St. Paul's College
Department of Physics

New Senior Secondary Curriculum

Physics

Introduction

Physics is one of the most fundamental natural sciences. It involves the study of universal laws, and of the behaviours and relationships among a wide range of physical phenomena. Through the learning of physics, students will acquire conceptual and procedural knowledge relevant to their daily lives. The curriculum attempts to make the study of physics interesting and relevant. It is suggested that the learning of physics should be introduced in real-life contexts.

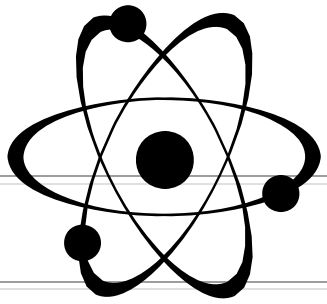
This curriculum consists of compulsory and elective parts. The compulsory part covers a range of content that enables students to develop understanding of fundamental principles and concepts in physics, and scientific process skills. The following topics: "Heat and Gases", "Force and Motion", "Wave Motion", "Electricity and Magnetism" and "Radioactivity and Nuclear Energy" are included. The elective part aims to provide in-depth treatment of some of the compulsory topics, an extension of certain areas of study, or a synthesis of knowledge, understanding and skills in a particular context. The topics selected in the elective part are "Atomic World" and "Energy and Use of Energy".

With a solid foundation in physics, students should be able to appreciate both the intrinsic beauty and quantitative nature of physical phenomena, and the role of physics in many important developments in engineering, medicine, economics and other fields of science and technology. Study of the contributions, issues and problems related to innovations in physics will enable students to develop an integrative view of the relationships that hold between science, technology, society and the environment (STSE).

Proposed schedule of topics

Year	Topics
Form 4	**I. Heat and Gases**

	a. Temperature, heat and internal energy* b. Transfer processes* c. Change of state* d. Gases
	II. Force and Motion a. Position and movement* b. Force and motion* c. Projectile motion* d. Work, energy and power* e. Momentum*
	III. Wave Motion b. Light*
Form 5	**II. Force and Motion** f. Uniform circular motion g. Gravitation
	III. Wave Motion a. Nature and properties of waves* c. Sound*
	IV. Electricity and Magnetism a. Electrostatics* b. Circuits and domestic electricity* c. Electromagnetism*
	Investigative Study in Physics
	V. Radioactivity and Nuclear energy a. Radiation and radioactivity b. Atomic model c. Nuclear energy
Form 6	**Investigative Study in Physics**
	Energy and Use of Energy a. Electricity at home b. Energy efficiency in building and transportation c. Renewable and non-renewable energy sources
	Atomic World a. Rutherford's atomic model b. Photoelectric effect c. Bohr's atomic model of hydrogen d. Particles or waves



	e. Probing into nano scale

*** Parts of these topics are included in the Physics part of Combined Science (Biology, Physics) and that of Combined Science (Physics, Chemistry) respectively.**