 Key Information for implementing the Investigating Science syllabus

About the syllabus

Investigating Science is a new stage 6 science syllabus that was introduced for the first time in Term 1, 2018. This course focusses on the process of scientific discovery and investigation. It explores how the innate curiosity of the human mind may be channelled through a rigorous investigative process that deepens our understanding of ourselves and our place in the universe. The course content spans a diverse array of ideas, from the nature and practice of science to its philosophical, cultural, moral, ethical and economic underpinnings. The course also explores the impact of science and technology in contemporary society.

Key content

The year 11 and 12 Investigating Science courses each consist of 4 content modules. Working scientifically skills link all components of the syllabus and form the foundation on which the content is based. Depth studies form an integral component of the Investigating Science course. This is summarised in the following table:

| Year | Content | Indicative hours | Main themes |
| --- | --- | --- | --- |
| 11 | * Module 1 Cause and Effect – Observing * Module 2 Cause and Effect – Inferences and Generalisations * Module 3 Scientific Models * Module 4 Theories and Laws * Depth Studies | * Modules 1 and 2 - 60 hours (total) * Modules 3 and 4 – 60 hours (total) * Depth Studies – 30 hours * Practicals – 35 hours (min) | The modules focus on the scientific process, including the development of theories, laws and models |
| 12 | * Module 5 Scientific Investigations * Module 6 Technologies * Module 7 Fact or Fallacy? * Module 8 Science and Society * Depth studies | * Modules 5 and 6 - 60 hours (total) * Modules 7 and 8 – 60 hours (total) * Depth Studies – 30 hours * Practicals – 35 hours (min) | These modules develop students’ abilities to conduct scientific investigations and communicate scientific findings. Students examine claims from scientific perspectives and explore various influences in science and technology. |

Depth Studies

Students will undertake 30 hours of depth studies in both years 11 and 12. A depth study is an investigative activity which allows students to deepen their understanding of concepts discussed in the course or in other related areas of science. Depth studies may include practical investigations, secondary-sourced investigations, creating (e.g. models or portfolios), fieldwork or data analyses.

Assessment

The assessments consist of school-based tasks, as well as the HSC examination.

The relative weightings of the components of the school-based assessments are shown in the following table:

| Components (years 11 and 12) | Weighting (%) |
| --- | --- |
| Working scientifically skills | 60 |
| Knowledge and understanding (course content) | 40 |

The formal school based assessment program is to reflect the following requirements:

| Year | Content | Main themes |
| --- | --- | --- |
| 11 | * Assessment 1 – 20-40% * Assessment 2 – 20-40% * Assessment 3 (Depth study) – 30-40% | * Depth studies must address the following   + 2 working scientifically outcomes:     - Questioning and Predicting     - Communicating   + At least two additional Working Scientifically skills outcomes   + At least one Knowledge and Understanding outcome. |
| 12 | * Assessment 1 – 10-40% * Assessment 2 – 10-40% * Assessment 3 – 10-40% * Assessment 4 (Depth study) – 30-40% | * One assessment (1-3) may be a formal examination. The maximum allowed weighting for a formal examination is 30%. * Depth studies must address the following   + 2 working scientifically outcomes:     - Questioning and Predicting     - Communicating   + At least two additional Working Scientifically skills outcomes   + At least one Knowledge and Understanding outcome. |

The HSC examination is a 3 hour examination (plus 5 minutes reading time) that is focussed on modules 5-8. It consists of 2 sections:

* Section 1: Objective response questions (20 marks)
* Section 2: Free response questions (80 marks)

New approaches and pedagogies

* Although students are exposed to domain-specific concepts in the other science courses (e.g. Biology, Chemistry, Earth and Environmental Science, Physics), Investigating Science explores science as a process and as a body of knowledge. It explores how scientific knowledge is constructed and verified through the various processes that are central to science. In doing so, the Investigating Science course elevates the process of acquiring scientific knowledge to the same level as the conceptual basis of science, which has enhanced our understanding of us and the world around us.
* Unlike the other stage 6 science courses that require students to engage in 15 hour depth study activities in years 11 and 12, students in the Investigating Science course must complete 30 hours of depth study investigations in each of those years. This provides students with more opportunities to learn and apply the principles of working scientifically through the depth study activities.
* Any of the stage 6 science courses (except those attempted in the Life Skills mode) will provide suitable preparation for the year 12 Science Extension course.