Post 16 Personal Learning Checklist (PLC)

NAME:

SUBJECT: **Physics**

LEVEL: **A2**

Area of Specification	Topic	Paper	Red	Amber	Green
use the terms nucleon number (mass number) and proton number (atomic number)	4.3 Particle Physics	Unit 4: Physics on the Move.			
describe how large-angle alpha particle scattering gives evidence for a nuclear atom	4.3 Particle Physics	Unit 4: Physics on the Move.			
recall that electrons are released in the process of thermionic emission and explain how they can be accelerated by electric and magnetic fields	4.3 Particle Physics	Unit 4: Physics on the Move.			
explain the role of electric and magnetic fields in particle accelerators (linac and cyclotron) and detectors (general principles of ionisation and deflection only)	4.3 Particle Physics	Unit 4: Physics on the Move.			
recognise and use the expression r = p/BQ **for a charged particle in a magnetic field**	4.3 Particle Physics	Unit 4: Physics on the Move.			

Area of Specification	Topic	Paper	Red	Amber	Green
recall and use the fact that charge, energy and momentum are always conserved in interactions between particles and hence interpret records of particle tracks	4.3 Particle Physics	Unit 4: Physics on the Move.			
explain why high energies are required to break particles into their constituents and to see fine structure	4.3 Particle Physics	Unit 4: Physics on the Move.			
recognise and use the expression $\Delta E = c_2 \Delta m$ in situations involving the creation and annihilation of matter and antimatter particles	4.3 Particle Physics	Unit 4: Physics on the Move.			
use the non-SI units MeV and GeV (energy) and MeV/c_2, GeV/c_2 (mass) and atomic mass unit u, and convert between these and SI units	4.3 Particle Physics	Unit 4: Physics on the Move.			
be aware of relativistic effects and that these need to be taken into account at speeds near that of light (use of relativistic equations not required)	4.3 Particle Physics	Unit 4: Physics on the Move.			
recall that in the standard quark-lepton model each particle has a corresponding antiparticle, that baryons (eg neutrons and protons) are made from three quarks, and mesons (eg pions) from a quark and an antiquark, and that the symmetry of the model predicted the top and bottom quark	4.3 Particle Physics	Unit 4: Physics on the Move.			
write and interpret equations using standard nuclear notation and standard particle symbols (eg π_+, e_-)	4.3 Particle Physics	Unit 4: Physics on the Move.			
use de Broglie's wave equation $\lambda = h/p$	4.3 Particle Physics	Unit 4: Physics on the Move.			