



Latest events >>

For the latest events and conference information go to STAV's website:
www.stav.org.au

For information about science activities & competitions go to:
www.stav.org.au

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Conferences/Events

The STAV event calendar which includes all PD/conferences and science activities for the year is available on the STAV website: www.stav.org.au

Physics Workshops 2011

These popular small-group workshops are scheduled for October and November 2011 at STAV House. Opportunities are also available for schools, including regional areas, to conduct the workshops in-house. Refer to our website for more information <http://www.sciencevictoria.com.au/otherPD.html>

Science Talent Search

Exhibition day is on Wednesday 2 November. More information on pages 4 and 5, and on the STS website www.sciencevictoria.com.au/sts

STAVCON: *Building Knowledge*

The program is on the Science Victoria website.
<http://www.sciencevictoria.com.au/STAVCON.html>

Energising Science and Mathematics Education in Victoria

<http://www.education.vic.gov.au/about/directions/mathsciencestrategy.htm>

VCE Conferences 2012

Call for sessions is now available.
<http://www.sciencevictoria.com.au/confVCE.html>

STAV AGM Notification

Please refer to page 12 and STAV's website for agenda and financial report. www.stav.org.au/html/theAssoc.html



STAV is on Facebook
go to www.stav.org.au



Join STAV on Twitter
www.stav.org.au



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Science Victoria

Science Victoria hosts professional development activities on behalf of the Science Teachers' Association of Victoria Inc. (STAV)

Life Members

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Rod Fawns

Dick Gunstone

Jim Stevenson

Gretta Wilkinson

Don Lugg

Mark Learmonth

Contact enquiries



For enquiries about Contact newsletter including advertising opportunities please contact the STAV Publications Officer phone: (03) 9385 3903 or email: publications@stav.vic.edu.au

Contact newsletter is also accessible in an electronic version via email as a PDF. The electronic version is available up to 1 week earlier than the distribution of the printed copies of Contact.

If you prefer to receive Contact newsletter by email rather than the printed version please email STAV: stav@stav.vic.edu.au

President's Report



It was with great pride that I officially opened the 19th Science Drama Awards, hosted at Canterbury Girls' Secondary College, under the direction of Jan Campione and facilitated by Helene Hiotis and the other members of the Executive

Committee. We had a record number of entries this year with the eight finalists performing in front of a very supportive and appreciative audience. Joining me on the night was the STAV Vice President, Ms Joanna Alexander and fellow STAV Councillor Ms Catriona Tweedie. The event's MC was Chris Krishna-Pillay, who kept the audience engaged with his wit, sense of humour and incredible dance moves! The judges, Katrina Fleming, Margaret Miller and David Trotter certainly had a difficult task as all schools posted a very strong performance. I would like to congratulate the winners; Nanneella Estate Primary School who won the Archimedes Award for their performance, 'Comm Quest!' and St Leonard's College (Secondary) who won the Aristotle Award for their performance, 'How Science Ruined my Childhood'.

I would like to acknowledge all competing schools, their students, teachers, families and friends. Finally I would like to thank our generous sponsors for providing a gift box to all the schools on the evening. Please visit the STAV website and the following link for further information on the Science Drama Awards:

<http://www.sciencevictoria.com.au/science%20drama%20awards/FinalistsWinners.html>

There are many other ways in which students can experience the many wonders of science both within the classroom and beyond the classroom. The Science Teachers' Association of Victoria offer students many opportunities to engage in science through participation in the Science Talent Search, access to the BHP Billiton Awards and supporting schools during National Science Week to name a few.

There are also other opportunities for students to gain a deeper understanding of science. The CSIRO sponsor a number of programs for students including:

- The CREST Awards, CREativity in Science and Technology (CREST) provides real-life open-ended investigation in science and technology, is available for primary and secondary students and participating students and teachers receive support and guidance. <http://www.csiro.au/org/CREST.html>
- Scientists in Schools, is a national program that creates and supports long-term partnerships between teachers and scientists and is suitable for both primary and secondary students. <http://www.scientistsinschools.edu.au/>

On behalf of STAV, I would like to take this opportunity to acknowledge the contribution made by Ross Kingsland, Manager CSIRO Education, to science education throughout his twenty five year involvement and wish him well in his upcoming retirement.

