf Diagrams 129 Scatter Diagrams 130a Averages from a table - Basics 130b Estimate for the Mean 152 Sampling Populations 153 Time Series 176 Stratified Sampling 186 Cumulative Frequency 187 Boxplots 205 Histograms

	- *Produce box plots from raw data,* and when given quartiles and median, identify any outliers (TG5) - Interpret box plots to find median, quartiles, range and interquartile range, and draw conclusions (TG5) - *Questions involving reverse mean, median, mode, range calculations (TG5)* - **Produce** and interpret **frequency polygons (TG6)** - *Know the use of cumulative frequency diagrams; construct and interpret: CF tables, CF graphs/diagrams, and from the graph: estimate frequency greater/less than a given value; find the median and quartile values and interquartile range (TG6)* - Interpret gradient of a line of best fit (TG6) - *Know the uses of histograms; use and understand frequency density; construct and interpret histograms from class intervals with equal and unequal class intervals (TG7)* - *From histograms: complete a grouped frequency table, estimate the mean and median or any other information (TG8)* - Use statistics found in all histograms and cumulative frequency graphs and box plots to describe a population (TG8)		
Constructions	- Measure lines accurately (TG1) - Measure angles accurately (TG2) - *Construct a triangle with a ruler and protractor (TG3)* - Understand, draw and measure bearings (TG3) - *Use standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line/at a given point, bisecting a given angle, 90 degree and 45 degree angles) (TG4)* - *Construct a triangle with a ruler and a compass (TG4)* - *Use standard constructions (described above) in loci problems and to construct given figures (TG5)* - Problems with bearings to scale (TG5) - Calculate bearings and solve bearing problems (TG5)	*Green homework sheet 4*	165 Loci 146a Constructing Perpendiculars - Bisecting a Line 146b Constructing Perpendiculars - From any Point