
Country report

Teaching Sustainability in Australian Schools

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The Australian national curriculum has been adopted by Education Ministers in all Australian states and territories. There are eight key learning areas, including Science, in the Foundation to Level 10 program and three cross-curriculum priorities that include Sustainability. Thus, Sustainability is not taught as a separate discipline, but is integrated into the key learning areas wherever possible. There are three Organizing Areas relevant in the curriculum for teaching about Sustainability: Systems, World Views and Futures. Teachers have access to an array of resources to help in their teaching, including lesson plans, field work suggestions and work samples. In the senior secondary school curriculum (levels 11 and 12), Sustainability is again taught through established disciplines and subjects, including Biology, Geography and Earth & Environmental Science. The latter field may be taught under different titles – in New South Wales, for example, Earth & Environmental Science is a distinct Subject in levels 11 and 12, while in Victoria there are two so called Study Designs that cover the key learning area: Environmental Science and Outdoor and Environmental Studies.

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INTRODUCTION

On the first of January 1901, six colonies federated to form the Commonwealth of Australia. The colonies became the states of the single Australian nation and together with the more recently added territories (Australian Capital Territory and Northern Territory), maintain constitutional responsibility for education at all levels. Since 1963, however, the Commonwealth began funding schools and have sought closer national collaboration.

When the states and territories held this responsibility for education, there existed differences in curricula across Australia in key subject areas. This created problems – for example, when students moved between states and there were complaints from employers and universities about differences

in learning backgrounds of school leavers. There has thus been a move for the development of a single national curriculum.

In December 2008 the Australian Curriculum Assessment and Reporting Authority (ACARA) was established as an independent statutory authority to have responsibility for the development of a national curriculum, a national assessment program, and a national data collection and reporting program. ACARA's work is overseen and approved by the education ministers in the Commonwealth, states and territories.

The first iteration of the national school curriculum was approved by ACARA's Board in 2012. There have been modifications made since. Schools have some flexibility in how and what they teach

within the framework which has been described more as a roadmap and guide, rather than a detailed description of precisely what is to be taught.

CURRICULUM LEVELS AND STRUCTURE

The F-10 curriculum framework essentially covers the first 11 years of schooling. The last two years of school are covered in the Senior Secondary curriculum. However, it is quite common for students in their year 10 to undertake some studies from the senior curriculum. Furthermore, schools or education groups can apply to ACARA for approval for alternative curriculum frameworks.

There are eight Key Learning Areas (or broad subjects) in the F-10 curriculum. These are English, Mathematics, Science, Humanities and Social Science, the Arts, Health and Physical Education, Languages and Technologies. As well, in Years 9 and 10 there is an optional area called Work Studies in which students prepare for employment. Importantly, there are three “Cross-disciplinary Priorities”: Sustainability, Aboriginal and Torres Strait Islander History and Cultures and Asia and Australia’s Engagement with Asia. These “priorities” should pervade all key learning areas, although it is obvious it will be easier to cover priorities in some subjects more than others.

In the Senior Secondary Curriculum, there are five Key Learning Areas: English, Science, Mathematics, Humanities and Social Sciences. Science, for example, has the discrete subjects of Biology, Chemistry, Physics and Earth & Environmental Science.

Within the Key Learning Areas are subjects in the traditional sense and these may vary between the States.

WHAT IS EDUCATION FOR SUSTAINABILITY?

The Australian curriculum description of

sustainability is widely accepted. For instance, “sustainability addresses the ongoing capacity of Earth to maintain all life. Sustainable patterns of living meet the needs of the present without compromising the ability of future generations to meet their needs. Sustainability education is futures-oriented, focusing on protecting environments and creating a more ecologically and socially just world through informed action. Actions that support more sustainable patterns of living require consideration of environmental, social, cultural and economic systems and their interdependence.” (ACARA, undated).

The idea that sustainability can be taught across many disciplines is also widely accepted. McKeown and Hopkins (2003, p. 124) believe that every discipline can provide the “knowledge, skills, perspectives, and values: to create a holistic education for sustainability program”. Wals and Blewitt (2010) have further argued against a rigid definition of sustainability as this would constrain a multi-disciplinary approach. They argue sustainability is contextual and subjective and can therefore be adaptable to any discipline.

