

Robotics On The Run

Yr 6-9 90 

Explore why robots are able to perform a variety of tasks and gain an understanding of the role robots play in research and our everyday life. Using a robot vehicle built around an RCX Lego™ Brick, which is a small computer, students will discover how programming relates to the actions carried out by the robot.

Cool Chem!—Polymers & Materials

Yr 6-10 120 

These exciting hands-on activities give students an insight into the fascinating world of chemistry. Experiments make use of everyday items and show how raw materials can be converted into useful products. Scientific areas covered include chemical reactions, energy and temperature changes, detecting chemical changes and methods of separation. **Available Term 4 Weeks 2-9.**



Other programs for teachers and students:

Scientists in Schools

Scientists in Schools matches scientists and engineers with primary and secondary school teachers in ongoing partnerships. These are supported by resources, emails, phone calls and face-to-face events. Register for free online.

www.scientistsinschools.edu.au

Mathematicians in Schools

Mathematicians in Schools matches mathematicians with primary and secondary school teachers in ongoing partnerships. These are supported by resources, emails, phone calls and face-to-face events. Register for free online.

www.mathaticiansinschools.edu.au

Double Helix Science Club



Get your hands on our two kids' science magazines with free online teacher's guides. There are big savings available on bulk subscriptions and free membership available through the School Science Prize. The club also provides diverse scientific inspiration for students, including regular events and engaging holiday programs run by this centre.

www.csiro.au/helixschools & www.csiro.au/helixevents

What do teachers think?

95% of teachers find programs relate well to the curriculum and are likely to have a lasting positive impact on students.

"Great links to real life and science careers switches kids on. Excellent hands-on activities."

"The hands-on aspect of your programs is the best way for students to engage and hence learn about science."

"FANTASTIC!! Totally engaged the children. Terrific experience—motivating and linked to our topic. Thank you!!"

CSIRO Education's nine regional centres see over 380,000 students and teachers annually and over five million have completed our programs.

Bookings / Contact Us

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CSIRO Education South Australia

Secondary school programs 2012

Travelling, curriculum-linked, hands-on programs for your students. Inspiring and educating young Australians.

A partnership with:



Government of South Australia
Department of Education and
Children's Services



Government of South Australia
Department of Further Education,
Employment, Science and Technology

Want more teaching resources?

FREE ACTIVITIES:

www.csiro.au/sciencemail & www.csiro.au/diy

AWARDS PROGRAMS:

www.scienceawards.org.au & www.csiro.au/crest

& www.csiro.au/resources/CarbonKids

CSIRO SHOP (teacher's resources): www.csiroshop.com

CSIRO Education operates in every state and territory.

DNA & Gene Technology

 10-12  120-150 

A hands-on workshop introducing students to the world of DNA. In a laboratory setting, students practically explore genetic engineering processes and their applications. They separate DNA fragments by electrophoresis, and either transform bacteria using a DNA plasmid or extract DNA from peas. By the end of the session students will have experience in laboratory techniques used in DNA analysis and a broader understanding of genetic engineering's social implications. Sessions are adapted to suit year level. **Available Term 1 Weeks 4-II.**

We offer a choice of two workshops which guide students and teachers through the following hands-on techniques:

1. Bacterial transformation and gel electrophoresis:

- micropipette use
- plasmid insertion
- bacterial plating
- setting up a DNA restriction enzyme digest
- loading and running the electrophoresis gel plates.

2. Gel electrophoresis and DNA extraction

- micropipette use
- DNA extraction
- setting up a DNA restriction enzyme digest
- loading and running the electrophoresis gel plates.

Costs & general info

 **SCHOOL YEAR SUITABILITY**

 **MINUTES PER SESSION**

 **PROGRAM CAN TRAVEL TO YOUR SCHOOL**

Program sessions are \$5.00 per student, except the Blown Away Science Show (\$3.50 per student) and the Soldering program (\$7.00 per student).

Minimum session or daily charges may apply and can be negotiated depending on school circumstances. Prices GST exempt and valid 2012.

Maximum 30 students per session, except Blown Away Science Show. Multiple sessions are available on the same day. Unless noted, programs are available all year subject to bookings.

Curriculum links: All programs are designed by teachers and have strong links to the curriculum, including Biology, Food & Nutrition, Physics and Chemistry.

TURN OVER FOR BOOKING AND CONTACT DETAILS

Senior Analytical Chemistry

 10-12  120

This program offers a range of experiments covering analytical chemistry and its applications. Students explore topics such as colorimetry, atomic absorption, gas liquid chromatography, flame emission spectroscopy, equilibrium, electrochemical cells and clays and ion exchange.

Available Term 2 Weeks 1-6.

Through hands-on experiments, students:

- neutralise red wine
- determine sulphur dioxide content in wine
- measure the rate of reactions
- determine sodium content in bottled water
- find ways to reduce acid pollutants.

Phascinating Physics!

 10-12  120

What forces act upon a person during a rollercoaster ride? How do fibre optics work? Can you see sound?

A range of practical activities provide students with an opportunity to explore physics concepts as well as use equipment not readily available in schools. The program can serve as an interesting way to revise course work, reinforce concepts or provide a general introduction to conceptual physics. Classes can be adapted to suit specific year level.

Available Term 2 Weeks 7-10.

Some of the experiments available in the centre are:

- Centripetal force
- Projectile motion
- Photoelectric effect
- Band gap energy
- Radiation emitters

“One Wedding, Two Funerals”—Food Science

 9-12  120

Students become forensic detectives working through a series of clues in a hands-on workshop to determine the cause of food poisoning at a wedding. Using the latest technology, students examine and analyse food samples. Students also use problem-solving skills to analyse clues and data they collect, then as a dramatic climax deliver their verdict on the guilty party. What food, which bacteria, and who was responsible?

Available Term 3 Weeks 6-10.

Blown Away Science Show

 8-10  60 

This show provides an exciting introduction to the concepts of the particle theory and gas laws. Students will be thrilled by many spectacular chemical reactions which cover concepts such as states of matter, expansion and compression of gases, diffusion and much, much more. A great way to promote discussions and questions. Maximum numbers depend on venues schools have available.

Electronics

 8-10  90 

Electrotechnology is a hi-tech industry which covers all aspects of electrical, electronic, instrumentation and communication technologies. The electrotechnology industry is integral to future developments and impacts on almost every aspect of daily life.

Electroflash – Introduction to Electricity/Electronics

Using the Electroflash kits students are introduced to simple circuits and several common components used in everyday circuits. Students use a unique magnetic joining system which replaces the wires, clips and other items needed for teaching electricity.

Soldering – Soil Moisture Indicator

Students use traditional soldering techniques to construct a soil moisture indicator. During the session students are taught the correct method of soldering while assembling the circuit.

To better understand the use and application of the components we recommend that schools book both programs for their students.

Forensic Frenzy

 8-10  90 

When shots are fired during a robbery, Police launch an extensive manhunt for the perpetrators.

Your students will be the forensic team responsible for processing the evidence collected by the Crime Scene Investigators.

Developed in consultation with forensic experts working in the field, the program gives students an insight into a range of techniques used to analyse vital pieces of evidence.