



Australian Academy of Science

**Submission to the
Review of Australian Science Curriculum**

February 2014

Contact:

Australian Academy of Science
GPO Box 783
Canberra ACT 2601
Tel: 02 6201 9401
Fax: 02 6201 9494

Email: denis.goodrum@science.org.au

Submission to the Review of Australian Science Curriculum

Introduction

In providing a submission to the *Review of the Australian Curriculum* the Australian Academy of Science (the Academy) wishes to comment specifically on the *Australian Curriculum: Science*. The Academy strongly supports the Australian Science Curriculum. The process for its development was thorough and collaborative, allowing for critical input from all parts of the community including the science community.

Since its foundation in 1954 the Academy has been at the forefront of promoting scientific excellence, science education, international collaboration, evidence-based advice and scientific endeavour in Australia. The Academy has always advocated the need for a consistent and robust national science curriculum that ensures all students who pass through our education system emerge into the wider community with a high degree of science literacy. The Academy is supporting the implementation of the Australian Science Curriculum through its innovative *Primary Connections* and *Science by Doing* school programs.

The Academy is made up of around 450 Fellows, all of whom have been elected to the Academy by their peers on the basis of outstanding contributions to scientific knowledge. The Academy is an independent body and with no statutory obligation to government, enabling it to provide impartial advice on matters of science and science education.

Curriculum development

Curriculum development and implementation by its nature is a slow process. Even though the Foundation to Year 10 Australian Science Curriculum was released in December 2010 it still has not been fully implemented throughout Australia. Despite this partial implementation, feedback from teachers indicates that the Australian Science Curriculum has been well received. To make substantial changes at this time would damage teacher engagement and delay the effective implementation of the national curriculum and its benefits.

Structure of the science curriculum

The basic structure of the science curriculum is sound: it emphasises the three strands of science understanding, science inquiry skills and science as a human endeavour. These strands capture the important dimensions of science in a contemporary scientifically based society.

Organising science understanding concepts by the traditional science disciplines of biological sciences, chemical sciences, earth and space sciences and physical sciences is more meaningful than the previous structures that existed in many states and territories in which science was classified using terms like life and living, natural and processed materials and so forth.

The rationale and aims for the science curriculum are realistic and appropriate.

Challenges

One of the significant challenges of any science curriculum is outlining what scientific concepts, skills and attitudes are important in our ever-changing society. Scientific knowledge and processes are increasing at an exponential rate. The natural response to this increased information is to add more content to a science curriculum. Research and experience globally show that this results in superficial learning by students.

Submission to the Review of Australian Science Curriculum

The Australian Science Curriculum responds to this challenge and outlines the most important science ideas and skills that a scientifically literate person would require today and equip them well for the future. One of the trade-offs in constraining the pressures of adding more content is focusing the essential science concepts on particular year levels. The developmental nature of this science concept focus has still produced an intellectually rigorous curriculum that is applauded by the Academy.

Broader Areas

If an area of weakness exists in the science curriculum, it would be in the achievement standards. These yearly statements have little value. They are essentially a summary of the content descriptors for that year. If one wished to create more meaningful achievement standards it would be better to examine learning expectations at relevant school development phases, for example, at the end of year 3, year 6 and year 10.

The presence of the general capabilities and cross-curriculum priorities in the science curriculum have not distracted from the science discipline orientation. Aspects that are relevant to science have been enhanced while the other aspects have been ignored.

Within the curriculum priorities, the sustainability priority has much relevance to the science curriculum and is highlighted in a realistic and meaningful way. The Asian aspect has little relevance and as a result has minimal application. Indigenous perspectives are highlighted in contexts that are scientifically sound.

Conclusion

The Australian Academy of Science reaffirms its support of the Australian Curriculum: Science in its present form. The Academy is not aware of any compelling reason to change the structure of the detailed content descriptors. Rather the evidence is that the curriculum is providing a good basis for enabling teachers to teach science effectively.