



Science in Practice General Course Year 12

Selected Unit 3 syllabus content for the

Externally set task sample one

This document is an extract from the *Science in Practice General Course Year 12 syllabus*, featuring all of the content for Unit 3. The content that has been highlighted in the document is the content on which the Externally set task (EST) sample one will be based.

The EST is an assessment task which is set by the Authority and distributed to schools for administering to students.

The EST is marked by teachers in each school using a marking key provided by the Authority. The EST is included in the assessment table in the syllabus as a separate assessment type with a weighting of 15% for the pair of units.

Units 3 and 4

Units should integrate concepts, ideas and associated skills from each content area and use a contextual approach that utilises learning experiences from aspects of at least two of the science disciplines – Biology, Chemistry, Earth Science and Physics, with a minimum of three different science disciplines integrated across the pair of units. Units of work developed through contexts enable students to identify science in their world and understand the importance of science in their lives.

Units of work should allow students to explore, investigate and model processes through practical activities. Students should also be encouraged to use information and communication technology to gather and interpret data, and communicate their findings in a variety of ways.

The context used to teach the syllabus content should engage students, have local real-life application, and be relevant to students' everyday life. The context should form a framework that enables students to actively engage in inquiry-based learning and further develop their understanding of scientific concepts.

Each unit could be taught in different contexts or one context could be taught over the year. Contexts covered in Year 11 may be studied again in Year 12 as long as the context-specific content being covered is different and the cognitive complexity of the syllabus content has increased.

Only Authority-approved units can be delivered. A list of Authority-approved units is published on the Science in Practice General course page at <https://senior-secondary.scsa.wa.edu.au/syllabus-and-support-materials/science/science-in-practice>. Schools may develop their own units or modify approved units; however, these will need to be approved by the Authority prior to the commencement of teaching.

Unit 3 content

This unit includes the knowledge, understandings and skills described below.

Scientific method

- identify a topic for investigation; research and construct questions for investigation
- determine the appropriate methodology for investigations
- design scientific investigations, including the formulation of investigable questions and/or hypotheses, materials required, procedure to be followed to collect valid and reliable data, and identification of safety and ethical considerations
- select appropriate equipment and techniques to safely, competently and methodically collect valid and reliable data, and use equipment with precision, accuracy and consistency
- represent qualitative and quantitative data in meaningful and useful ways, including the construction of appropriately labelled tables, processing of quantitative data using appropriate mathematical relationships and units, and drawing of appropriate graphs
- analyse data to identify and describe trends, patterns and relationships, including the use of appropriate mathematical techniques, and recognise errors and limitations in data

- draw conclusions consistent with the evidence and relevant to the question being investigated, identify further evidence that may be required, and recognise limitations of conclusions
- evaluate the investigative procedure, including the relevance, accuracy, validity and reliability of data, and suggest improvements
- communicate information and ideas in a variety of ways using scientific conventions and terminology, including the selection and presentation of data and ideas to convey meaning to selected audiences in written, oral and multimedia formats

Workplace health and safety

- use and apply workplace health and safety documents, including safety data sheets (SDS), and other relevant documents, such as standard operating procedures (SOP), when performing activities
- select and use appropriate scientific and technological equipment safely to gather data and information
- conduct risk assessments to identify potential hazards and prevent potential incidents and injuries

Scientific literacy

- distinguish between opinion, anecdote and evidence, and scientific and non-scientific ideas
- use reasoning to construct scientific arguments, and to draw and justify conclusions consistent with the evidence and relevant to the question under investigation
- identify examples of where the application of scientific knowledge may have beneficial and/or harmful and/or unintended consequences
- use scientific knowledge to develop and evaluate projected economic, social and environmental impacts and to design action for sustainability

Science understanding*

The Science understanding content is context specific. Students should be able to communicate knowledge and understanding of scientific concepts, using appropriate terms, conventions and representations.

* The science concepts, conventions and representations are context specific and should be specified for each unit as part of the unit-development process for approval.