Soula Bennett
STAV President

Project Officer's Report



It's the time of year when school finances get closed off. If you are looking for ideas for spending remaining money from your budget, or you are planning next year's budget, go to the STAV Publishing website

and have a look at our products. For VCE Biology Unit 3 the ImmuKnow kits are still popular. There are also Brainbox electronics kits, portable illuminated microscopes and a range of publications. If your school is likely to be employing new graduates to teach science you might want to purchase the Beginning Science Teachers' Handbook for your faculty shelf. Similarly, if there's likely to be a new Science Coordinator, the Science Coordinator's Handbook is a good reference to have on the shelf.

The other books that are very popular are Science Circles. If you're looking for some different activities and approaches to supplement your text books for years 7 & 8, have a look at these two books. We also have a good range of books and resources for primary science, including Discovering Science, Science hands-on projects and Essential Science Skills. And there are two new books written by STAV Publishing authors due to be released early next year for years 9 and 10 science and closely linked to the Australian Curriculum: Science.

If you want to view any of the publications or resources prior to purchase there's an opportunity at STAVCON where STAV Publishing has a display table in the foyer area. You can look through books, 'play' with the Brainbox and microscopes and have a good look at the ImmuKnow kit components and information booklets. You can purchase most resources on the day if you wish.

Go to <http://www.sciencevictoria.com.au/stavpublishing/publications.html> to view information about our resources.

Ellen Finlay
Project Officer, STAV Publishing
Phone: 9385 3999
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Email: projects@stav.vic.edu.au

Science Talent Search Report



Exhibition and Presentation Day is on Wednesday 2 November. Details about the day should have arrived with Schools pack 3 on the first day of term 4. Pack 3 also includes student results and certificates.

Many successful bursary winning students will be preparing to exhibit their winning projects and collect their prizes at the Presentations.

Dates for the 2012 competition will be announced in *Contact* and on the STS website in November.

Thank you to our Science Talent Search committee members for the work they have done preparing for Judging day and now Exhibition and Presentation day. Thank you also to our many sponsors, without whom there would be no bursaries and no competition.

We look forward to another successful Exhibition and Presentation day and hope that many schools will start planning to participate in Science Talent Search next year.

Leonie Lang
STS Co-Director



Adapting to Climate Change

Activities – free on STAV's website

STAV Publishing has recently completed a suite of activities about adapting to climate change. The activities, suitable for VELS levels 5 & 6, are available online as pdf files. Yvonne Sanders, co-author of STAV Publishing's very popular *Better Links* book (now out of print), is the author. The files have live links embedded and will work well with an electronic whiteboard, or they can be printed in hardcopy and used in conjunction with the accompanying teacher notes to source the urls. The full package includes fifteen activities (seven for level 5 and eight for level 6), suggested answers, links to VELS and comprehensive teacher notes.

www.stav.org.au

Science Drama Awards Report



On Friday September 9, eight state finalists performed in the Victorian Science Drama Awards. The event was staged in McMillan Hall, Canterbury Girls' Secondary College.

The schools selected to perform their entry on the night were: Nanneella Estate Primary School – 'Comm. Quest', St. Aloysius College – 'Fleming's Marvellous Medicine', Canterbury Girls' Secondary College – 'The Jumper Shrunk', The Maharisha School – 'Ted the Tough Tiny Tardigrade', The Knox School – 'Wow...it's Hot in Here!', Westbourne Grammar – 'Thomas Edison Comes to Life', Shelford Girls' Grammar – 'Alice in Element Land' and St Leonard's College – 'How Science Ruined My Childhood'. All finalists put on a wonderful performance and clearly demonstrated how scientific concepts can be delivered on stage to an audience.

