

## Sample Science Syllabus (as part of the English + Science summer course)

The Science Summer School is all practical-based, covering Physics, Chemistry and Biology. The aim is to improve the students' practical skills, thereby reinforcing their underlying understanding of the fundamental concepts of science.

**LESSON 1** Safety and laboratory rules are explained and where necessary demonstrated. The students are then shown the scientific equipment they will use and how it should be used.

**LESSON 2** Students learn how to light a Bunsen Burner and then perform oxidation experiments on metals.

**LESSON 3** After an explanation of the scientific principles of rockets, the students make their own rockets.

**LESSON 4** The students take their rockets outside and set them off, recording flight time and from this calculate their maximum height. An evaluation of their design is then carried out.

**LESSON 5** Using prepared slides the students learn the correct use of a light microscope at different magnifications. They are also expected to learn how to make accurate microscopic drawings.

**LESSON 6** Following a demonstration of how to do a flame test, students carry out flame tests on known metals noting the flame colour. They then have to identify unknown metals using flame tests.

**LESSON 7** Following a demonstration of how to carry out identification of unknowns using their reaction with NaOH and noting the precipitate colour produced, students do the tests themselves. They then have to identify a series of unknowns.

**LESSON 8** An investigation into the effect of exercise on pulse rate and blood oxygen levels before and after exercise. An experiment to work out lung gas capacity is then conducted and suitable conclusions reached.

**LESSON 9** An investigation into the properties of electrical components and the design of a series of circuits.

**LESSON 10** After a demonstration of the chemical tests for chlorine, bromine, iodine, nitrates, sulphates, carbonates and hydrogen carbonate, students then carry out these tests and use them to identify several unknowns.

*Please note: this is a sample syllabus and is subject to change.*