

## MYP Sciences at Renaissance College 2011-12 – Course Overview

Science is a cooperative venture between individuals and among the international community which is constantly evolving and is influenced by its social, economical, technological, political, ethical and cultural surroundings. It comprises the traditional subjects of biology, chemistry and physics, as well as basic topics, concepts and issues from other branches of science, such as astronomy and earth and health sciences.

The overall aim of science courses at Renaissance is to provide students with a foundation that will make them scientifically literate so that they can make informed judgements and decisions about scientific issues, and use the acquired scientific process skills for successful problem-solving.

Learning about science is based on a process of enquiry. Scientific enquiry refers to the many ways in which scientists study the natural world and propose explanations based on the evidence derived from their work. Thus enquiry-type activities, such as, are important in helping students develop their own knowledge and understanding of scientific ideas.

The development of scientific skills and attitudes is inextricably linked to the development of ideas in science. Learning about science should be an active process, integrating both 'hands-on' and 'mind-on' experiences. Students must actively participate in scientific investigations, and use the skills associated with the formulation of scientific explanations. Students are expected to view learning as a personal activity, namely something that they do, not something that is done to them.

Learning activities include experiments, research assignments, fieldwork, and Science Fair projects. Some activities are carried out individually, while group activities help to develop social and communication skills. Information and communication technology plays a central role - the use of interactive whiteboards, data-logging apparatus, digital cameras, laptops, the internet and web-based forums all enhance the teaching and learning of science.

Science courses at Renaissance place considerable emphasis on scientific literacy, which means giving students the knowledge and understanding of scientific concepts and processes required for personal decision-making, participation in civic and cultural affairs, and giving them the ability to comment sensibly on local and global issues in areas such as health, environment and new technologies. The student should be able to understand the cultural, societal and historical influences on the development of science, and to discuss the international nature of science and its relationship with technology.

The structure of the course is outlined below.

### **Years 7-9**

Units will not necessarily be taught in the order presented here. All classes study integrated science and are taught by one teacher.

| <b>Year 7</b>                                                                                                         | <b>Year 8</b>                                                                                                | <b>Year 9</b>                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Being a Scientist<br>Cells and Diversity of Life<br>Forces and Energy<br>Matter and Mixtures<br>Space<br>Science Expo | Body Systems<br>Chemical Changes<br>Electricity and Magnetism<br>Movement and Senses<br>Earth and Atmosphere | Diseases<br>Simple Machines<br>Chemical Reactions<br>Reproduction<br>Light and Sound<br>Science Fair |

## Years 10-11

The syllabus for Years 10 & 11 has been written to address the requirements of the MYP curriculum, and give good preparation for future study in any of the IB Diploma sciences. Topics may not be taught in the order presented here. Although topics are presented as being related to separate science disciplines, the subject of Science is taught in a coordinated way. Classes may at times rotate around specialist teachers of Biology, Chemistry and Physics.

|            | <b>Biology</b>                   | <b>Chemistry</b>                                          | <b>Physics</b>                       |
|------------|----------------------------------|-----------------------------------------------------------|--------------------------------------|
| <b>Y10</b> | Measurement                      |                                                           |                                      |
|            | Human Physiology<br>Biochemistry | Atomic Structure & Chemical Bonding<br>Physical Chemistry | Motion and Forces<br>Energy and Heat |
| <b>Y11</b> | Genetics & Evolution<br>Ecology  | Rates, Acids and Moles<br>Electrochemistry & Redox        | Electricity<br>Fields and Atoms      |