

Safe Practical Activities in School Science

The Australian Science Teachers Association encourages schools to implement a diverse variety of practical activities to support the teaching of science.

The Australian Science Teachers Association (ASTA), believe the inquiry approach to teaching science which uses hands-on, practical experiences to facilitate learning, makes science more engaging and relevant for students and increases enthusiasm in science. Without greater student engagement, Australia will not improve its international ranking in science achievement. It is an essential element in lifting students' foundational skills in STEM by developing scientific literacy and encourages much sought-after positive learning behaviours such as independence, critical thinking and problem solving which are required for the jobs of the future.

ASTA acknowledges the work of overseas science organisations in identifying benchmarks and safety considerations for the support of practical science, such as the UK Gatsby report on *Good Practical Science*¹ and the US NSTA Position Statement: *Safety and School Science Instruction*.²

It is important to put into place the infrastructure required to support practical activities in science teaching in secondary and primary schools and essential to implement safe procedures to mitigate risks.

Practical activities involve a level of risk

Science practical activities are diverse covering the many disciplines within science: biological, chemical, physical, earth and space sciences. Within each discipline, there are a range of hazards to consider. These include but are not limited to biological hazards, the use of hazardous chemicals, high risk physics equipment and other specialised laboratory equipment.

ASTA supports managing risks through sensible risk mitigation

Schools should have safety policies and procedures in place to address the management of the risks associated with delivering a practical science curriculum. These should address issues such as:

- **Suitable facilities:** e.g. a sufficient number of science laboratories; resourced with appropriate Personal Protective Equipment (PPE) and emergency response equipment.
- **Science subject specialist trained teachers:** e.g. Physics trained teachers teaching physics.
- **Safety training for all teachers of science:** e.g. For the handling of hazardous chemicals as required by State/Territory Work Health and Safety Legislation
- **Sufficient technical support:** e.g. Adequate allocation of technical support by trained staff

ASTA supports safe and engaging science teaching and learning through the provision of the Science ASSIST service which supports science technicians and teachers to employ safe science teaching practices.

ASTA believe that governments and school systems have an important role to play in ensuring that science is taught by qualified teachers, in well-resourced and appropriate teaching spaces supported by well-trained technical staff so that students have the best opportunity to learn in a safe and stimulating environment, and develop into scientifically literate citizens that can make a positive contribution to Australian society.

¹ Holman, J. 2017. Good Practical Science. The Gatsby Charitable Foundation website, <http://www.gatsby.org.uk/education/programmes/support-for-practical-science-in-schools>

² 'NSTA Position Statement: Safety and School Science Instruction', National Science Teaching Association website, <https://www.nsta.org/about/positions/safety.aspx> (October 2015)