**Y13 Applied Maths Self-Assessment Sheets**

Chapter 1 – Regression, correlation and hypothesis testing

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| **Sub-topic** | **Progress Descriptor** | **☺** | **☹** |
| Correlation | Use a linear change of variable with bivariate data |  |  |
| Correlation | Calculate the PPMC as a measure of correlation |  |  |
| Correlation | Interpret the PPMC as a measure of correlation |  |  |
| Correlation | Understand exponential models in bivariate data |  |  |
| Correlation | Understand the effect of a change of variable on the PPMC |  |  |
| Correlation | Use a change of variable to estimate coefficients for an exponential model |  |  |
| Testing correlation | Carry out a hypothesis test for zero correlation |  |  |
| Testing correlation | Interpret the results of a hypothesis test for zero correlation |  |  |
| Testing the normal | Carry out a hypothesis test for the mean of a normal distribution |  |  |
| Testing the normal | Interpret the results of a hypothesis test for the mean of a normal distribution |  |  |
| What I need to do to improve… | | | |

Chapter 2 – Conditional Probability

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| **Sub-topic** | **Progress Descriptor** | **☺** | **☹** |
| Set notation | Understand set notation |  |  |
| Set notation | Understand set notation in the context of Venn diagrams |  |  |
| Set notation | Calculate probabilities using set notation |  |  |
| Conditional probability | Understand the language and notation of conditional probability |  |  |
| Conditional probability | Calculate conditional probabilities using two-way tables |  |  |
| Conditional probability | Calculate conditional probabilities using formulae |  |  |
| Conditional probability | Understand and calculate conditional probabilities in the context of Venn diagrams |  |  |
| Conditional probability | Understand and calculate conditional probabilities in the context of tree diagrams |  |  |
| Conditional probability | Understand independence and its associated rules in the context of conditional probability |  |  |
| Modelling | Model with probability in unfamiliar contexts, including critiquing assumptions |  |  |
| What I need to do to improve… | | | |

Chapter 3 – Normal distribution

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| **Sub-topic** | **Progress Descriptor** | **☺** | **☹** |
| Normal distributions | Understand the basic features of the normal distribution including parameters, shape and notation |  |  |
| Normal distributions | Understand the link between the normal curve and an appropriate histogram |  |  |
| Normal distributions | Understand the standard normal distribution |  |  |
| Normal distributions | Calculate probabilities for the standard normal distribution using a calculator |  |  |
| Normal distributions | Transform values between a general normal and the standard normal and perform calculations |  |  |
| Normal distributions | Find unknown means and/or standard deviations for normal distributions |  |  |
| Normal distributions | Locate the points of inflection of a normal distribution |  |  |
| Normal distributions | Use the normal distribution to approximate a binomial distribution |  |  |
| Normal distributions | Understand and use a continuity correction |  |  |
| Normal distributions | Solve real-life problems in context using probability distributions |  |  |
| Modelling | Select, with justification and critiquing, an appropriate distribution for a context |  |  |
| What I need to do to improve… | | | |

Chapter 4 – Moments

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| **Sub-topic** | **Progress Descriptor** | **☺** | **☹** |
| Moments | Understand the definition of a moment |  |  |
| Moments | Understand the units of a moment |  |  |
| Moments | Calculate moments |  |  |
| Moments | Calculate sums of moments |  |  |
| Moments | Find resultant moments by considering direction |  |  |
| Moments | Solve equilibrium problems involving horizontal bars |  |  |
| Moments | Solve equilibrium problems involving non-uniform rigid bodies |  |  |
| Moments | Solve problems involving bodies on the point of tilting |  |  |
| Moments | Solve equilibrium problems involving moments in unfamiliar contexts |  |  |
| What I need to do to improve… | | | |

Chapter 5 – Forces and friction

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| **Sub-topic** | **Progress Descriptor** | **☺** | **☹** |
| Forces & friction | Resolve forces acting at an angle |  |  |
| Forces & friction | Combine forces using a vector diagram |  |  |
| Forces & friction | Find the resultant of coplanar forces given in magnitude/direction form |  |  |
| Forces & friction | Resolve forces parallel and perpendicular to an inclined plane |  |  |
| Forces & friction | Understand motion for a particle on an inclined plane |  |  |
| Forces & friction | Solve problems involving motion on a smooth inclined plane |  |  |
| Forces & friction | Understand the standard model for friction, including in motion, and the coefficient of friction |  |  |
| Forces & friction | Solve problems involving motion on a rough horizontal surface |  |  |
| Forces & friction | Solve problems involving motion on a rough inclined plane |  |  |
| Forces & friction | Solve problems in unfamiliar contexts using the concepts of friction and motion |  |  |
| What I need to do to improve… | | | |

Chapter 6 – Projectiles

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| **Sub-topic** | **Progress Descriptor** | **☺** | **☹** |
| Projectiles | Model horizontal projection under gravity |  |  |
| Projectiles | Resolve velocity into horizontal and vertical components |  |  |
| Projectiles | Model motion in the vertical plane under gravity, including the use of vectors |  |  |
| Projectiles | Solve problems in familiar contexts involving projectile motion |  |  |
| Projectiles | Solve problems in unfamiliar contexts involving projectile motion |  |  |
| Projectiles | Derive formulae for projectile motion |  |  |
| What I need to do to improve… | | | |

Chapter 7 – Applications of forces

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| **Sub-topic** | **Progress Descriptor** | **☺** | **☹** |
| Statics | Work with systems of coplanar forces in equilibrium |  |  |
| Statics | Use weight, tension, thrust, etc. in statics problems |  |  |
| Statics | Use friction in statics problems: the concept of limiting equilibrium |  |  |
| Statics | Solve problems involving static rigid bodies on rough surfaces |  |  |
| Statics | Solve problems involving more than one particle on rough and smooth inclined planes |  |  |
| Statics | Solve general connected particle problems in familiar and unfamiliar contexts |  |  |
| Moments | Solve ladder equilibrium problems and equilibrium problems involving rods hinged at walls |  |  |
| What I need to do to improve… | | | |

Chapter 8 – Further Kinematics

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| **Sub-topic** | **Progress Descriptor** | **☺** | **☹** |
| Variable acceleration | Understand general kinematics problems with vectors |  |  |
| Variable acceleration | Solve general kinematics problems using more complex functions of time |  |  |
| Variable acceleration | Solve general kinematics problems using calculus of vectors |  |  |
| Variable acceleration | Solve general kinematics problems in a range of contexts using vectors |  |  |
| What I need to do to improve… | | | |