Half term 1

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| **What will be learning?**  **Teacher 1**  Pure Chapter 5 – Radians  Pure Chapter 6 – Trigonometric functions  Pure Chapter 7 – Trigonometry and modelling  **Teacher 2**  Applied Chapter 1 – Regression, correlation and hypothesis testing  Applied Chapter 2 – Conditional probability  Applied Chapter 3 – The normal distribution | **Why this? Why now?**  Radians and Year 2 Trigonometry are needed before looking at Parametric Equations and Year 2 Differentiation and Integration. | **Key Words:**    Sector  Segment  cot  sec  cosec  arcsin  arccos  arctan  Compound angle  Double angle  Product moment correlation coefficient  Intersection  Union  Complement  Continuity correction |
| **Helpful hints**  Make sure you learn your formulas for arc length and sector are…a or know how to work them out…they are not given in the formula booklet.  Make sure you know your double angle formulas and tan, sec, cot and cosec equations linked to Pythagoras theorem… or know how to work them out…write them down at the beginning of any exam…they are not given in the formula booklet | |
| **What opportunities are there for wider study?**  Try being a Climate Scientist:  <https://amsp.org.uk/resource/Estimating-and-reasoning>         Try being an Actuary:  <https://amsp.org.uk/resource/risk> | |
| **How will I be assessed?**    Topic test 1 (Pure Chapter 1, 3 and 4)  Topic test 2 (Applied Chapter 1 and 2)  Topic test 3 (Pure Chapter 2 and 5) | |

Half term 2

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| **What will be learning?**  **Teacher 1**  Pure Chapter 12 – Vectors  Pure Chapter 8 – Parametric equations  **Teacher 2**  Pure Chapter 9 – Differentiation | **Why this? Why now?**  The Pure Year 2 Vectors work leads on to Year 2 Mechanics started next half term. | **Key Words:**    Unit vector  Cartesian  Domain  Range  Small angles  Chain rule  Product  Quotient rule  Concave  Convex  Point of inflection |
| **Helpful hints**  Always use column vectors to do your workings instead of leaving in terms of I, j and k | |
| **What opportunities are there for wider study?**  See these applications of calculus in everyday life:  <https://www.byjusfutureschool.com/blog/the-application-of-calculus-in-everyday-life/> | |
| **How will I be assessed?**     Topic test 4 (Pure Chapter 6, 7 and 12)   Topic test 5 (Applied Chapter 3) | |

Half term 3

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| **What will be learning?**  **Teacher 1**  Applied Chapter 5 – Forces and Friction  Applied Chapter 6 – Projectiles  Applied Chapter 7 – Applications of forces (parts of)  **Teacher 2**  Pure Chapter 10 – Numerical methods  Pure Chapter 11 – Integration (started) | **Why this? Why now?**  Pulling everything Mechanics and Pure wise from the past 2 years together with Applications of Mechanics and Integration. | **Key Words:**    Coefficient of friction  Horizontal component  Vertical component  Constant velocity  Constant acceleration  Iterative  Newton-Raphson formula |
| **Helpful hints**  Mechanics – a good diagram is key to succeed – make sure you have included all the relevant forces and split those that need to be in to parallel and perpendicular components through drawing a right-angled triangle. | |
| **What opportunities are there for wider study?**  Try working in Orthotics and Prosthetics:  <https://amsp.org.uk/resource/angles-and-forces> | |
| **How will I be assessed?**     Topic test 6 (Pure Chapter 8 and 9)   Topic test 7 (Applied Chapter 5, 6 and 7)  Internal exams | |

Half term 4

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| **What will be learning?**  **Teacher 1**  Applied Chapter 8 – Further kinematics  Applied Chapter 4 – Moments  Applied Chapter 7 – Applications of forces (moments)  **Teacher 2**  Pure Chapter 11 – Integration | **Why this? Why now?**  Pulling everything Mechanics and Pure wise from the past 2 years together with Applications of Mechanics and Integration. | **Key Words:**    Variable acceleration  Initial condition  Boundary condition  Uniform  Integration by substitution  Integration by parts  Trapezium rule |
| **Helpful hints**  Moments at an angle – resolve horizontally and vertically and take moments about the awkward point – this should give you enough information to solve the problem.    Remember the variable Acceleration diagram | |
| **What opportunities are there for wider study?**  Try aspiring to be an astronaut:  <https://amsp.org.uk/resource/geometry-and-equations-of-motion> | |
| **How will I be assessed?**    Topic test 8 (Applied Chapters 4 and 8)   Topic test 9 (Pure Chapter 10 and 11)  Mocks | |