

The Primary Industry Centre for Science Education (PICSE), with its national centre at the University of Tasmania in Burnie, has developed a range of teaching and learning resources over the last few years. These resources have been produced in partnership with the funding providers. Each of the resources contains teacher and student materials, demonstrates links with local industries and several have a focus on scientific investigations.



### Chemistry and Biology: Interactive Lessons (Year 10-12)

This resource incorporates the following...

- DNA PCR
- Biodiesel
- Osmosis and Diffusion
- Equilibrium
- Soil Acidity
- DNA Electrophoresis
- Biodiversity
- Nitrogen Cycle
- Genetics

Each section provides theory and practical components along with an interactive and classroom examples.

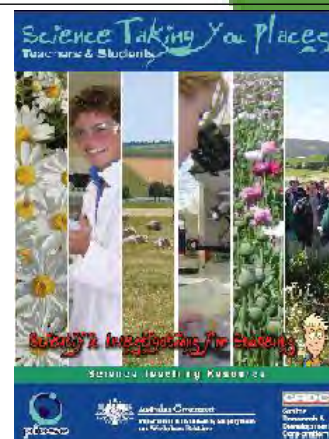
### Science Taking You Places booklet (Year 5-12)

This resource compliments the PICSE Science Investigation Awards.

In this guide, you will find information about...

- Conducting projects for the Science Investigation Awards
- Information about the Scientific Method
- Tips for teachers
- Tips for students, including outlines for presentation and ideas for projects
- Student activities

Science Adventures with Igor is recommended with this resource (CD).



### Organic Chemistry - Its Role in Industry (Year 10 extended to Year 12 Science Classes)

**Introduction to Organic Chemistry** - The chemistry of carbon molecules is unique. Find out about carbon chemistry, the structures of molecules and how they relate to their properties and uses in this interactive resource.

**Science of Fermentation** - Focusing on the malting and brewing processes and the role of the hops molecules and their isomers in beer production.

**Science of Alkaloids** - In this section you will learn about the structure, properties and uses of the alkaloid chemicals produced by and from the poppy plant and almonds.

**Science of Pesticides** - In this section you will learn about the chemicals used to control pests in cotton crops.

**Science of Visualiser** - This section allows students to enter a organic compound and see the structural, two dimensional and molecular, three dimensional, molecules.

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## Biology in Context- Advances in Plant Genetics (Year 10 Extended, Year 11-12)

This package is intended to demonstrate and give practice in aspects of a current research technique (gel electrophoresis) and introduce students to some cutting edge biotechnology through the rapid breeding of new varieties of non-GMO canola using doubled haploid embryos. The package comprises a CD-ROM and DVD that together cover the two main topics:

- Agarose gel electrophoresis
- Rapid breeding of new plant varieties

All resources on the CD-ROM can be accessed from the starting page index.htm. The DVD contains two chapters: a visual guide to agarose gel electrophoresis, and an exposition of doubled haploidy for rapid canola breeding.



## The Chemistry of the Citrus Industry (Year 8-12)

Aims to relate some of the chemistry involved in the Citrus Industry to science taught in school courses. This CD shows that the chemistry in science courses in schools has applications in local industries. We have set the scene where this chemistry occurs in industry and then have produced related resources which could be used by both teachers and students in the classroom.

## Aspects of Experimental Design (Year 11 -12)

This CD aims to provide teachers and students in Years 11 - 12 studying Life Science subjects such as Biology and Environmental Science with an interactive and imaginative resource. The theme "working scientifically" was used to create the framework for this resource, as all researchers either at university, in industry or other agencies follow a logical and rational scientific method in answering questions with regard to their research topic. In particular, the fields of agricultural research are highlighted here in the case studies. This approach will have wide applications in schools.



## Science Adventures with Igor (Year 7-9)

This section introduces students to the basic principles of scientific method and the setting up of their own scientific investigation.

### Science in the Sheep and Wool Industry

This section provides students with information and interactive activities relating to the science that is foundational to this important area of primary production.

### The Science of Milk and Milk Products

Check out the biology of a cow or the nutritional make-up of milk. Why is milk such a useful natural product? What can milk be made into, what are the processes involved and just how important is it to know the science of grass and soil? Follow Igor and find the answers to all these questions and more!

## The Science that Supports Our Industries! (Year 10-12)

Delves into the...

- The Wine Industry
- The Poppy Industry
- Essential Oils
- Beer Industry
- Dairy Industry
- Pyrethrum Industry
- Instrumentation

All of these sections are supported by worksheets, project sheets and assessment templates.



Please complete and return the included order form if you would like a free copy. To preview or download these resources please visit: [www.picse.net](http://www.picse.net)



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- Chemistry & Biology: Interactive Lessons
- Science Taking you Places; a Teaching Resource
- Science Adventures with Igor
- Organic Chemistry - Its Role in Industry
- The Science that Supports our Industries!
- Biology in Context- Advances in Plant Genetics
- The Chemistry of the Citrus Industry
- Aspects of Experimental Design

For your free teaching resources detach this order form and post to:

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