

LAB LINES



Newsletter of the Laboratory Technicians' Association of Victoria

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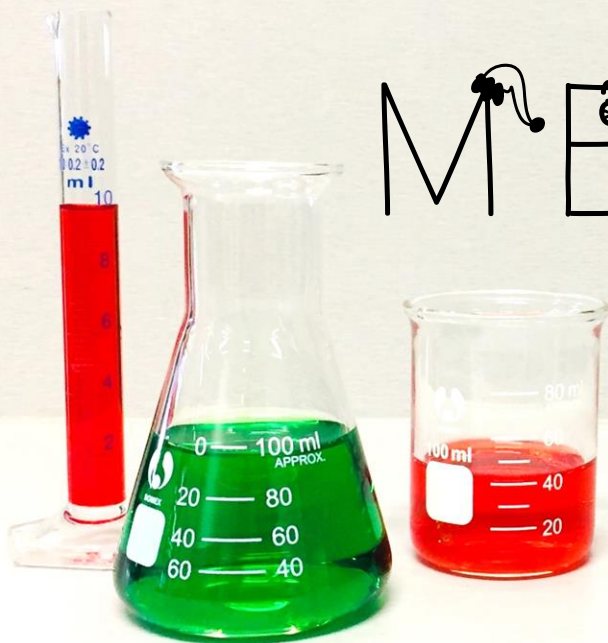
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Editor: Jessica Boys

LABORATORY TECHNICIANS' ASSOCIATION OF VICTORIA

Follow me in
MERRY
MEASURE



Fa la la la la la la la la!

LOOK OUT FOR OUR NEW ADDRESS!

LTAV will have a new postal address in 2018.

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Please make your accounts department
aware of this change.



ATTENTION NEW LAB TECHS

It has long been recognised that a new technician's first year in education can be very difficult. LTAV has decided to support beginning technicians by offering

FREE first year LTAV membership

deemed to be paid by the LTAV Committee.

The following conditions apply:

- a. The payment is at the discretion of the committee and will apply for the course of each membership year,
- b. The payment is to be made only on behalf of technicians in their first year working in education.
- c. Members who are given this benefit are expected to continue their membership in subsequent years.
- d. Such members will have all the rights and obligations of ordinary members, but in accepting the payment also agree not to run for office during that same first year

Please refer all interest and enquiries to:

admin@ltav.org.au

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Deadline for next Lablines 2017

9th February 2017

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President's Report

Marcia Rogerson

LTAV President



The end of this year marks the 10th anniversary since LTAV became independent from the Science Teachers Association of Victoria.

The first year, 2008, was a difficult one for the Committee, sorting through the details of going it alone.

LTAV implemented a new constitution. New policies and procedures had to be put in place. A LTAV bank account was opened and the registration of trade mark for LABCON and Lablines was completed. None of this would have been possible without the dedication and hard work of the 2008 LTAV Committee.

Nothing has changed, especially the commitment of the Committee members who are all Lab Techs and who give up their time to serve LTAV. I would like to thank all the current Committee members on behalf of the whole association for all the hard work that must go on to ensure the smooth running of such a large group.

We currently have 275 registered members.

This year saw the transformation of the Lablines black and white magazine into a glossy, coloured offspring. I hope you are as pleased and proud of your magazine as I am. Please continue to email your stories, questions and answers to the Lablines Editor, Jessica Boys. After all, this is YOUR magazine!

LTAV currently has sixteen Regional groups and the majority of these were active this year in facilitating Professional Development activities and programs. This provided further support for Lab Techs, many who work in isolated areas. Thank you to those Regional Representatives for organising these programs and Therese Graham, LTAV Regional Liaison Officer, for communicating and encouraging the Regional Representatives.

Earlier this year, LTAV was notified that Science ASSIST would cease to function as funding was not forthcoming. Thankfully this didn't last too long.

Funding has now been reestablished, but the amount has been reduced. This will mean that your questions may not be answered as promptly due to reduced staff. Science ASSIST is the Australian Science School Information Support for Teachers and Technicians. Please continue to visit and sign up for this valuable resource as this will encourage continued funding.

The SETA (Science Education

Technicians Australia) Committee is continuing to work on the Laboratory Technicians' Professional Standards. A draft will hopefully be completed by the end of this year and sent to interested bodies when finalised.

