Physics

Curriculum Intent: To ensure students maintain and develop their curiosity and excitement about the natural world. To develop all to be `scientists` by embedding a culture of confidence and mastery underpinned by scientific enquiry. To develop their ability to see connections between science subject areas and become aware of some of the big ideas for understanding the world and to provide a high challenge, high quality science education for all our learners.

Year 12	Year 13
Core knowledge:	Core knowledge:
Physical quantities and units, making measurements	Physical quantities and units, making measurements
and analysing data, nature of quantities. Motion,	and analysing data, nature of quantities. Thermal
forces in action, work, energy and power, materials	physics, circular motion, oscillations, gravitational
Newton's laws of motion and momentum. Charge	fields, astrophysics and cosmology. Capacitors,
and current, energy, power and resistance, electrical	electric fields, electromagnetism, nuclear and
circuits, waves, quantum physics.	particle physics, medical imaging.
Procedural knowledge (how to):	Procedural knowledge (how to):
Use scientific theories and explanations to develop	Use scientific theories and explanations to develop
hypothesis	hypothesis
Evaluate methods and suggest possible	Evaluate methods and suggest possible
improvements	improvements
Apply a knowledge of sampling techniques to ensure	Apply a knowledge of sampling techniques to ensure
any samples collected are representative	any samples collected are representative
Apply a knowledge of a range of techniques,	Apply a knowledge of a range of techniques,
apparatus, and materials to select those appropriate	apparatus, and materials to select those appropriate
for both field work and for experiments	for both field work and for experiments
Translate data from one form to another	Translate data from one form to another
Represent distributions of results and make estimates	Represent distributions of results and make estimates
of uncertainty	of uncertainty
Carry out and represent mathematical and statistical	Carry out and represent mathematical and statistical
analysis	analysis
Explain everyday technological applications of	Explain everyday technological applications of
science	science
Use a variety of concepts and models to develop	Use a variety of concepts and models to develop
scientific explanations	scientific explanations
Appreciate the power of limitations of science and	Appreciate the power of limitations of science and
consider ethical issues	consider ethical issues
Assessment:	Assessment:
Unit test x 10	Unit test x 9
TSAT exam/mock x 2	TSAT exam/mock x 2
Homework:	Homework:
Isaac Physics / Worksheets / Past Papers set weekly.	Isaac Physics / Worksheets / Past Papers set weekly.
Revision for tests x 12	Revision for tests x 11
Links to careers and personal development include:	Links to careers and personal development include:
Enabling students to recognise risks to their own	Enabling students to recognise risks to their own
wellbeing.	wellbeing.
Social development: Practice using a range of social	Social development: Practice using a range of social
skills in different situations.	skills in different situations.
Confidence, Resilience and Knowledge: Mentally	Confidence, Resilience and Knowledge: Mentally
healthy, physically healthy, active lifestyle, healthy	healthy, physically healthy, active lifestyle, healthy
relationships.	relationships.