'The Aristotle Award' for Outstanding Performance by a Secondary School was awarded to St. Leonard's College with 'The Archimedes Award' for Outstanding Performance by a Primary School being awarded to Nanneella Estate Primary School. These awards included a cheque for \$1000 to both schools.

The judging panel – Katrina Fleming Producer, Writer, Director and Performer for film and musical comedy, Margaret Miller, retired Science Consultant and David Trotter, National CSIROSEC Manager commended all the state finalists for their creativity, performance and science learning!

Each finalist was presented with a trophy and a prize box of books and assorted materials for their science classes. Congratulations to all schools that entered the competition, all finalists and the eventual winners.

Next year, will be the twentieth anniversary of the competition. Keep reading this section of *Contact* for details of next year's competition.

Jan Campione
Director
Science Drama Awards

Receive *Contact* as an eNewsletter

All STAV members and subscribers can choose to receive *Contact* monthly by email.

How do you arrange to get *Contact* as an eNewsletter?

Email STAV stav@stav.vic.edu.au and request that we add you to the eNewsletter distribution list. Make sure you specify the email address you wish to use. You'll automatically receive the next edition by email. You will no longer receive a hardcopy version.

Science Talent Search 2011

2011 Theme: React to Chemistry

Exhibition and Presentation Day:

Wednesday 2 November 2011.

Check the Science Talent Search website for information about the competition
www.sciencevictoria.com.au/sts



The Department of Education and Early Childhood Development is proud to be the major sponsor for the Science Talent Search.

Science Drama Awards 2011

Performance Night winners

The Archimedes Award - Nanneella Estate Primary School with Comm. Quest!

The Aristotle Award - St Leonard's College with How Science Ruined My Childhood



We've got the Formula Spot On

CitiPower and Powercor is employing more apprentices, trainees and graduates than ever before.

By sponsoring the 60th Science Talent Search, "React to Chemistry", we hope some of the talented youth of Australia will feel that the electricity infrastructure industry has got the chemistry right and offers exciting challenges too.

www.citipower.com.au
www.powercor.com.au



New Members

Welcome to the following new individual members of STAV

Helen Andrews
 Kate Day
 Megan Hapgood
 Sherene Hassan

STAV Membership 2011

STAV Individual Membership fees:

| | |
|-----------------------------------|-------|
| Individual Primary | \$125 |
| Individual Secondary | \$140 |
| Individual both Primary/Secondary | \$175 |
| Laboratory Technicians | \$105 |

The subscription of a member ceases to be effective if payment is not received prior to or on the date of renewal, as a result, membership and all rights pertaining thereto will lapse. Upon payment of all arrears, membership will resume from the date of payment.

How to join STAV

Download a form from our website
www.stav.org.au/html/membership.html

You can also join online from this site.

Alternatively, contact the STAV office for more information: 03 9385 3999

Labtech list

The Labtech list has been set up by STAV as a discussion forum where Laboratory Technicians can exchange information, share ideas and seek advice.

We ask science co-ordinators to encourage their Laboratory Technicians to become a member of Labtech and participate in the discussion group.

It is free to join. Go to the Science Victoria website for more information:

www.sciencevictoria.com.au/labtech.html



Upcoming Conferences – dates & rates

For all conference/PD information including programs and online registration check the Science Victoria website approximately 6 - 8 weeks prior to each conference:

www.sciencevictoria.com.au/conferences.html

These programs can also be found on the VIT Pdi search engine – all listed programs reference the standards of professional practice for renewal of VIT registration www.vit.pdi.vic.edu.au

Physics Workshops

These workshops are intended for teachers of years 5-10 science who wish to develop their own conceptual understanding; the concepts are presented at the level of year 9 – 11 students.

Newton's Laws of Motion – 14 October 2011

Electricity – 11 November 2011

More information and registration details at www.sciencevictoria.com.au/otherPD.html

In-House Professional Learning Sessions

- ICT in Science
- Science Talent Search
- Physics (Electricity and Laws of Motion)

Contact STAV for details or visit Science Victoria's website.