This year the LTAV Committee decided to support Lab Techs who are new to the education sector by granting free LTAV membership for their first year. I hope this will encourage those that have chosen to work as a Lab Tech in the education sector to join LTAV and continue to be part of this amazing association by renewing your registration each year.

In the News

A nice reminder to take those tea breaks at recess; it may just help you win a Nobel Prize!

This October, British Molecular Biologist and Biophysicist, Richard Henderson, was awarded the Nobel Prize. Prof Henderson is known as a pioneer in the field of electron microscopy of biological molecules.

A major drawback to electron microscopy has been that the preparation and examination of a specimen requires a vacuum, thereby killing the specimen. Prof Henderson and his colleagues invented a groundbreaking technique which allows scientists to use electron microscopes to examine molecules from *living* organisms.

Their technique actually protects

molecules from damage by freezing them. Biomolecules can be instantaneously frozen mid-movement, making it possible to visualise specific points of molecular processes in 3D! Biochemistry is set for an exciting future of discovery!

Amazingly, Prof Henderson says he attributes some of his success to having a tea break! He believes a cuppa with colleagues from different disciplines will often lead to the best ideas.

Prof Henderson's new technique has already been used to examine amyloid, the substance which accumulates in the brains of Alzheimers patients, as well as the surface of the Zika virus.

Maybe we should be considering those often-missed tea breaks as an opportunity for professional development! A chance to make connections with staff across



PICTURE: Richard Henderson, Medical Research Council (MRC) Website

disciplines and share ideas that will make our classrooms an even more exciting place for our students.

We may not make it to a Nobel Prize in our labs, but maybe *they* can!

Jessica Boys
Lablines Editor

THANK YOU! YOU ARE AWESOME!

Ever had a Lab Tech do something super nice for you?
Ever seen a Lab Tech do something awesome, far beyond their call of duty?

This is your chance to say

THANK YOU!

and to recognise those Lab Techs who you think are

AWESOME!

Here's a real life example!

DANIELA TOSEVSKA

A shout out to Daniela at Ivanhoe Grammar, Plenty Campus. Thanks for the free oven and for taking the time to give me a tour of your Science area! It was well worth the drive! Jessica Boys.

Please send a sentence or short paragraph to:
boys.jessica.j@edumail.vic.gov.au

LABCON2017

Through the eyes of our Peter Ellis Scholarship Winners

Sarah Emms

This year, I was fortunate to be able to attend LABCON 2017 as a recipient of the Peter Ellis Scholarship. The conference was greatly anticipated as an opportunity to share knowledge and connect with lab techs from schools around the country.

Our two keynote speakers delivered their presentations with enthusiasm and good humour. We heard about Marita Cheng's entrepreneurial endeavours in science communication and assistive technologies, and Mary-Jane Walker spoke on the benefits of STEAM education for modern and emerging careers in many different industries. It was clear to see how the kinds of skills Dr Walker mentioned were utilised for each of Ms Cheng's projects, even though the projects themselves were quite diverse.

From my workshop sessions, I picked up heaps of ideas to take back to school including how to get the most out of dataloggers, how to set up an aquaculture rig, and oodles of pracs relevant to senior physics. During breaks, I met with other delegates to discuss our challenges and successes, and I also had a cuddle with Linda Richardson's beautiful seeing eye pup, Jeda, which easily ranked alongside the other highlights from this year's event.



PHOTO: Peter Ellis Scholarship Winners (Left) Will McInnes, Kooweerup Secondary College (Right) Sarah Emms

At the conference dinner, it was inspiring to see several of our colleagues honoured with awards and presentations for their contributions to the lab tech community, and to gain a greater sense of the history which has preceded my time in the profession. As the night wore on, braver guests began to hit the dance floor while the rest of us made merry and chattered on into the late hours.

Wednesday's tour of Bio21 showcased some of the institute's most powerful, precise, and jaw-droppingly expensive analytical equipment. These included

magnets powerful enough to disable an analogue watch from a few paces away, and an electron microscope with resolution great enough to distinguish individual carbon atoms.

Overall, the conference was a valuable professional and social experience, and I am very pleased to have taken part. I would like to extend my appreciation to all those involved – organisers, presenters, venue staff, suppliers, and all the delegates - who continue to make this conference a highlight of every school year.



