**Key Stage 5 - Physics**

| Year | Knowledge | Skills | Alive themes | Justice and Respect |
|---|---|---|---|---|
| **12** | **Practical physics**<br>Including quantities, units and uncertainties.<br>**Mechanics**<br>Including linear motion, SUVAT equations, Newton's laws, momentum and collisions, work, energy and power, Materials.<br>**Electrical circuits**<br>Including current, Potential difference, resistance, Power and analysing electrical circuits.<br>**Waves**<br>Including Reflection, refraction, diffraction, EM waves, superposition, interference and standing waves.<br>**Quantum Physics**<br>Including The photon model, photoelectric effect and wave particle duality. | Planning, implementing and evaluating scientific investigations.<br><br>Data handling<br><br>Solving of simple and complex mathematical problems.<br><br>Applying basic physics theories to write explanations and discussions | We can Question<br><br>We can Review<br><br>We can Communicate<br><br>We can Research<br><br>We can Contribute<br><br>We are Resilient<br><br>We are organised | Appreciating that along with the other science disciplines, physics plays a role in helping society make decisions about scientific issues as well those in wider society and the economy. |
| **13** | **Practical Physics**<br>Handling of Log graphs.<br>**Mechanics**<br>Including Thermodynamics and ideal gases, Oscillations (SHM), Gravitational fields, Stars and cosmology.<br>**Electromagnetism**<br>Including capacitance, electric fields, Magnetic fields and electromagnetic induction.<br>**Nuclear and medical physics**<br>Including particles, radioactivity, nuclear fission and fusion and medical diagnosis, scanning and imaging. | | | |

**How does this prepare students for the next phase?**
This course thoroughly prepares students for progression to undergraduate study, enabling them to enter a range of academic and vocational careers. This curriculum creates problem solvers and analytical thinkers making it valid for all students but particularly those interested in courses and careers related to mathematics , physical sciences, engineering and computing sectors. We specifically do not require students to also study A level maths because we believe that A level physics is a valuable base of knowledge and skills even if students are not planning on pursuing a career in physics or engineering but just want to do it because they have an interest in the subject.