



15 June 2020

Mr Andrew Laming MP
Chair, House Standing Committee on Employment, Education and Training
Via Email: ee.reps@aph.gov.au

Dear Mr Laming MP,

The Australian Nuclear Science and Technology Organisation (ANSTO) welcomes the opportunity to provide an additional submission to the House of Representatives Standing Committee on Employment, Education and Training Inquiry into Education in Remote and Complex Environments.

In its [previous submission](#), ANSTO highlighted several initiatives that have contributed to the increase in student participation and engagement in Science Technology, Engineering and Maths (STEM). ANSTO's STEM initiatives are available to all Australian students, including those in regional and rural communities. The submission also highlighted key initiatives aimed at providing professional learning opportunities and resources for STEM teachers in these environments.

ANSTO notes that the House Standing Committee is seeking further evidence on how the COVID-19 pandemic has affected the education of students in remote and complex environments.

In this submission, ANSTO will provide evidence on how the COVID-19 pandemic has impacted upon its STEM educational programs. ANSTO's rapid adaptation to utilising and deploying online resources for students and teachers across the country, including those in remote areas, will also be highlighted.

Impact of the COVID-19 Pandemic on STEM Educational Programs

As a result of the COVID-19 pandemic, ANSTO was required to cancel almost 200 site tours and school excursions at its Lucas Heights campus for approximately 6500 students and members of the public.

Additionally, the Australian Synchrotron in Melbourne had to cancel its in annual program for Year 12 physics students. Taking place in Term Three of the school year and supporting over 2000 students from approximately 100 schools across Australia, the program operates as an assessment task for students. Under the program, students use ANSTO's specialised equipment to produce their own Synchrotron Science data set.

Use of Online Resources

In place of these excursions, site tours and educational experiences, ANSTO acted swiftly to increase the frequency and breadth of its videoconferencing activities and expanded its online learning resources for both students and teachers.

Between April and June 2020, ANSTO delivered approximately 45 videoconferences to over 1000 students from across the country, including students from rural and remote areas. Under normal operations, ANSTO typically delivers 50 videoconferences annually.

In addition to these videoconferences, ANSTO has published new online resources for both students and teachers to utilise within their homes and classrooms. These include:

- **Data Sets** – ANSTO scientists have released a selection of their research data for student and teacher use. Data sets are sourced directly from real scientific investigations and are accompanied by a worksheet which forms the basis of a series of educational activities. Examples of activities include monitoring air pollution and traffic in Sydney, investigating historic greenhouse gas concentrations from Antarctic ice core sampling, and aligning Taipan, one of ANSTO's neutron scattering instruments.
- **Workbooks** – These resources address the Australian Curriculum *Science Understanding and Inquiry Skills* and enable students to undertake scientific exercises remotely. For example, ANSTO has produced a new Year Nine and Ten resource on understanding Aboriginal and Torres Strait Islander cultures and histories using radiocarbon dating. These workbooks are accessible online and are free for both students and teachers to utilise.

ANSTO has also successfully sought approval from the Victorian Curriculum and Assessment Board to deliver the Australian Synchrotron educational experience outlined earlier, virtually. This will enable a larger number of students to participate in the experience, including those who could not previously attend in person. ANSTO will produce data sets and provide them to students accompanied by video resources that explain how scientific equipment works as well as the benefits delivered by the Synchrotron.

ANSTO will continue to develop and provide online resources and facilitate online learning for all students and teachers across the country, particularly those from remote areas.

Other Online and Remote Learning Programs

STEAM Club

During the pandemic, ANSTO launched a new online initiative called the ANSTO STEAM Club to engage students across Years Three to Eight.¹ ANSTO's STEAM Club provides students with fun and creative scientific challenges and experiments each week that they can complete at home. The ANSTO STEAM Club operates online using Google Classroom and is facilitated by ANSTO STEAM Club Teachers.

There are over 1600 individual students and 17 schools actively participating in ANSTO's STEAM Club from across the country, including from remote areas.

Shorebirds Competition

Each year, ANSTO hosts the Sydney Shorebirds Competition for primary students in Years Three to Six. This competition requires primary school students to develop a public awareness poster on the human impacts on Shorebirds and their wetland and coastal habitats. This year, ANSTO has

¹ More information: <https://www.ansto.gov.au/education/resources/ansto-steam-club>.

expanded this program to take place nationally, where students from all across Australia are invited to participate virtually.²

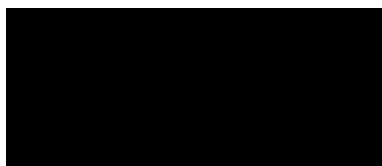
ANSTO is currently collaborating with 23 schools who are participating in this exciting competition, including schools from Broome, Young, and Mulga Creek. ANSTO will actively be seeking to promote this competition to schools in rural and remote towns within the Northern Territory and Tasmania over the coming months.

ANSTO will continue to break down barriers of access to STEM educational resources for students in remote and complex environments by further developing online and virtual educational programs in the near future.

Should you require any assistance during the course of your review, please do not hesitate to contact Marina Sara, Government and Strategic Programs Advisor on (02) 9717 7425 or government.liaison@ansto.gov.au.

Thank you again the opportunity to contribute to this important process.

Yours sincerely



Mark Alexander
A/g Senior Manager
Government and International Affairs

² More information: <https://www.ansto.gov.au/education/primary/competitions/shorebirds-competition-2020>.