Nonetheless, some disciplines seem more amenable than others to promoting education for sustainability. For example, Biology is frequently cited as a way of addressing many of the concepts and principles of sustainability (Cotton *et al.*, 2007; Kim and Diong, 2012; Christie *et al.*, 2015).

F-10 SUSTAINABILITY CURRICULUM

There are three key concepts that underpin the F-10 Sustainability curriculum: Systems, World Views and Futures.

The Systems concept explores the interdependent and dynamic nature of systems that support all life on Earth and our collective wellbeing.

The second concept promotes the differences of world views on ecosystems, values and social justice.

The third concept is “aimed at building capacities for thinking and acting in ways that are necessary to create a more sustainable future. The concept seeks to promote reflective thinking processes in young people and empower them to design action that will lead to a more equitable and sustainable

future.” (ACARA, undated).

There are then nine key curriculum statements; these are listed in Table 1. Teachers would be expected to address these wherever possible in their student learning activities.

Table 1. The nine key “organising ideas” of Sustainability in the F-10 curriculum

Systems

- The biosphere is a dynamic system providing conditions that sustain life on Earth.
- All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival.
- Sustainable patterns of living rely on the interdependence of healthy social, economic and ecological systems.

World views

- World views that recognise the dependence of living things on healthy ecosystems, and value diversity and social justice are essential for achieving sustainability.
- World views are formed by experiences at personal, local, national and global levels, and are linked to individual and community actions for sustainability.

Futures

- The sustainability of ecological, social and economic systems is achieved through informed individual and community action that values local and global equality and fairness across generations into the future.
 - Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments.
 - Designing actions for sustainability requires an evaluation of past practices, the assessment of scientific and technological developments, and balanced judgements based on projected future economic, social and environmental impacts.
 - Sustainable futures result from actions designed to preserve and/or restore the quality and uniqueness of environments.
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Source: ACARA (undated).

Each of the Key Learning Areas (such as Science) has a set of learning statements relevant to Sustainability. For example, that for Science reads:

“The Sustainability priority provides contexts for investigating and understanding chemical, biological, physical and Earth and space systems. Students explore a wide range of systems that operate at different time and spatial scales. By investigating the relationships between systems and system components and how systems respond to change, students develop an

appreciation for the interconnectedness of Earth’s biosphere, geosphere, hydrosphere and atmosphere. Relationships including cycles and cause and effect are explored, and students develop observation and analysis skills to examine these relationships in the world around them. In this learning area, students appreciate that science provides the basis for decision-making in many areas of society and that these decisions can impact on the Earth system. They understand the importance of using science to predict

possible effects of human and other activity and to develop management plans or alternative technologies that minimise these effects.” (ACARA, undated).

STUDENT LEARNING RESOURCES FOR F-10 SUSTAINABILITY

There is a vast array of resources available to help teachers deliver on these learning outcomes. Many are found on the ACARA website, as well as in sites provided by education and for-profit agencies. These include Sustainability in Schools that includes 549 resources and case studies, the Australian Education for Sustainability Alliance, Environment Education Victoria, Green Choices, and various State Education Departments, for example, NSW Government Website-Education (see the website list for the URLs at the end of the text).

EDUCATION FOR SUSTAINABILITY AT THE SENIOR LEVEL

There is an expectation that sustainability can also be taught across disciplines at the secondary senior (11 and 12) years. In the Science key learning area, the subjects of Biology and Earth and Environmental Science especially have opportunities. Elsewhere (Wallis, 2023) I have described these opportunities in three subjects in the Victorian senior school curricula of Biology and Environmental Science in the Science key learning area. Outdoor and Environmental Education in the Humanities and Social Science area is especially relevant to education for sustainability. The two units at level 4 in this subject are Healthy Outdoor Environments and Sustainable Outdoor Environments; these topics deal with the biophysical, social, health and economic aspects of living outdoors.

CONCLUSIONS

Sustainability in the Australian national

curriculum is not taught as a separate discipline, but instead is considered a priority study across all disciplines in the F-10 curriculum. At the senior levels, subjects in Science and the Humanities and Social Sciences have elements pertinent to education for sustainability.

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