STAVCON 2011 – Monday 28 and Tuesday 29 November 2011 at La Trobe University.

Theme: *Building Knowledge*

The program is now available

Register online.

www.sciencevictoria.com.au/STAVCON.html

Conference rates

STAV Individual members

| | |
|---------------|-------|
| one day | \$210 |
| two days..... | \$300 |

STAV school subscribers/non-members

| | |
|---------------|-------|
| one day | \$320 |
| two days..... | \$450 |

STAV school subscribers (more than 3 teachers)

If you send more than 3 teachers from your school

Special rate for 4th & subsequent teachers:

| | |
|----------------|-------|
| one day | \$235 |
| two days | \$335 |

Primary teachers (Tuesday only)

| | |
|---|-------|
| STAV Individual members | \$145 |
| STAV school subscribers/non-members | \$185 |

Student / Retired teachers

| | |
|----------|-------|
| one day | \$75 |
| two days | \$150 |

VCE Conference Series 2012

Physics – Friday 17 February, 2012 at Monash University

Biology and Environmental Science – Monday 20 February, 2012 at La Trobe University

Chemistry – Friday 24 February, 2012 at La Trobe University

Call for sessions is open.

Contact the STAV business centre: Phone: 9385 3999 or email: stav@stav.vic.edu.au

Term Four at Scienceworks

Exhibitions

Perception Deception

Until 12 Feb 2012. Suitable for Years 3 – 10
Explore illusions and investigate the perceptual tricks used by your brain to edit the information your brain receives, and create your reality.

Cost: One-off \$11 booking fee.

Developed by Questacon – The National Science and Technology Centre, Canberra.

Explore-a-saurus

Until April 2012. Suitable for Prep – Year 8
Explore how palaeontologists know what they know about dinosaurs.

Cost: \$4 per student plus a one-off \$11 booking fee.

Ongoing exhibitions

In addition, Scienceworks continues to host our ever popular ongoing exhibitions: *Sportsworlds, Nitty Gritty Super City* and *House Secrets*. See our website for further details.

**Book 8.30am to 4.30pm
weekdays on 9392 4819**

Melbourne Planetarium

A range of planetarium shows covering all age levels and linked to the curriculum are available. These include: the relationship between the Earth, Moon and Sun; the Solar System; stars and galaxies; celestial navigation; Indigenous astronomy and the evolution of climates. Each show concludes with a look at what is in the night sky over Melbourne.

Cost: \$ 4.40 per student plus a one-off \$11 booking fee.

Lightning Room

A range of education shows that examine the science behind electricity. Three shows cover electrical energy in the curriculum from Year 2 to VCE. Each show culminates in a spectacular lightning demonstration using our 2 million-volt Tesla Coil and a discussion on electrical safety.

Cost: \$4.40 per student plus a one-off \$11 booking fee.

**2 Booker Street Spotswood
museumvictoria.com.au/education**

Experiment Zone

Measurement and Technology – Using Data Loggers

Available until 28 October

Students are introduced to graphing and measurement in this session that incorporates ICT into mathematics.

Problem Solving

Available until 28 October

Introduces maths problem solving strategies in a practical and fun way.

Robot Reboot

2 November – 22 December

Learn how the sensors of a robot are similar to those of a human and how they can be programmed to find 'diamonds'.

All sessions 50 minutes.

Maximum 30 students per session.

Cost \$4.40 per student plus a one-off \$11 booking fee.



SCIENCEWORKS



Science Coordinators' Handbook

This handbook contains ideas, strategies and information relevant to leading and managing your science faculty. Suitable for inexperienced, experienced and aspiring coordinators. Includes a CD-Rom containing useful templates, samples and other tools.



Cost

\$33 Members

\$44 Subscribers/non-members

For further information contact

STAV Publishing

Ph: (03) 9385 3999 or

Email: projects@stav.vic.edu.au



VCE Trial exam papers

STAV Publishing produces VCE trial exams for:

Unit 2

Physics
Chemistry
Biology
Psychology

Unit 4

Physics
Chemistry
Biology
Psychology

Costs

Papers \$4.00; Solutions \$2.00

Past Trial Exams are also available.

