Science – Physics

ALDER Community High School

Threshold concept lesson

Triple in red

KS4

Year 10 Autumn	**Topic 1 – Conservation of energy**
	Energy changes and stores
	Energy Transfers
	Kinetic Energy
	Potential Energy
	Elastic and potential energy
	Hooks law required practical
	Work done and power
	Specific heat capacity
	Energy Transfer in systems
	Efficiency
	Energy resources non renewable
	Energy resources renewable
Year 10 Autumn	**Topic 2 – Particle model of matter**
	Particle model
	Density
	Investigating density
	State Changes
	Internal Energy
	Specific heat capacity
	Internal energy latent heat
	Particles in gases Temp and pressure
	Gas pressure Boyles law Pressure and volume
	Work done on gases
Year 10 Autumn/s	Topic 3 -Radioactivity
	Atomic structure (inside atoms)
	Atomic Models
	Background radiation
	Types of radioactive decay
	Nuclear decay equations
	Half life
	Using Radioactivity

	Dangers and contamination of radiation
	Radiation in medicine and its uses
	Nuclear Fission
	Nuclear Fusion
Year 10 /Spring	**Topic 4 – Electricity**
	Circuit diagrams and symbols
	Electrical charge and current
	Current in series
	Current potential difference and resistance
	Ohms law core practical
	Ohms law graphs
	Resistors
	Resistance in a wire
	Resistance LDR Thermistor
	Properties of series and parallel circuits
	Direct and alternating current
	Mains and wiring a plug
	Electrical safety
	Power calculations
	Energy transfers and calculations
	Static
	Electric fields
Year 10 Summer	**Topic 5 – Waves**
	Transverse and longitudinal waves
	Properties of waves
	core wave practical ripple tank
	Reflection
	Refraction
	Core practical refraction
	Sound waves ears and hearing
	Detection and exploration ultrasound
	Seismic waves – S and P waves
Year 11 Aut	**Topic 6 – EM waves**
	Long Electromagnetic waves and their uses

	Short Electromagnetic waves and their uses
	Electromagnetic waves and properties
	Lenses and Lens diagrams
	Colour visible light
	Colour filters
	Blackbody radiation
	Core practical blackbody radiation
1Year 11 Autumn	Topic 7 Forces
	Scalar and vectors
	Graphs of motion Distance time and velocity time
	Acceleration
	Motion under gravity
	Mass and weight
	Work done and power
	Newtons laws
	Core practical Newtons second Law F = ma
	Factors affecting Stopping a car
	Braking distance calculations using workdone
	Momentum
	Changes in Momentum
	Resolving forces vector diagrams
	Moments
	Fluid Pressure
Year 11 Spring	
	Magnets and Magnetism
	Electromagnets
	Motor Effect
	Electromagnetic Induction
	Generator and Dynos
	Transformers
Year 11 Spring	
	Solar System
	Orbits
	Lifecycle of stars
	Nuclear Fusion

	The Expanding Universe
	Origins of the universe