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| **Year 11 Curriculum Map : Physics** |
| **Assessment Objectives** | **AO1** - Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures (40%)**AO2** - Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures. (40%)**AO3** - Analyse information and ideas to: interpret and evaluate; make judgements and draw conclusions; develop and improve experimental procedures. (20%) |
| **Unit Length** | **Topic:** – Forces 3 – 14/19 lessons.(Autumn term) |
| **Key Learning Outcomes** | 1. Introduction to forces
2. Resultant forces
3. Vector diagrams (higher and separate)
4. Newton’s laws
5. Weight, mass, and gravity
6. Work done
7. Multiple equations (higher and separate)
8. Progress assessment
9. Reteach and DIRT
10. Speed and acceleration
11. Motion graphs
12. Acceleration required practical
13. SUVAT
14. Stopping distances
15. Momentum (higher and sperate)
16. Changes in momentum (separate only)
17. Spring constant required practical
18. Moments (separate only)
19. Pressure (separate only)
20. EOU assessment
21. Reteach and DIRT.
 |
| **Prior knowledge** | **Year 7 – Forces 1** All content **Year 9 – Forces 2** All content |
| **CEIAG** **Specific careers links** | Crash scene investigator.Rollercoaster designer. Structural engineer.Police officer.  |
| **RRSA** | Article 14: Freedom of thought, belief and religionArticle 24: Health and the Health servicesArticle 28: Right to educationArticle 29: Goals of educationArticle 27: Adequate standard of living |
| **Cross curricular links** | Numeracy – Equations of motion, gradients, and area under the graph. Technology – CAD/CAM design. Moments, gears and levers. |
| **Useful websites/videos** | <https://www.youtube.com/playlist?list=PL9IouNCPbCxUrQkFLoPwB67nDbhw2NfAO> – Free science lessons<https://classroom.thenational.academy/units/forces-6562> - Oak National Academy  |
| **Wider Reading** | The Highway codeForces of nature, Brian Cox. |
| **Literacy Programme** | * Decode it NOW
* Guided practice/model answers
* Sentence Starters
* Writing strategies
 |
| **Independent Learning Tasks** | Mind-map revision homeworkRetrieval practice homework Knowledge Organiser practice questionsSelective reading activitySeneca quiz ILTExam practice questionsOAK National Academy/ Free science lessons revision |

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| **Unit Length** | **Topic: P6 -** Waves 3 (Autumn/Spring term) |
| **Key Learning Outcomes** | 1. Transverse and longitudinal waves
2. Wave properties
3. The wave speed equation
4. Wave speed required practical
5. Sound (separate only)
6. Reflection (separate only)
7. Progress assessment
8. Reteach and DIRT
9. Ultrasound (separate only)
10. Electromagnetic waves
11. Uses of electromagnetic waves
12. Radio and microwaves (higher and separate)
13. Infrared required practical
14. Visible light (separate only)
15. Black body radiation (separate only)
16. Lenses (separate only)
 |
| **Prior knowledge** | **Year 8 – Waves 1**All content **Year 9 – Waves 2** All content |
| **CEIAG** **Specific careers links** | RadiographerNuclear physicist Thermal insulation surveyorSeismologistRadiotherapist |
| **RRSA** | Article 14: Freedom of thought, belief and religionArticle 24: Health and the Health servicesArticle 28: Right to educationArticle 29: Goals of educationArticle 27: Adequate standard of living |
| **Cross curricular links** | Numeracy – Equations of motion, gradients, and area under the graph.  |
| **Useful websites/videos** | <https://www.youtube.com/watch?v=0f5iYCNCnow&list=PL9IouNCPbCxX1-0Nr5_bMDJnN-9RqMuA6> – Free science lessons.<https://classroom.thenational.academy/units/waves-4cef> - Oak National Academy |
| **Wider Reading** | Forces of nature - Brian CoxWaves – National Geographic |
| **Literacy Programme** | * Decode it NOW
* Guided practice/model answers
* Sentence Starters
* Writing strategies
 |
| **Independent Learning Tasks** | Mind-map revision homeworkRetrieval practice homework Knowledge Organiser practice questionsSeneca quiz ILTExam questions. |

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| **Unit Length** | **Topic:** P7 – Magnetism – 7/12 lessons(Spring/summer term) |
| **Key Learning Outcomes** | 1. Magnets
2. Magnetic fields
3. Electromagnetism
4. Electromagnets investigation
5. Electromagnets results
6. The motor effect (higher and separate only)
7. Magnetic flux density (higher and separate only)
8. The generator effect (separate only)
9. Magnetic appliances (separate only)
10. Transformers (separate only)
11. End of Unit Assessment
12. Reteach and DIRT
 |
| **Prior knowledge** |  **Year 7 – Electricity and magnetism 1**All content **Year 8 – Electricity and magnetism 2**All content |
| **CEIAG** **Specific careers links** | SemiologyElectricity generation and National Grid |
| **RRSA** | Article 14: Freedom of thought, belief and religionArticle 24: Health and the Health servicesArticle 28: Right to educationArticle 29: Goals of educationArticle 27: Adequate standard of living |
| **Cross curricular links** | Numeracy – Multiple equations and unit conversions. |
| **Useful websites/videos** | <https://classroom.thenational.academy/units/magnetism-bf8d> - Oak National Academy<https://www.youtube.com/watch?v=sRyy7-jEu3Q&list=PL9IouNCPbCxVean2cWoznpfC5PxYbs9TX> – Free science lessons |
| **Wider reading**  | The importance of the Earth’s magnetic field – NASA.Gov |
| **Literacy Programme** | * Decode it NOW
* Guided practice/model answers
* Sentence Starters

Writing strategies  |
| **Independent Learning Tasks** | Mind-map revision homeworkRetrieval practice homework Knowledge Organiser practice questionsSelective reading activitySeneca quiz ILT Exam practice questionsOAK National Academy/ Free science lessons revision |

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| **Unit Length** | **Topic:** P8 – Space – 4 lessons. (Spring/summer term) |
| **Key Learning Outcomes** | 1. Solar systems and galaxies
2. Life cycle of a star
3. Red- shift
4. Orbits
5. Big bang theory
6. Progress check and reteach
 |
| **Prior knowledge** | **Year 7** **Forces 1** * The solar system, weight mass and gravity

**Year 9 Forces 2** * Pressure in space

**Year 11 Forces 3*** Acceleration and velocity

**Year 11 Waves 3*** Wavelengths of light
 |
| **CEIAG** **Specific careers links** | Astronaut Materials specialistResearch and development of pressurised materialsAeronautical engineer |
| **RRSA** | Article 14: Freedom of thought, belief and religionArticle 24: Health and the Health servicesArticle 28: Right to educationArticle 29: Goals of educationArticle 27: Adequate standard of living |
| **Cross curricular links** | Numeracy –unit conversions.RE – The origins of the universe. |
| **Useful websites/videos** | <https://classroom.thenational.academy/units/space-physics-only-a558> - Oak National Academy<https://www.youtube.com/watch?v=mndRVjMovQk&list=PL9IouNCPbCxUGMXZ4ubg_ttcNboQa-PtI> – Free science lessons. |
| **Wider reading**  | The planets – Brian CoxThe Martian – Andy WierAstrophysics for people in a hurry – Neil Degrasse TysonUniverese – Brian Cox |
| **Literacy Programme** | * Decode it NOW
* Guided practice/model answers
* Sentence Starters

Writing strategies  |
| **Independent Learning Tasks** | Mind-map revision homeworkRetrieval practice homework Knowledge Organiser practice questionsSelective reading activitySeneca quiz ILT |