How to order

Download an order form from:

www.sciencevictoria.com.au/stavpublishing/index.html

or

Contact Ellen Finlay

STAV Publishing

Ph: 03 9385 3999

Fax: 03 9386 6722

Email: projects@stav.vic.edu.au



Brain Box Electronics kit for Primary and Lower Secondary

This kit includes 188 ideas for constructing different circuits on a base board. These circuit boards can be activated by magnet, water, light, touch or sound and produce different kinds of reactions such as flashing bulbs, motorized fans, flying discs and various sound effects. Examples include a water activated doorbell, sound activated doorbell, magnetically activated motors, and electric fan.

All components have snap fasteners which make assembly very easy and quick. All components are coded so that young children (and adults!) can easily follow construction diagrams.

Members/subscribers \$38 (incl GST)

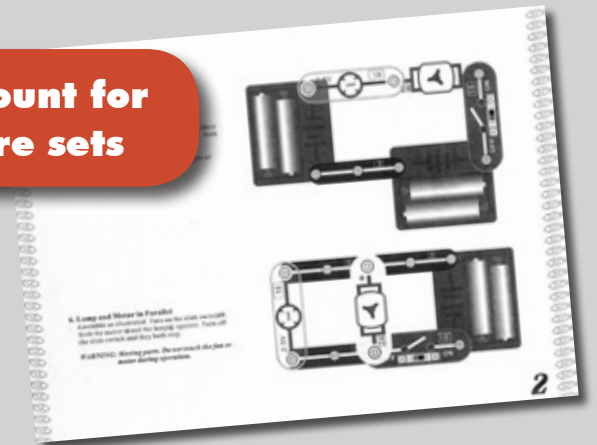
Non-members \$45 (incl GST)

Postage and handling additional.

10% Discount for 5 or more sets

Need spare parts?

Have you lost some pieces? Would you like to extend the capability of your current set? Spare parts for all components of the Brainbox are available. For a price list contact STAV Publishing, or check the website.



STAV Publishing

PO Box 109, Coburg Vic 3058 • Fax: 03 9386 6722 • Ph: 03 9385 3999

Email: projects@stav.vic.edu.au • Web: www.sciencevictoria.com.au/stavpublishing/index.html

ImmuKNOW

Teaching resource for Unit 3 Biology immunology concepts

Are your students confusing APCs, B-cells and T-cells?

ImmuKNOW is your solution!

ImmuKNOW is an easy to use visual teaching resource with movable immune cell representations for use on whiteboards. Each component has a magnetic strip which allows it to be attached to magnetic whiteboards or any other flat steel surface.

ImmuKNOW is colourful, engaging and clearly visible. It allows easy visualization of receptor/cell interactions such as T-cell receptors and MHCs. It can be used by both teachers and students.

ImmuKNOW consists of 3 separate kits:

- Kit 1 Immunity to infection
- Kit 2 Allergy and allergic reactions
- Kit 3 Humoral immunity

Each kit is accompanied by an instruction booklet.

Price per kit

Member \$90 (includes GST); postage & handling \$8

Non member \$95 (includes GST); postage & handling \$8

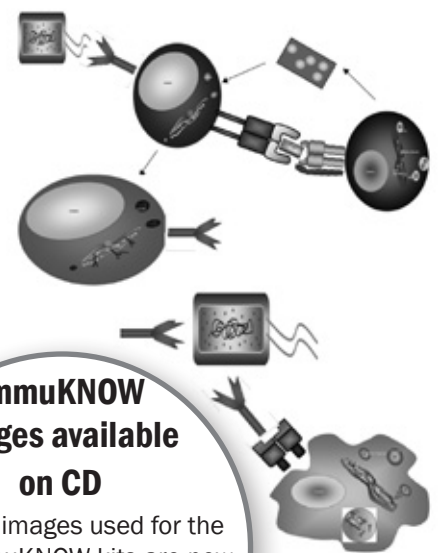
How to order

Fax, post or email purchase order to: STAV Publishing

Fax: 9386 6722 PO Box 109, Coburg VIC 3058

Email: projects@stav.vic.edu.au

Enquiries: 03 9385 3999



ImmuKNOW images available on CD

All of the images used for the three ImmuKNOW kits are now available for purchase on CD.

