**iGCSE Physics Proposed Timeline**

**Foreword: The following proposed syllabus is based on the syllabus released by Cambridge International Examination, the for-profit testing services division of Cambridge University.**

**When students prepare for the iGCSE, they typically do so by taking two years of course work at the ages of 14-16. However, this proposed course schedule assumes only limited familiarity with the core KS3 science material—i.e., most of the topics and vocabulary may be new or mostly unknown to the student.**

**A student who has previously taken our course on the KS3 material (or had such instruction elsewhere) would be able to move through this material at a faster rate. Regardless, this schedule can be adapted to suit the needs of individual students, based in part on a preliminary examination testing their prior knowledge (a KS3 exam focused on the subject could be a useful assessment).**

**Total Units: 48 (96 hours of instruction)**

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| **Class Unit** | **Content to be Covered** |
| **1** | **Administer KS3 Physics Exam to Check Problem-Types and Vocab Knowledge** |
| **2** | Length and time, Units, Dimensions |
| **3** | Motion I |
| **4** | Motion II |
| **5** | Motion III and Problem-Solving Practice |
| **6** | Mass, Weight, Density, Displacement |
| **7** | Effects of Forces (Friction, Air Resistance, Etc.) |
| **8** | ***Review Session I*** |
| **9** | Pivots and Force Equilibrium (Newton’s 1st Law, qualitatively) |
| **10** | Scalars, Vectors, and Finding Centers of Mass |
| **11** | Momentum, Impulse, and Conservation of P |
| **12** | Problems Practice—Vectors and Forces, Momentum |
| **13** | Energy I – Types and KE PE Equations |
| **14** | Energy II—Conservation, Generation, Efficiency |
| **15** | Work, Power, Pressure as Equations in Action |
| **16** | ***Review Session II*** |
| **17** | Molecular Model with Force and Energy Transfer; Evaporation and Partial Pressure (qualitative) |
| **18** | Pressure, Temperature, and Thermal Expansion |
| **19** | Thermal Capacity, Melting, Boiling |
| **20** | Conduction, Convection, Radiating Bodies (infrared) |
| **21** | Problems Practice—Calculating TC, BP and MP, PP and Delta-E |
| **22** | Waves and Wave Properties |
| **23** | Light—Reflection, Refraction, Dispersion |
| **24** | ***Review Session III*** |
| **25** | Light—EM Spectrum, Absorptivity, and Sample Problems |
| **26** | Sound, Propagation, Doppler Effect |
| **27** | Light and Sound Problems and Solutions |
| **28** | Problems Practice—Waves, Light, Sound |
| **29** | Magnetism! |
| **30** | Electric Charge, the Electric Field, EM as joint phenomena |
| **31** | Electrical current as Flow of Electrons, Electromotive Force (EMF) -> Volts |
| **32** | ***Review Session IV*** |
| **33** | Potential Difference and Resistance (Ohm’s Law), Electrical Work |
| **34** | Circuits, Circuits, Circuits, and Logic Gates |
| **35** | EM Induction, Magnetic Field of a Current |
| **36** | Problems Practice—Circuits, V=IR, EMF |
| **37** | AC/DC, Transformers and Transmission, Induction Equations |
| **38** | Magnetic Force from Electrical Current, Recap and Consolidate! |
| **39** | ***Review Session V*** |
| **40** | Atomic Physics—Alpha Particles and Scattering, Nuclides, Isotopes |
| **41** | Radioactivity (Alpha, Beta, Gamma) and Cosmic uWave Background |
| **42** | Radioactive Decay and Particle Emission, 1/2-Life |
| **43** | Fission, Fusion, on earth and in space |
| **44** | ***Review Session VI*** |
| **45** | Flex Hours |
| **46** | Flex Hours |
| **47** | ***Assessment and Revision*** |
| **48** | ***Assessment and Revision*** |