|  |  |
| --- | --- |
| **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 religion  Article 24: Health and the Health services  Article 28: Right to education  Article 29: Goals of education  Article 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 code  Forces of nature, Brian Cox. |
| **Literacy Programme** | * Decode it NOW * Guided practice/model answers * Sentence Starters * Writing strategies |
| **Independent Learning Tasks** | Mind-map revision homework  Retrieval practice homework  Knowledge Organiser practice questions  Selective reading activity  Seneca quiz ILT  Exam practice questions  OAK National Academy/ Free science lessons revision |

|  |  |
| --- | --- |
| **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** | Radiographer  Nuclear physicist  Thermal insulation surveyor  Seismologist  Radiotherapist |
| **RRSA** | Article 14: Freedom of thought, belief and religion  Article 24: Health and the Health services  Article 28: Right to education  Article 29: Goals of education  Article 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 Cox  Waves – National Geographic |
| **Literacy Programme** | * Decode it NOW * Guided practice/model answers * Sentence Starters * Writing strategies |
| **Independent Learning Tasks** | Mind-map revision homework  Retrieval practice homework  Knowledge Organiser practice questions  Seneca quiz ILT  Exam questions. |

|  |  |
| --- | --- |
| **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** | Semiology  Electricity generation and National Grid |
| **RRSA** | Article 14: Freedom of thought, belief and religion  Article 24: Health and the Health services  Article 28: Right to education  Article 29: Goals of education  Article 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 homework  Retrieval practice homework  Knowledge Organiser practice questions  Selective reading activity  Seneca quiz ILT  Exam practice questions  OAK National Academy/ Free science lessons revision |

|  |  |
| --- | --- |
| **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 specialist  Research and development of pressurised materials  Aeronautical engineer |
| **RRSA** | Article 14: Freedom of thought, belief and religion  Article 24: Health and the Health services  Article 28: Right to education  Article 29: Goals of education  Article 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 Cox  The Martian – Andy Wier  Astrophysics for people in a hurry – Neil Degrasse Tyson  Univerese – Brian Cox |
| **Literacy Programme** | * Decode it NOW * Guided practice/model answers * Sentence Starters   Writing strategies |
| **Independent Learning Tasks** | Mind-map revision homework  Retrieval practice homework  Knowledge Organiser practice questions  Selective reading activity  Seneca quiz ILT |