Year 11 Triple Award Science

Physics Revision Booklet

(exam date: Wednesday 22nd May PM)

Name

Please use test results, feedback and self-assessment to colour code each section red, amber or green, and ensure that where you need to do extra work to improve, you use Prep time to do so.

	Understood	Revised
Unit 2.1 Distance, Speed and Acceleration		
Calculate speed, velocity and acceleration		
Draw distance-time graphs and use them to calculate velocity		
Draw velocity-time graphs and use them to calculate acceleration **and distance travelled.**		
Explain the factors that affect the safe stopping of vehicles		
Use data to discuss traffic control		
Unit 2.2 Newton's Laws		
Inertia		
Newton's first law of motion		
Newton's second law of motion		
The difference between mass and weight		
Calculating weight		
Calculating gravitational potential energy		
Describe the forces on objects moving through the air		
Terminal Velocity		
Newton's third law of motion.		
Unit 2.3 Work and Energy		
The conservation of energy		
Work done		
Different types of energy		
Calculating kinetic energy and the change in gravitational potential energy		
The relationship between force and extension for a spring (Hooke's law)		
The work done in stretching a spring from a force-extension graph		
How energy efficiency of vehicles can be improved		
Car safety in terms of forces and energy		
Unit 2.4 Further Motion Concepts		
Momentum		
Force = change in momentum/time		
Conservation of momentum **and kinetic energy** in collisions **or explosions**		
Equations of motion		
The Principle of Moments		
Unit 2.5 Stars and Planets		
The main features of our Solar System		
The features of the observable Universe		
Using Astronomical Units and Light Years		
The life cycle of stars of different masses		
The stability of stars		
How heavier elements are ejected and form new objects		
The origin of the solar system		
The Hertsprung-Russell Diagram		
Unit 2.6 The Universe		
How absorption spectra reveal the chemicals in stars		
Cosmological Red Shift		
Cosmic Microwave Background		
Red shift and the CMB in terms of evidence for the Big Bang theory		

Unit 2.7 Types of Radiation		
The nucleus and what causes radioactivity		
Background radiation		
Nuclear Waste		
The random nature of radioactive decay		
The differences between alpha, beta and gamma radiation		
Producing and balancing nuclear equations for radioactive decay		
Unit 2.8 Half-Life		
The random nature of radioactive decay and how to model it		
How to plot or sketch decay curves for radioactive materials		
Determine the half-life from a decay curve		
Simple calculations to find half-life or activity		
Carbon Dating		
The uses of different types of radiation and why		
Unit 2.9 Nuclear Decay and Nuclear Energy		
Absorption of slow neutrons causing fission		
How a nuclear fission reactor works (control rods and moderator)		
Problems with nuclear waste		
How high energy collisions cause fusion		
Use data to **produce** and balance nuclear equations for fission and fusion		
The problems of containment in fission and fusion reactors		