**Year 11 Trilogy**

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| **P1 Energy** |
| **Student Objective** | **DR** | **Em** | **As** | **Ex** |
| 1.Energy stores and systemsForms of energy, energy changes |   |   |   |   |
| 2. Potential energyEquation for PE , calculations |   |   |   |   |
| 3. Kinetic energyEquation for KE, calculations |   |   |   |   |
| 4. SHCEquation \*Required practical\*, aluminium blocks and heaters |   |   |   |   |
| 5. Conservation and powerEquation |   |   |   |   |
| 6. Reducing energy transfer\*Required Practical\* - beakers |   |   |   |   |
| 7. EfficiencyEquation, calculations, demo practical , kettle |  |  |  |  |
| 8. Non renewableResearch |  |  |  |  |
| 9. RenewableResearch |   |   |   |   |

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| **P2 Electricity** |
| **Student Objective** | **DR** | **Em** | **As** | **Ex** |
| 1. Current and circuit symbolsDraw and interpret circuit diagrams, identify symbols |   |   |   |   |
| 2. Resistance and Ohms LawEquation, calculations |   |   |   |   |
| 3. Resistance of a wire\*Required practical\*, length of wire |   |   |   |   |
| 4. I-V CharacteristicsDiodes, lamps and resistors, |   |   |   |   |
| 5. Resistance of a lamp\*Required practical\*, lamps |   |   |   |   |
| 6. Circuit devicesThermistors, LDR’S |   |   |   |   |
| 7. Series circuitsPractical work, making circuits |  |  |  |  |
| 8. Parallel circuitsPractical work, making circuits |  |  |  |  |
| 9. Electricity at homeAC and DC, plugs practical |  |  |  |  |
| 10. PowerEquation, calculations |  |  |  |  |
| 11. More on powerEquation, calculations |  |  |  |  |
| 12. National GridTransformer kit, diagrams |  |  |  |  |

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| **P3 Particle Model** |
| **Student Objective** | **DR** | **Em** | **As** | **Ex** |
| 1. Particle modelSolids , liquids and gases |   |   |   |   |
| 2. Density of materials equationUsing an equation, calculations |   |   |   |   |
| 3. Density of materials practical\*Required practical\*, density of irregular objects |   |   |   |   |
| 4. Internal energy and state changesMelting, condensing, boiling etc |   |   |   |   |
| 5. Specific Latent HeatGraph of changing state, equation, calculations |   |   |   |   |

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| **P4 Atomic structure** |
| **Student Objective** | **DR** | **Em** | **As** | **Ex** |
| 1. Model of the atomPlum pudding model, Rutherford |   |   |   |   |
| 2. Mass numberCalculations |   |   |   |   |
| 3. Nuclear radiationAlpha, beta and gamma properties |   |   |   |   |
| 4. Nuclear EquationsCalculations on alpha and beta emission |   |   |   |   |
| 5. Half lifePlotting and interpreting graphs |   |   |   |   |
| 6. Irradiation and contaminationResearch |   |   |   |   |

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| **P5 Forces and interactions** |
| **Student Objective** | **DR** | **Em** | **As** | **Ex** |
| 1. Contact and non contact forcesExamples of forces, scalar and vector |   |   |   |   |
| 2. Weight mass and gravityComparison, calculations |   |   |   |   |
| 3. Resultant forces and work doneExamples, equation |   |   |   |   |
| 4. Calculating forcesResolving forces |   |   |   |   |
| 5. Forces and elasticityHooke’s Law practical |   |   |   |   |
| 6. Investigating springsCalculations on spring constant |   |   |   |   |
| 10. Speed and velocityScalar, vector, equation, calculations |  |  |  |  |
| 11. AccelerationEquations |  |  |  |  |
| 12. GraphsPlotting and interpreting graphs of motion |  |  |  |  |
| 13. Terminal velocityPlotting and interpreting graphs |  |  |  |  |
| 14. Newtons first and second lawsExamples, equations |  |  |  |  |
| 15. Inertia and Newtons third lawSummary notes, examples |  |  |  |  |
| 16. Investigating motion\*Required practical\* F = ma (ramps) |  |  |  |  |
| 17. Stopping distancesEquation, calculations |   |   |   |   |
| 18. Reaction timesPractical work |   |   |   |   |
| 19. FactorsExamples |   |   |   |   |
| 20. MomentumEquation, calculations, conservation of momentum |   |   |   |   |

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| **P6 Waves** |
| **Student Objective** | **DR** | **Em** | **As** | **Ex** |
| 1. Describing wavesLabels, properties and calculating wave speed |   |   |   |   |
| 2.Transverse and longitudinal wavesCompare and contrast |   |   |   |   |
| 3. Types of em wavesExamples and remembering the order |   |   |   |   |
| 4. EM waves properties and dangersResearch , comparison |   |   |   |   |
| 5. EM waves properties (uses)Research, microwaves, communication |   |   |   |   |
| **P7 Magnets and electromagnets** |
| **Student Objective** | **DR** | **Em** | **As** | **Ex** |
| 1. Permanent and induced magnetsInvestigate materials, attract and repel |   |   |   |   |
| 2. Magnetic fieldsPlotting fields using compasses and iron filings |   |   |   |   |
| 3. Making magnetsMaking and testing magnets (stroking) |   |   |   |   |
| 4. ElectromagnetsMaking electromagnets, changing strength |   |   |   |   |
| 5. Investigating electromagnets Investigating the number of paper clips picked up |   |   |   |   |
| 6. Motor effectTheory, models |   |   |   |   |
| 7. Electric motorsLH rule, equation, calculations |  |  |  |  |