# Yan Oi Tong Tin Ka Ping Secondary School
# F.5 Physics Teaching Schedule For 2019-2020

| Cycle | Period | Topics(Contents) | Teaching Activities (Experiment, Exercise, Quiz) | Progress Evaluation |
|---|---|---|---|---|
| | | **Section 3 Waves** | | |
| 1-2 | 10 | c. Sound | | |
| | | Wave nature of sound | Interference of sound waves | |
| | | Audible frequency range | Audible frequency range | |
| | | Musical notes | CRO traces of musical notes<br>Musical notes produced by different musical instruments | |
| | | Noise | | |
| | | | Exercises and test | |
| | | **Section 4 Electricity and Magnetism** | | |
| 3 | 5 | a. Electrostatics | | |
| | | Electric charge | Experiment : Charging by friction<br>Experiment : Funs with electric charges | |
| | | Electric field | Experiment : Electric field patterns | |
| | | Electric potential | | |
| | | | Exercises and quiz | |
| 4-7 | 20 | b. Circuits and domestic electricity | | |
| | | Electric current | Experiment : How to use a multimeter | |
| | | Electrical energy and electromotive force | Experiment : Current in series and parallel circuit<br>Experiment : Voltages in series and parallel circuit<br>Experiment : Ohm's Law | |
| | | Resistance | Experiment : Effect of length and thickness on resistance<br>Experiment : Effect of temperature on the resistance of metals and a thermistor | |
| | | Series and parallel circuits | | |
| | | Simple circuits | Experiment : The internal resistance of a homemade dry cell | |
| | | Electrical power | Experiment : Heating effect of electric current<br>Experiment : Determine the electrical power of a bulb | |

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| | | Domestic electricity | Experiment : Electrical energy supplies to a household appliance<br><br>Exercises and Test | |
| **Cycle** | **Period** | **Topics(Contents)** | **Teaching Activities (Experiment, Exercise, Quiz)** | **Progress Evaluation** |
| 8-14 | 35 | c. Electromagnetism<br>Magnetic force and magnetic field<br>Magnetic effect of electric current<br><br><br><br><br><br>Current-carrying conductor in magnetic field<br><br><br><br><br><br><br><br>Hall effect<br>Electromagnetic induction | <br>Experiment : Visualizing magnetic field patterns<br>Experiment : Magnetic field patterns around different current-carrying conductors<br>Experiment : Measuring the magnetic field around a long straight wire.<br>Experiment : Measuring the magnetic field around a solenoid<br>Experiment : Factors affecting the strength of an electromagnet<br>Experiment : A current-carrying wire in a uniform field<br>Experiment : Factors affecting the magnetic force<br>Experiment : Building a model d.c. motor<br>Experiment : Deflection of electron beam<br><br>Experiment : Induction by the relative motion between a coil and a magnet<br>Experiment : Induction by moving a wire across magnetic | |

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| | | | field lines<br>Experiment : Induction caused by a changing magnetic field<br>Experiment : Falling magnet<br>Experiment : Jumping ring<br>Experiment : Induced e.m.f of a simple a.c. generator<br>Experiment : Braking effect of eddy currents | |
| **Cycle** | **Period** | **Topics(Contents)** | **Teaching Activities (Experiment, Exercise, Quiz)** | **Progress Evaluation** |
| | | Alternating current<br><br>Transformer<br><br><br><br>High voltage transmission of electrical energy | Experiment : Effective value of a sinusoidal voltage<br>Experiment : R.m.s. current and average power<br>Experiment : Voltages and numbers of turns in coils<br>Experiment : Model of transmission lines<br><br>Exercises and test | |
| **1st Examination would take place during the 12th cycle.** | | | | |
| | | **Section 5 Radioactivity and Nuclear Energy** | | |
| 15-16 | 10 | a. Radiation and Radioactivity<br>X-rays<br>$\alpha$, $\beta$ and $\gamma$ radiations<br><br><br><br><br><br><br><br><br>Detection of radiation<br>Radiation safety | <br><br>Experiment : Tracks of different types of radiation in a cloud chamber<br>Experiment : Range in air<br>Experiment : Penetrating power of different types of radiation<br>Experiment : Deflection of $\beta$ radiation in a magnetic field<br><br><br>Exercises and test | |

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| 17-18 | 10 | b. Atomic model<br>Atomic structure<br>Isotopes and radioactive transmutation<br>Radioactive decay | Experiment : Analogy of radioactive decay.<br><br>Exercises and test | |
| **Cycle** | **Period** | **Topics(Contents)** | **Teaching Activities (Experiment, Exercise, Quiz)** | **Progress Evaluation** |
| 19 | 5 | c. Nuclear energy<br>Nuclear fission and fusion<br>Mass-energy relationship | Exercises | |
| | | **Elective 3 Energy and Use of Energy** | | |
| 20-22 | 15 | a. Electricity at home<br><br>Energy consuming appliance at home<br><br>Lighting<br><br>Cooking without fire<br><br>Moving heat around.<br><br>Energy Efficiency labeling Scheme | Discuss different electrical appliances at home<br><br>Different type of lighting equipments would be displayed<br>Energy efficiency of an incandescent lamp and a compact fluorescent lamp<br><br>Show them the pictures of different cooking appliances without fire<br><br>Show them the labeling in different appliances<br><br>Exercises | |

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| 23-25 | 15 | b. Energy efficiency in building and transportation<br><br>Building materials used to improve the energy efficiency<br><br>Electric vehicles | Discuss with them the outlooks of some of the building and their structures<br><br>Exercises | |
| 24-25 | 10 | c. Renewable and non-renewable energy sources<br><br>Renewable and non-renewable energy sources<br><br>Environmental impact of energy consumption | Discuss with them the advantages and disadvantages of different energy sources<br>Show them some of the models of renewable energy sources<br><br>Exercises | |
| **2nd Examination would take place after the 25th cycle.** | | | | |