



# Science Level 1

## Overview and Key Features

Years 9 to 12 Learning 2020



## The purpose of this paper

The purpose of this paper is to provide information about the overview and key features of the proposed *Introductory Science Level 1*.

It is designed to enable all interested stakeholders to reflect and provide feedback on key features including learning outcomes, structure, sequencing and likely content. This feedback will be considered in writing the draft course.

## Consultation

Throughout the course development process there will be four opportunities for formal stakeholder consultation:

- Course Scope
- Structural Overview and Key features (Nov/Dec 2020)
- Initial Draft Course (March 2021)
- Final Draft Course (June 2021)

This paper represents the second of four course consultation points for teachers to engage in the course development process for *Introductory Science Level 1*.

## Course Rationale

*Introductory Science Level 1* is proposed to provide a learning opportunity at the only level of complexity missing for science: Level 1. It allows for additional entry and exit points, providing equity for all learners to continue mandatory Science from Year 10, the Preliminary Science course or other pathways. Currently over 50% of jobs in Tasmania benefit from a science background (calculated from: <https://economy.id.com.au/tasmania/employment-by-industry>) – and this will only increase.

*Introductory Science Level 1* will:

- enable equity of access to Science to all learners, ensuring that learners can include science as part their pathway within Senior Secondary education, no matter what their background.
- provide a flexible course for those not on a university pathway and where their pathway cannot easily be defined within one area of science.
- provide explicit articulation of the General Capabilities, with learner choice embedded, thereby increasing student agency.
- allow learners to negotiate areas of focus where they can gain the greatest benefit from their learning and for their possible future pathways.

There should be opportunities for all learners within their compulsory education until the age of 18 to engage or reengage with all learning areas, including science. It has been identified locally (<https://stem.education.tas.gov.au/>), nationally (<https://www.education.gov.au/review-achieve-educational-excellence-australian-schools>) and internationally ([https://en.unesco.org/unesco\\_science\\_report](https://en.unesco.org/unesco_science_report)) that greater STEM and in this case science, understanding benefits learners, the workforce and the broader community. The inclusion of *Introductory Science Level 1* to fill the existing gap within the learning area of science at complexity Level 1 will ensure that all learners have this opportunity in Years 11 and 12.



## Years 9 to 12 Curriculum Framework

[Years 9 to 12 Education Framework](#) informs the design of *Introductory Science Level 1* and it fits within the Personal Future focus area of the [Years 9 to 12 Curriculum Framework](#).

### Pathways in

*Science, Level 1* is designed for learners who have clearly not achieved at standard within the Australian Curriculum: Science F-10, or otherwise require re-engagement with the concepts contained within it for them to follow their preferred pathways.

*Science Level 1* is designed to provide a pathway for learners who have achieved at Stage 4 of the TASC Preliminary Suite of courses. Currently there is no course that fulfils this role within the TASC Science suite of courses or elsewhere.

## Level 1

### Learning Outcomes

On successful completion of this course learners will be able to:

- plan, monitor, review and communicate their own learning
- independently undertake and interpret science experiments and investigations
- describe the nature and development of science
- describe the use and influence of science
- recognise and apply biological concepts
- recognise and apply chemistry concepts
- recognise and apply earth and environmental science concepts
- recognise and apply physics concepts

### Course Structure

#### Module 1

## Core 1

#### Module 2

## Core 2

#### Module 3

## Core 3



## Modules Available

Core 1: Plan, Develop, Monitor, Review and Complete

Core 2: Natural Sciences

Core 3: Physical Sciences

## Course Delivery

To be developed through consultation.

## Module content

### Module 1 – Plan, Develop, Monitor, Review and Complete

**Plan and develop** - Learners prepare a plan for the year that is designed for them to:

- achieve as highly as possible within the course, including building on inquiry, research and mathematical skills
- prepare themselves most thoroughly for their possible futures
- use their time and the available resources most efficiently

**Monitor and Review** - Learners monitor and review their achievement during Modules 2 and 3 making an overall judgement of their progress and create a plan for a final project (20 hours) to demonstrate learning in an area:

- of strength
- most useful to their possible futures
- where they need to improve to be up to standard for this course

**Complete** - learners complete a project (20 hours) as planned in the Review above.

### Module 2 – Natural Sciences

The content within Module 2 will be related to these biological, and earth and environmental science concepts, the:

- diversity of living things on Earth and evolution over time
- interdependency of living things and how they interact with each other and their environment
- relationships between form and features of living things to the functions their systems perform
- Earth is subject to change within and on its surface, over a range of timescales as a result of natural processes and human use of resources

Learners will complete two investigations\* within Module 2.

### Module 3 – Physical Sciences

The content within Module 2 will be related to these chemistry and physics concepts, the:

- chemical and physical properties of substances are determined by their structure at an atomic scale
- substances change and new substances are produced by the rearrangement of atoms through atomic interactions and energy transfer
- forces affect the behaviour of objects
- energy can be transferred and transformed from one form to another

Learners will complete two investigations\* within Module 3.






\* investigations

- During Modules 2 and 3 learners will complete 4 investigations:



- 2 x practical scientific investigations
- 1 x Science as a Human Endeavour Investigation
- 1 x field trip (as part of an investigation)
- This set of 4 investigations must:
  - only relate once to each of biology, chemistry, earth and environmental science, and physics
  - require learners to gather, represent and analyse numerical data to form scientific arguments, claims or conclusions

### Relationship to possible Future Provision

Focus Area	P	I	2	3	4
 DISCIPLINE-BASED			Biology		
			Physical Sciences		
 TRANSDISCIPLINARY			Transdisciplinary Science		
			Environmental Science		
 PROFESSIONAL STUDIES					Chemistry
					Physics
 WORK-BASED					
 PERSONAL FUTURES	Science	Introductory Science			

Note: Subject to ongoing accreditation considerations in line with the Accreditation Framework