**Y11 Work for perspective Y12 core maths**

**Paper 1 – Relevant Hegarty tasks in brackets**

**Percentages and Risk:**

* Calculate percentages of amounts including % increase and decrease. (90, 87)
* Use a multiplier for simple and repeated percentage change. (89, 92, 91)
* Calculate percentage change and reverse percentages. (97, 96)
* Identify risk as a ‘*1 in n’* chance of happening. (331)
* Apply percentages to tasks involving money, interest and depreciation. (93, 94, 95)

**Estimation:**

* Standard calculator skills using roots, powers etc. (129)
* Estimate answers by rounding each part of an equation to 1 sf. (131)
* Calculate and work with error bounds. (774 – 777)

**Formulae:**

* Be able to write a formula from a given text. (176)
* Rearrange formulae to change the subject of the formula. (280-286)
* Calculate using a formula. (287, 278, 279)

**Graphs:**

* Plot linear graphs from a simple formula. (206, 895)
* Use displacement-time and speed-time graphs including what the gradient represents. (874-879, 882, 884, 885)
* Calculate gradients of linear graphs and using context. (894, 897)
* Draw a tangent to a curve and calculate gradient at a point. (889)

**Standard form:**

* Freely move between number form and standard form. (122-124)
* Calculate using standard form. (125-128)

**Measures and Scaling:**

* Work with scale factors for length, area and volume. (614 - 621)
* Convert units, especially those used in maps. (865-867)
* Be able to draw plans and elevations for 3D objects. (837-844)

**Exponentials:**

* Be able to represent exponential growth and decay on a graph. (302, 800, 801, 804-811)
* Calculate using an exponential formula. (796-798)

**Probability:**

* Identify possibility spaces and calculate probabilities of outcomes. (359)
* Use frequency trees to calculate relative frequencies and probability trees to calculate probabilities for independent and dependent events, including conditional probability. (361-369)
* Fill in missing values in two-way tables and use these to calculate relative frequencies (also links in to stratified sampling in paper 2). (422-424)

**Statistics:**

* Recognise the difference between discrete and continuous data. (393)
* Plot scatter graphs and be able to identify outliers from bivariate data. (453, 454)
* Calculate means and be able to use weighted means. (408, 417, 418)
* Be able to draw dot plots, bar charts, pie charts, boxplots, and cumulative frequency graphs and interpret them also. (434-436, 440, 437-439, 427-429)

 **Paper 2**

**Measures of location and spread:**

* Using range and interquartile range to compare consistency of data. (412)
* Using measures of central tendency to compare data. (440, 436, 413)

**Linear Transformations:**

* How does increasing/decreasing every value by a set amount effect the average and spread?
* How does increasing/decreasing every value by a proportion effect the average and spread?
* What about both? (419-421)

**Sampling methods:**

* Recognise different sampling methods from a description of how data collected. Main ones are random, stratified, opportunity, systematic, cluster. (395)
* Calculate values for a stratified sample. (396-398)
* Comment on improvements that can be made to sampling techniques in context. (394)