Curriculum Subject: Physics KS5

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
YEAR 12	**Motion** **Forces in action**	**Work, energy and power** **Materials**	**Newton's laws of motion & momentum**	**Charge and current** **Energy, power & resistance** **Electrical circuits**	**Waves**	**Quantum physics** **Circular motion**
	• FORCES Resolving vectors Hz & Vt • FORCES SUVAT equations • FORCES Projectiles+ drag • FORCES Moments Couples • FORCES Archimedes • SKILLS prefixes, rearranging formulae NO TRIANGLES • SKILLS tables & graphs	• ENERGY Linking WD, Power, Resistive forces, GPE & KE and efficiency • FORCES/ENERGY Stretch Springs, EPE, Stress Strain, Youngs Mod • SKILLS Written describing elastic, plastic, brittle, ductile & polymeric • SKILLS tables & graphs SKILLS prefixes, rearranging formulae, multi stage CALCS	FORCES Extending N1-3 to include Impulse and Conservation of Momentum FORCES – interpreting F-t and A-t graphs • PRAC skills - % error and slopes of graphs	ELECTRICITY extending ideas of VIR to explore charge carriers, EMF& PD Resistivity ELECTRICITY extending rules of S&P circuits to use Kirchoffs laws AND ideas of internal resistance and potential divider circuits • SKILLS - % error and slopes of graphs	• WAVES extending ideas of F, T, A & W to include progressive waves & polarisation & standing waves + harmonics • WAVES deepening understanding of reflection, refraction & diffraction • WAVES superposition adding waves together AND interference • SKILLS EM Spectrum & exponential numbers	• WAVES Photon model of light rays & Spectra • WAVES explaining photoelectric effect • WAVE /PARTICLE duality • SKILLS exponential numbers AND electron volts • FORCES Centripetal Forces and acceleration • SKILLS – planning investigations
	Options Round 2					
YEAR 13	**Oscillations** **Gravitational fields** **Astrophysics and Cosmology**	**Capacitors** **Electric fields** **Electromagnetism**	**Thermal physics** **Gases**	**Nuclear and particle physics** **Medical imaging**	**Revision**	**External exams** **PAPER 1** **PAPER 2** **PAPER 3**
	• FORCES linking AVt with GPE & KE Simple Harmonic Motion+ resonance • SKILLS interpreting sin-cos graphs AND more difficult equations • FORCES– linking gravity and circular motion • FORCES linking red-shift, recession speed and Hubble to Big Bang • WAVES diffraction gratings, spectra & Wiener / Stephan and distances in Space • PRAC Skills - Investigations	• ELECTRICITY – linking K1&2 resistors and capacitors in S&P • FIELDS Field Strength, Forces, Potentials & Energy • ELECTRICITY using Flemings Left and Right hand rules • ELECTRICITY interpreting graphs in terms of Farday's and Lenz's laws • SKILLS – Investigations and using log & ln	• ENERGY Multi-stage calcs using E=ML, & E=mCT • ENERGY interpreting Temp time graphs in terms of CofS & GPE/KE • PARTICLES linking KE with temp • EXAM SKILLS – extended writing • GRAPH SKILLS – evaluating data, slopes and uncertainty • EXAM SKILLS – synoptic links	• PARTICLES to include Quarks • ENERGY using e=mc2 to explain binding energy and fission fusion • WAVES explaining X & Gamma formation and absorption and detection • EXAM SKILLS – synoptic links + log&ln • EXAM SKILLS – extended writing • GRAPH SKILLS – evaluatinf data, slopes and uncertainty	• Tick lists • Websites • PPQ's • PAGS •	

St Bede's Curriculum Design Principles

Within subjects: ***PHYSICS KEY IDEAS*** FORCES:WAVES:PARTICLES:FIELDS:ENERGY (depth, relevance, sequencing, spacing)
Between subjects: breadth, cultural capital, coherence, progression, interlinking