



POLICY POSITION PAPER: RESOURCING

Background

High-quality science education provides an inquiry-based foundation for learning, creates an enthusiasm and appreciation for science that lasts a lifetime and addresses the critical need for an engaged, scientifically literate citizenry and society who are equipped to respond to evolving global challenges.

Science educators, in providing safe and effective learning environments for students, face many challenges, including limitations in school and systemic funding which impacts on the availability of resources, facilities and equipment, and access to professional development.

The Australian Science Teachers Association (ASTA) recognises the importance of adequate resourcing within education systems to support effective science education with equitable instruction, materials, environment, and opportunities so that all students may succeed.

In the production of this policy position paper ASTA undertook extensive stakeholder consultation through a survey open to all teachers, and one on one consultations. Our consultations consisted of conversations with teachers, government, business, and academia. For example, we had conversations with Australia's Chief Scientist, Australia's Women in STEM Ambassador, BHP, Clarivate Analytics, The Australian Academy of Science who have collectively helped shape this policy position.

Issues Teachers Face

Science educators participating in the 2021 ASTA National Survey have identified that:

- up to 40% of teachers may be teaching out-of-field;
- 15% are currently not confident teaching science concepts;
- more content hesitancy exists around the physical sciences (Physics and Chemistry);
- there is a lack of sufficient time allocated to science teaching and for lesson preparation;
- there is a lack of sufficient time for professional development to be undertaken during the school week or school day;
- there is a lack of dedicated science specialists or laboratory technicians in their school for support;
- large class sizes create safety issues for practical work and differentiation for student abilities;
- the lack of science laboratory technicians in primary and in some secondary schools contributes to increased safety risks to students during practical sessions.

ASTA's Commitment

ASTA will work with relevant stakeholders to ensure that science educators:

- have training in science content, safety, effective instructional practices, and three-dimensional learning;
- have use of safe and well-resourced environments for students to engage in science practices in the classroom, laboratory, and informal settings;
- are resourced to help students apply knowledge and skills learned in science classes to explain phenomena, create models, and design solutions to real-world problems;
- are resourced to connect the science classroom to the community through real-life experiences, careers, and place-based learning that includes field trips, speakers, partnerships, and informal science programs;
- are resourced to allow for student differentiation, modification, and remediation; and ensure that students' diversity including gender identity, culture, or exceptionalities are supported.

ASTA's Expectations

ASTA seeks and expects:

- funding to create the facilities and space for a safe, laboratory-oriented program that encourages three-dimensional learning.
- funding for the installation of the latest digital, design and audiovisual technologies and equipment in laboratories, classrooms and schools.
- funding for adequate supplies and consumables for laboratory experiences.
- science educators and students be given reliable access to computers and other connected devices to enable research, collection, analysis, and presentation of data with necessary software, site licenses and maintenance.
- science educators and students be given equitable access to resources such as physical or digital textbooks, laboratory guides and reference materials that facilitate high quality delivery of the Australian curriculum.
- support and resourcing to enable science educators to adequately and safely meet the needs of students with exceptionalities or at educational risk including learning disabilities, giftedness and behavioural challenges.
- provision of adequate time to conduct necessary preparations for safe and effective science teaching with a reduction to teaching assignments to achieve this
- schools have funded access to laboratory technicians in primary and secondary contexts to manage laboratory safety and the use of these spaces specifically for science classes and activities.
- transition to science class sizes such that secondary school science practical classes are limited to ensure safety, adequate workspace and effective teaching and learning.
- access to and provision of adequate release time from class for professional development activities.

ASTA's Agenda

- Technologically enabled schools.
- Funding to acquire resources to deliver a rich teaching and learning experience.
- Availability of laboratory technicians.
- Achieving the right balance in the student-teacher ratio.
- Ongoing professional learning and development opportunities for all school educators.
- Stronger partnerships between teachers and the community, education, and scientific ecosystem.

Recommendations

- The Federal Government and other relevant stakeholders work with ASTA to develop comprehensive solutions that meet the expectation of science teachers and laboratory technicians.