Go to www.sciencevictoria.com.au/stavpublishing/immuknow.html



ImmuKNOW kits were developed and previously distributed by SYNERGYA Young Achievement Australia program.



150 day
Term Deposit

6.10%*
p.a.

right on the money

With our great rate, we'll help you achieve your investment target.

Take out a 150 Day Term Deposit between 17 August and 30 September 2011 and **earn 6.10% p.a.***

- Minimum opening deposit of \$5,000.

Simple, guaranteed investment earnings – now that's right on the money!

To apply call **1300 654 822** or visit www.victeach.com.au.



*A Term Deposit interest rate reduction applies on early withdrawals, please refer to the Terms and Conditions for further details. Interest rate correct as at 15 September 2011. Check website for current rates. Victoria Teachers Credit Union reserves the right to withdraw this product at any time. This information does not consider your objectives, financial situation or needs - consider the suitability of this information and refer to Terms and Conditions or Product Disclosure Statements before acquiring a product, available at our branches or call 1300 654 822.

Professional learning and support programs

• ICT in science • Science Talent Search • Physics

Would your school benefit from flexible, in-house instruction or mentoring for ICT, Physics (laws of motion, electricity) or Science Talent Search?

STAV is offering opportunities for schools to participate in small group sessions of customised learning in one or all of these areas. You can form a small group of teachers within your own school or in partnership with a neighbouring school. You can participate in a short one or two hour session, a series of three or four sessions or have a mentor visit your classroom to assist you to apply new skills or ideas.

After expressing your interest, STAV will negotiate your requirement, try to source an appropriate educator to suit your needs and develop an appropriate professional learning program.

A small but affordable fee will apply and will be determined according to your requirement.

Our aim is to assist both metropolitan and regional schools where possible.

If you are interested in participating contact STAV to discuss your ideas:

Phone: 9385 3901

Email: projects@stav.vic.edu.au



An end of year program for the entire faculty



“Resourcing your Science Classroom through the Specialist Science Centres’ Network”.

Friday 2nd December, 09.15 — 16.00

Venue: Gene Technology Access Centre

A full day program that gives science coordinators and teachers the opportunity to find out about on-line resources and programs on offer from each of the specialist science education centres.

Teachers will select workshop sessions from four of the centres based upon curriculum needs and interest in a particular discipline.

9.30am: Keynote Presenter

A complimentary full buffet lunch will be provided.

Bookings are now open. Cost: \$25-00/participant. You need to specify the four centres whose workshops you would like to attend, when making your booking.

For all bookings contact: gtac@gtac.edu.au

THE BAD SCIENCE SHOW



"To keep over a hundred boys on the edge of their seats for an hour is an amazing achievement. We're so glad he could be a part of our Science Week program."

- Scotch College

"Bad Science was a real treat for staff and students!"

- Dela Salle College

"Bad Science uses humour and magic to demonstrate dubious scientific claims to high school students".

- The Australian



As seen on Channel 9's
Kid's WB



www.thebadscienceshow.com

0409461776

Illuminated pocket microscope

A small, portable microscope that is ideal for young children, adolescents and adults to investigate a multitude of items including clothing fibres, plants, insects or any other scientific specimen. There is no need for small extracted samples – simply remove the slide tray, walk around the room and place the viewfinder above the item you wish to view.

The microscopes are small (14cm x 4.5cm), light (80 grams) and easy to grip, maneuver and adjust. The light source is strong.

These small but powerful instruments are ideal for in the classroom, outside in the school yard, or for taking on excursions and fieldwork. They are fully portable and no bench or table is necessary for resting on.

