

Science by Doing Professional Learning Approach

Science by Doing is a national initiative for the improvement of secondary science education. It is managed by the Australian Academy of Science and funded by the Australian Government.



Australian Government



Australian Academy of Science

Science by Doing Professional Learning Approach

What is professional learning?

The term professional development has traditionally been used to describe in-service teacher training. The problem with this term is that it implies something is 'done' to teachers by education systems or external organisations. *Science by Doing* recognises that teachers themselves are the key to change; the expression 'professional learning' reinforces this message.

Professional learning requires a continuous cycle of reflection, questioning and action. Teachers commit to this cycle in order to determine changes that will improve the learning outcomes of their students. Professional learning is embedded in the everyday work of teachers. It simply becomes part of what they do. This does not deny the importance of external contributors, like research, but emphasises the role that teachers have to play.

What is our Professional Learning Approach (PLA)?

There is a growing body of research which recognises a certain synergy when teachers work together to improve student learning; what they can achieve together is far greater than the sum of efforts of individuals. One of the terms used to describe teachers working in this way is the Professional Learning Community (PLC). There are three big ideas associated with the work of PLCs. They are:

1. A focus on student learning – striving towards high levels of learning for all students
2. A commitment to a collaborative culture – time and support to work together
3. A focus on results – programs and practices are continually assessed to determine their impact on student learning.

Science by Doing supports science departments or teams within a school to begin and/or continue the journey of becoming a PLC. Support is provided in the form of workshops, professional learning resources and curriculum resources.

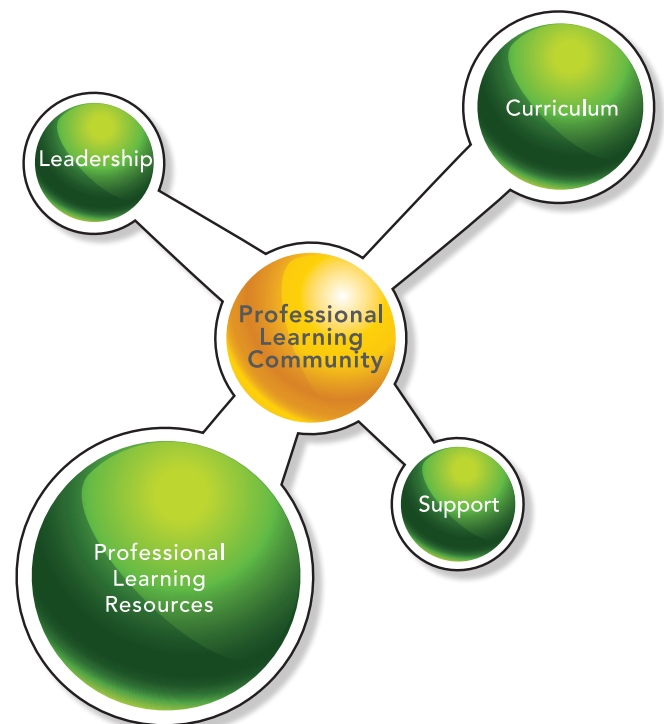
Leadership is important in the process. The professional learning resource *Leading for Change* provides an opportunity to enhance some key leadership skills. These skills are not only important for a designated Head of Department or Coordinator, they are essential for all members of a PLC. Leadership is most effective when it is shared. Every member of a PLC is empowered to contribute to improving professional practice.

Why is the Leading for Change module important?



It takes time for a group of people to develop the trust to work together effectively. There are valuable processes that a science department can develop to encourage members to function as a genuine PLC. The *Leading for Change* module has been created to assist coordinators and departments develop these processes.

The module has three parts. The first is a DVD showing a simulated department meeting. We see how a department begins to work as a team. There is also a CD-ROM providing the opportunity for the user to practise and interact with the three important processes of communicating a vision, deep listening and reflective practice. There is also a booklet that summarises the research.



The components of the *Science by Doing* Professional Learning Approach

Professional Learning Resources

The professional learning resources, of which there are five modules (including *Leading for Change*), are designed for PLCs to provide a shared experience and common language for professional conversation.

Each resource comprises a DVD which models the targeted pedagogy, an interactive CD-ROM which provides opportunities for teachers to explore and practise skills, and a booklet which provides an explanation and supporting information.



Curriculum Resources

The curriculum resources align with the Australian Curriculum: Science. The curriculum resources provide support for teachers to collaboratively:

- plan to implement an inquiry approach
- develop common formative and summative assessment tasks, analyse student responses, reflect on their instructional practice
- develop a shared understanding of effective teaching strategies for their students.

