BRACKEN RIDGE STATE HIGH SCHOOL
Year 11/12 Physics

TERM ALLOCATION AND LENGTH	UNIT	SUB TOPICS	ASSESSMENT
Term 1 – 10 weeks	Introduction to Physics On the move	• Measurement, Scalar & Vector Quantities, Addition and Subtraction of Vectors, • Distance and Displacement, Speed & Velocity, Constant Linear Acceleration, • Algorithmic and Graphical analysis of motion, • Force, Mass and Weight, • Newtons Three Laws, Friction, • Inclined planes, Terminal Velocity.	• Supervised Assessment $2^1/_2$ hours
Term 2 – 10 weeks	Amusement parks	• Potential Energy • Kinetic Energy • Energy Transformations • Power • Motion in 2 Dimensions • Circular Motion • Simple Harmonic Motion • Centripetal Force	• Extended Response Task 10weeks
Term 3 – 10 weeks	Energy Efficiency in the Home	• Thermal Energy, Heat, Temperature, • Convection, Conduction, Radiation, • Specific heat, Latent Heat, • Thermal Expansion, • Thermal Conductivity, Efficiency.	• Extended Experiment Investigation 10weeks
Term 4 – 10 weeks	Looking Good	• What is Light? • Wave/Particle Duality, • Reflection, images in plane and curved mirrors, Refraction, Snell's Law, Total internal reflection, critical angles, • Lens Types, Focal Length, Lens diagrams/equations, Dispersion • Anatomy of the eye, Colour vision, • Abnormal conditions of the eye, Polarisation	• Supervised Assessment $2^1/_2$ hours or Extended Response Task
Term 5 – 10 weeks	Physics of Sport	• Work & Energy, • Conservation of Mechanical Energy, • Inelastic Collisions in 1 Dimensions • Hooke's Law, Coefficient of restitution, • Centre of mass, Rotational motion/ Moment of inertia, • Density, Bernoulli's Principle, • Momentum, Impulse, Conservation of Momentum, • Vectors, Vertical and Projectile motion, • Gas laws, Elastic collisions.	• Extended Experiment Investigation 10weeks
Term 6 – 10 weeks	Nuclear Technology	• Radioactivity • Ionizing particles: α, β, γ; decay, • transmutation, strong/weak force, • electron, proton, neutron, positron, neutrino; antiparticles, decay rate, activity, • half-life, Becquerel, • Medical Applications absorbed dose, dose equivalent, gray, quality factor, Sievert, scintigraphy, radio-pharmaceutical, radiation therapy, PET	• Stimulus Response 1 week or Extended Response Task • Supervised Assessment $2^1/_2$ hours

Term 7 – 10 weeks	Electronics, Fields & Forces	• Magnetism, Magnetic Fields about wires, Right hand laws, • $F=Bqv=mv^2/r$, forces on a wire, forces between wires, galvanometer, torque, loudspeakers, • $E=Blv\sin\theta$, magnetic field strength, flux density, changing flux, • Electromagnetic induction, Lenz's law, • AC & DC generators, step up-down ratio, voltage transformation • Ohmic losses, Networks, Power Losses, transformers and induction, diode bridges, half and full wave rectification, • voltage regulators, DC and AC gain, • Resitivity, Capacitance, R&C in series/parallel, class A small signal transistor operation, Amplification, clipping.	• Supervised assessment $2^1/_2$ hours
Term 8 – 10 weeks	The Search for Understanding	• Gravity, Gravitational Field, Gravitational Potential Energy, • Kepler's Law of Periods, Black Holes, Constancy of speed of light, • Michelson-Morley experiment, Special Relativity, • Relativity of simultaneity, contraction of length, dilation of time, contraction of mass, twin paradox. • blackbody radiation, PE effect, hydrogen spectra, Franck Hertz experimental, quark theory, antimatter, fundamental forces	• Supervised assessment $2^1/_2$ hours