Microscope activities

The microscopes include activity suggestions. If you have already purchased the product you can download the activities from:
www.sciencevictoria.com.au/stavpublishing/pocketmicro.html

Features

- Zoom switch – adjusts magnification power (60x - 80x - 100x)
- Focus wheel.
- Direct light source to specimen
- Removable slide tray

The light operates from two AA batteries (not included).

Price

\$25 (incl. GST) STAV members/institutional subscribers

\$30 (incl. GST) Non-members
10% Discount for bulk purchases (more than 5 items).

Postage and handling: \$8 (incl. GST)

For enquiries contact:

STAV Publishing
PO Box 109 Coburg VIC 3058
Telephone (03) 9385 3999
Email: projects@stav.vic.edu.au





28 September 2011

Dear STAV Member

Annual General Meeting

The Annual General Meeting of Science Teachers' Association of Victoria Inc. will be held on Thursday 20 October 2011 at 5.00pm.

Venue for the meeting: STAV House, 5 Munro Street, Coburg 3058.

Please find the Agenda, Proxy Appointment Form and Financial Accounts for the Association on the STAV website: <http://www.stav.org.au/html/theAssoc.html>

If you are unable to attend the AGM please **appoint your proxy vote** and mail to: STAV House, 5 Munro Street, Coburg 3058 or **fax your form to (03) 9386 6722** no later than 48 hours prior to the meeting.

Yours sincerely,

Joanne Roberts
Hon. Secretary

Interactive simulation tool – Fishbanks

“Fishbanks” management flight simulator now available on MSTIR, MIT Sloan’s website that offers free access to teaching materials

A new interactive simulation tool developed by MIT Sloan professor creates a virtual world for students to explore sustainable management of renewable resources.

Imagine you are a leader in the fishing industry. You have to balance the need to compete against others and make a living in a tough industry with the need to limit the total catch in order to sustain the fishery for future generations. Your decisions affect your company’s bottom line and the health of fish stocks and ocean ecosystems. Can you earn a profitable living without decimating the fish stocks, forcing everyone into bankruptcy and destroying the communities that rely on fishing for their livelihood?

Teachers and students everywhere can now explore such scenarios through Fishbanks, an interactive, management flight simulator available online at no cost through the MIT Sloan Teaching Innovation Resources (MSTIR) website <https://mitsloan.mit.edu/MSTIR/system-dynamics/Pages/Home.aspx>.

Designed by MIT Sloan School of Management Professor John Sterman to instruct the school’s MBAs about the challenges of sustainably managing common pool resources, this web-based simulation of the game can be played by an individual or in teams in a single session or over the course of a semester. The program was adapted and updated from a board game originally created by former MIT Sloan professor and alumnus Dennis Meadows.

“Management flight simulators such as Fishbanks bring an experiential aspect to learning about complex systems,” says Sterman, who also directs the MIT System Dynamics Group. “They have more impact than simply listening to a lecture or engaging in a case study discussion.”

Other management flight simulators offered through MSTIR include Salt Seller, a commodity pricing simulation; Eclipsing the Competition, a solar photovoltaic industry simulation; and the soon-to-be-released Platform Wars, a video game industry simulation.

Each offers video user guides and online instructions for students. Video teaching notes and slides introducing and debriefing all aspects of the simulation are available for faculty.

In this newest management flight simulator, Sterman notes that some participants recognize the fishing industry’s sustainability challenges early in the game and attempt to negotiate fishing limits or quotas. However, teams often defect from those agreements to maximize their financial gain thereby wiping out the fish. Defection generates strong emotions among the players, often leading to confrontations between the cooperators and defectors and creating important teaching moments around critical issues in real fisheries.

“In the post-game debriefing, we explore examples of successful resource management and the economic, political and social policies needed to implement and sustain them,” Sterman says. The professor, who has been developing management flight simulators since the 1980s, notes that MIT Sloan has been a pioneer among business schools when it comes to action learning, a key element in many MIT Sloan classes and laboratories that create real-world applications of classroom knowledge.