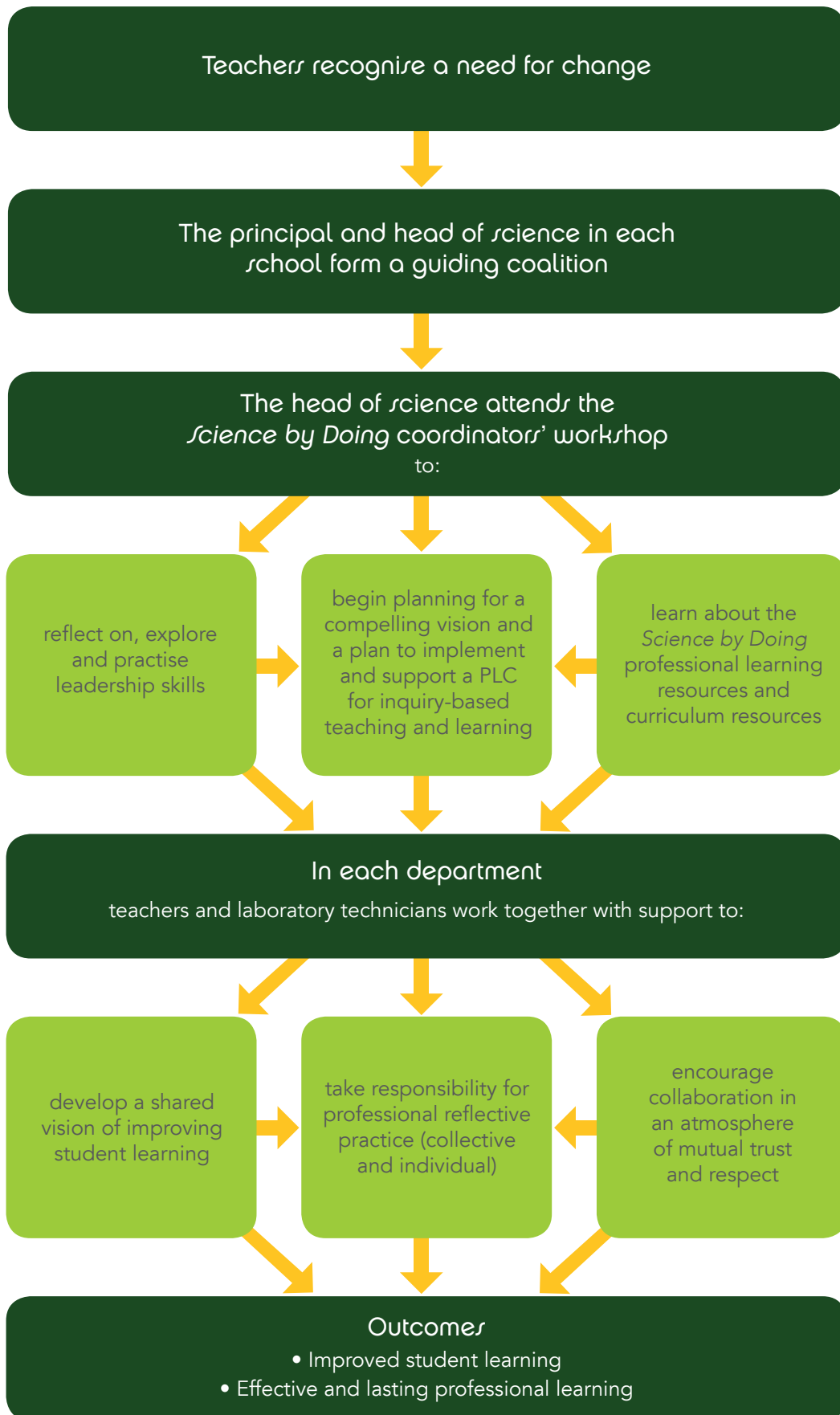


An inquiry-based exploration of contemporary issues associated with water. It focuses on the role science plays in sustainable water management. It has a strong digital component.

A resource to help students develop their science inquiry skills so that they can undertake open investigations.

A step-by-step guide to assist in adapting existing resources towards an inquiry-based approach.

How will the PLA work in practice?



Contact: sbd@science.org.au (02) 6201 9408
The Australian Academy of Science, GPO Box 783, Canberra ACT 2601

www.science.org.au/sciencebydoing