



ASTRONOMICAL SOCIETY OF AUSTRALIA

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Friday, 2 Dec 2022

NSW Education Standards Authority

Dear Sir/Madam,

On behalf of the *Astronomical Society of Australia*, we are writing to express concern at the lack of astronomy content in the draft Science Year 7-10 syllabus for New South Wales.

Astronomy is one of the world's oldest sciences, underpinning much of humanity's knowledge about the laws of the natural world. To give just two examples, understanding of both gravity and relativity – two fundamental physics concepts underpinning all modern technology – came from astronomy. Many technologies we use every day, from sensors to medical imaging, have their origins in astronomy.

Astronomy is a science in which Australia is truly a world leader, punching well above our weight. The world's largest telescope, the Square Kilometre Array (SKA), will begin construction in 2023. The low-frequency component of the SKA will be hosted in Australia – the largest and most complex science project ever undertaken on Australian soil. The SKA will operate for most of the 21st century, so the majority of scientists who will make discoveries with this instrument are either at school or not yet born. Young Australians will have a unique opportunity to make tremendous astronomical discoveries from their own backyard – but only if they have an opportunity to learn about astronomy in the first place.

Astronomy has a proven track record of being a “gateway science”, attracting students to other Science, Technology, Engineering and Mathematics (STEM) subjects. This is especially important in light of the looming shortage of STEM-skilled workers in the Australian economy, as recently [highlighted in a report by Australia's Chief Scientist](#). STEM skills will be necessary for emerging and rapidly growing industries including space, quantum technologies, and clean energy. Physics and astronomy education provide an essential foundation in all these areas, as well as other skills essential in the knowledge economy such as big data – but this is at risk if the school curriculum does not expose students to both the wonder and rigour of astronomy and physics.

Discarding astronomy from the school curriculum is [precisely the opposite of what OECD competitor countries are doing](#), and risks putting Australia at a long-term competitive disadvantage in a globalised knowledge economy. We note with surprise that the proposed changes appear at odds with the [NSW 20-year R&D Roadmap](#) recently released by the NSW Chief Scientist and Engineer, which explicitly highlights the aerospace and defence sectors as important future industries for the state.

We are also concerned about the social impacts of the proposed changes to the curriculum. First Nations Australians have a unique connection to the skies, exemplified by their extensive astronomical observations. Astronomy therefore also provides a rare opportunity in the physical sciences to embed First Nations perspectives in the curriculum – an opportunity that would be lost under the proposed changes. Making astronomy content optional also risks entrenching inequity, with students from disadvantaged backgrounds less likely to access any optional content in the curriculum.

We strongly urge you to reconsider the proposal to remove astronomy topics from the NSW Year 7-10 curriculum. As the peak professional body for astronomy, the Astronomical Society of Australia stands ready to work with the NSW Education Standards Authority towards our common goal of a science curriculum fit for the 21st century.

The *Astronomical Society of Australia* also would like to endorse the submission from *the Australian Institute of Physics*.

We look forward to opportunities for further contributions.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Lattanzio', with a long horizontal flourish extending to the right.

Professor John Lattanzio, President;
Dr Stanislav Shabala, Vice President;
Dr Jackie Bondell, Chair Education and Public Outreach Chapter;

on behalf of the *Astronomical Society of Australia*