“Deep, actionable knowledge and decision-making skills develop when people have the chance to apply classroom theory in the real world with its messy complexity, time pressure, and irreversible consequences,” explains Sterman. “But project-based action learning in the field is not possible in settings where the stakes are high or the consequences of decisions unfold over years or decades. For many of the critical issues we face, simulation becomes the main way we can discover for ourselves how complex systems work and develop the management and leadership skills we need to succeed.”

To access Fishbanks, please visit: <https://mitsloan.mit.edu/MSTIR/system-dynamics/fishbanks/Pages/default.aspx>

[Source: Media Release 21 September 2011]

Research gives crystal clear temperature readings from toughest environments

Researchers at the University of Warwick and Oxford University have developed a form of crystal that can deliver highly accurate temperature readings, down to individual milli-kelvins, over a very broad range of temperatures: from -120 to +680 degrees centigrade. The new device could be used in everything from MRI scanners in hospitals to industrial microwave dryers.

The researchers used a 'birefringent' crystal which splits light passing through it into two separate rays. Research has already shown that the size of the effect will increase or decrease in proportion to the temperature of the crystal. Therefore, in theory, you could calibrate such crystals to be highly accurate temperature gauges.

However, the use of birefringence in this way has significant problems in practice. This temperature measuring ability of highly birefringent crystals is badly compromised by changes in the thickness and orientation of the crystal. This adds expense to the manufacture and calibration of such crystals and makes them almost unusable in situations where, for example, vibration could alter the orientation of the crystal.

However the Warwick and Oxford researchers have developed a reproducible and low-cost method of modifying the properties of crystalline lithium tantalate so that its birefringence is virtually independent of the crystal's thickness and position making it resistant to vibration and cheaper to manufacture. In fact, they have made the birefringence almost zero in magnitude in all directions (the material is close to being optically isotropic just like ordinary glass). However, the slightest temperature change induces a rapid increase in birefringence in these materials, making this a reliable, robust and very sensitive method for measuring temperature. The inventors have named their (Z-BotS) and are currently seeking follow-on funding to develop the device from the bench-top proof-of-concept to a miniaturized commercially-viable package.

Professor Pam Thomas of the University of Warwick said: "This advance, which has come out of research funded by EPSRC, allows us to create a new generation of robust reliable birefringent crystal based temperature sensing equipment which will be particularly valuable in electromagnetic, radio frequency and high voltage environments, where other types of sensor are subject to large errors due to interference. Examples are temperature measurement within the vicinity of MRI scanners in hospitals, industrial microwave dryers and the human body."

Professor Mike Glazer of the University of Oxford said, 'This opens new possibilities for remote temperature sensing of challenging environments. As the birefringence changes detection in these crystals can actually be operated remotely as only the crystal itself needs to be in the environment. All the other components: light source, measurement and processing electronics can be situated remotely.'

[Source: Media release University of Warwick, 5th September 2011]



STAV Council meeting dates

20 October
22 November

**Meetings will be held at STAV House
commencing at 5.00pm**

Science Teachers' Association of Victoria Inc.

'Advancing Science Education'

STAV Goals

- ◆ Establish and maintain both financial and intellectual independence
- ◆ Represent the collective voice of science educators in Victoria
- ◆ Influence policy formulation in matters relating to Science Education
- ◆ Support and maintain regional special interest groups within STAV
- ◆ Provide a range of resources and services to support science educators
- ◆ Provide for and encourage student participation in a range of challenging science activities
- ◆ Promote the importance of Science Education to the community
- ◆ Recognise significant contributions by STAV members to Science Education.

Contact Deadlines

| | |
|-----------|-------------------|
| November | 14 October 2011 |
| December | 15 November 2011 |
| February | 13 January 2012 |
| March | 13 February 2012 |
| April | 19 March 2012 |
| May | 16 April 2012 |
| June | 18 May 2012 |
| July | 15 June 2012 |
| August | 16 July 2012 |
| September | 20 August 2012 |
| October | 14 September 2012 |
| November | 17 October 2012 |
| December | 16 November 2012 |

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