

Economics Legislation Committee
ANSWERS TO QUESTIONS ON NOTICE
Industry, Innovation and Science Portfolio
2016-17 Supplementary Budget Estimates
20 October 2016

AGENCY: CSIRO

TOPIC: Education activities

REFERENCE: Written Question – Senator Carr

QUESTION No.: SI-87

- 1) What education activities does CSIRO engage in? Please list all programs CSIRO delivers.
- 2) How many Education centres does CSIRO operate? How many students are exposed to Education centre activities per year?
- 3) What year levels are the main target of CSIRO education activities?
- 4) Have any reviews, evaluations or consultancies been commissioned and/or engaged in the past five years? If so, please list and provide copies of reports
- 5) What is the business model for CSIRO Education centre activities?

ANSWER

These responses relate to the programs run by CSIRO Education and Outreach. It does not include activities that may occur in other parts of CSIRO including the supervision of postgrads or any programs run by CSIRO's Learning and Development team.

1. **CSIRO Education programs**

CSIRO develops and delivers high-quality science, technology, engineering and maths programs for teachers, students and the community in order to create a scientifically literate nation. We've been delivering education programs for more than 35 years. All of our resources are linked to the Australian Curriculum and use best practice STEM teaching methods.

Scientists and Mathematicians (and ICT Professionals) in Schools

STEM professionals are partnered with teachers to bring real science, mathematics and ICT into Australian classrooms across Australia. www.csiro.au/smis

Sustainable Futures

Resources and guidance for teachers on the latest in climate data and the science behind sustainability. www.csiro.au/sustainablefutures

BHP Billiton Science and Engineering Awards

Australia's premier student science awards reward students for creative research projects and engineering innovations, and teachers for their contribution to science education.
www.scienceawards.org.au

BHP Billiton Indigenous STEM education

A range of education programs to help Aboriginal and Torres Strait Islander students to excel in science, technology, engineering and mathematics. CSIRO runs this program in partnership with the BHP Billiton Foundation. www.csiro.au/indigenous-education

CREativity in Science and Technology (CREST)

A non-competitive awards program that engages and rewards students for open-ended science investigations and technology projects. CREST aligns with the new curriculum being developed by the Board of Studies Teaching and Educational Standards (BOSTES) in NSW and CSIRO Education has been in conversation with BOSTES staff about opportunities for CREST and other CSIRO education programs to be accredited and recommended by BOSTES for these new curricula. www.csiro.au/crest

Inquire to Discover

The Inquire to Discover program guides teachers through the scientific process, highlighting its effectiveness in enriching student skills in problems solving, analytical thinking and collaboration, and provides resources and techniques for implementing scientific inquiry based projects and learning in the classroom. <http://www.csiro.au/en/Education/Programs/Inquire-to-Discover>

Pulse@Parkes

Students take control of our Parkes radio telescope to find pulsars and to contribute to scientific research. pulseatparkes.atnf.csiro.au

Science Bootcamps

An immersive science experience hosted in various capital cities throughout the year where students a first-hand look at real-world science. www.csiro.au/bootcamp

Atlas of Living Australia

The Atlas of Living Australia is an online database of more than 55 million species of flora and fauna. CSIRO Education has developed classroom activities using the atlas that align with the Australian Curriculum. ala.org.au

Digital Careers

Digital Careers helps raise awareness and interest in ICT careers to grow and diversify the pool of tertiary students preparing for a career in the ICT industry. National programs supported including the Young ICT Explorers, Big Day In and Bebras Computational Thinking Challenge. digitalcareers.edu.au

Adaptive teaching and learning network

CSIRO has been working with UNSW spinout Smart Sparrow to develop an online adaptive teaching and learning network. A prototype will be released for consultation with teachers and students by the end of November 2016. This project has been part of the PwC STEM Education 21st Century Minds Accelerator.

2. A review of CSIRO Education (now CSIRO Education and Outreach), commissioned in 2013, concluded that there should be a move to a more national approach and activities should include increased links to contemporary research, especially that of CSIRO. CSIRO Education and Outreach should also continue to pursue externally funded national programs, such as CREST, BHP Billiton Science and Engineering Awards (BHPBSEA), Carbon Kids (now CSIRO Sustainable Futures), Scientists, Mathematicians and ICT in Schools (SMIS) and the Aboriginal and Torres Strait Islander STEM project (funded by BHP Billiton) and stop running state-based programs. In 2014-15 the recommendations from this review were implemented including a move away from locally focussed school activities and thus the state-based education centres were closed.

Approximately 120,000 students took part in CSIRO Education programs last year (2015-16).

3. CSIRO education and outreach programs target students in the formal years of schooling (K – 12) with a priority on teacher professional learning.
4. The following CSIRO Education and Outreach programs have been reviewed in the last five years:
 - The entire Education and Outreach program was reviewed in 2013
 - Options for CSIRO Education and Outreach (Attachment 1).
 - Scientists and Mathematicians in Schools – 3 reviews:
 - Building Productive Partnerships for STEM Education (Attachment 2).
 - Scientists in Schools Evaluation of the Scientist in Schools Project 2011-2012 (Attachment 3).
 - CSIRO Scientists in Schools Program: Future Directions Report on outcomes of an Independent Assessment 26 July 2011 (Attachment 4).
 - CREativity in Science and Technology CREST
 - CREST Program Evaluation Report Final Version January 2016 (Attachment 5).
 - BHP Billiton Science and Engineering Awards
 - BHP Billiton Science & Engineering Awards Evaluation Report Final Version 2 September 2015 (Attachment 6).
 - The CSIRO Discovery Centre was reviewed as part of another review
 - Appendix III – Review of the Discovery Centre - extract 2013 (Attachment 7).
5. CSIRO no longer runs education centres.