PHOTO: LABCON's first Keynote Speaker, Marita Cheng, 2012 Young Australian of the Year



PHOTO: LABCON's second Keynote Speaker, Dr. Mary Jane Walker (Centre), Dale Carroll, LTAV SETA Rep (Left), Marcia Rogerson, LTAV President (Right)

LABCON2017

Will McInnes

Kooweerup Secondary College

Hello, I'm Will and I was lucky enough to be one of the two Peter Ellis Scholarship Recipients for 2017. To those who are unaware, the scholarship is designed to give new lab technicians the opportunity to attend the Lab Technician Conference – LABCON. LABCON provides an opportunity to network with other lab techs and learn more about your role through OH&S seminars and workshops on new ideas for practicals

Firstly, I would like to say that the experience at LABCON was invaluable and I would strongly encourage all new lab techs to attend in their early years. There are many like me who are the sole laboratory technician at their school and haven't been lucky enough to have a transition period with our predecessors. At LABCON, you can not only meet fellow lab techs, but also companies such as Principles and Practice and Westlab, which are used in the daily life of a lab tech.

LABCON 2017 was the first conference I have ever attended and I was not disappointed. I must admit, it was quite daunting to see so many new faces who all knew each other. It can make you feel the odd one out. However, Lab techs are a kind and friendly breed, always happy to share their knowledge and experiences. By the dinner of the first night I could recognise many new faces, though I confess, names were still fuzzy.

There were several interesting seminars and workshops for new people including Chemical Management, an OH&S refresher and the aptly named and brilliantly presented, 'Beginners 101'. There were also seminars for improving your skills such as Making Science Compelling, Things that go Bump and What can I Make? The third day involved a tour under Melbourne Museum where participants got to learn about the animals being kept there and the plant life in the living display.



PHOTO: LABCON Museum Tour participants with Museums Victoria Tour Guides, Nicola and Maik.

I look forward to LABCON 2018 and will think of it most importantly as a social event. Lab techs are often isolated from each other and it is lovely to meet people who understand your daily trials and successes, and can offer insight to the unique challenges we face.

I would recommend that any new lab tech (<5yrs) apply for the Peter Ellis Scholarship. Worst case scenario; you are unsuccessful, best case scenario; you can enjoy an amazing three-day conference which your school is more likely to allow you to attend as they do not have to pay for it. Please make sure to join the LTAV

and encourage others to do so, so that events like this can run and the plethora of lab tech knowledge can be shared.



PHOTO: Tour Guide, Maik, explains the way a Thorny Devil consumes water



PHOTO: 'Fun and VCE Physics', a Hands-on workshop run by Lynette Baker, Assumption College and Mary Jones, Keilor Downs College.

LABCON2017

Congratulations to LTAVs 2017 Award Recipients

Peter Ellis Scholarship

Sarah Emms
William McInnes

Distinguished Service Award

Aileen Little
Jenny Gaulke
Robyn Morrison
Val Bookless
Denise Athanasopoulos
Denuta Kainska –Tessari (2016)

Susannah Larratt Award

Judy Hasse



PHOTO: Susannah Larratt Award Recipient, Judy Hasse and her husband, Dete.



LABCON2017





Cauliflower Cloning

Using the SAPS method

Olivia Tan

Laboratory Technician
Wesley College, Glen
Waverley Campus

PICTURE: Cauliflower cloning setup, 20 September 2017

Method

I followed the method from the SAPS website in “Teaching notes” and “Student worksheet”.

<http://www.saps.org.uk/secondary/teaching-resources/706-cauliflower-cloning-tissue-culture-and-micropropagation>

In the classroom

My cauliflower cultures were grown in indirect light, and required at least 3-4 weeks to produce noticeable growth. It makes a great teacher's demo to be monitored over time. As a class prac, students should start their cultures at the end of term. Ideally they will see growth when they come back after the holidays.

Making the media and culture vials

- Murashige & Skoog media and kinetin powder, sourced from Southern Biological.
- 28mL McCartney vials were used for the culture jars, sourced from Science Supply Australia
<http://www.ssapl.com.au/product/44690-bottle-mccartney-wm-aluminium-cap-28ml>.
- Milton Anti-bacterial tablets bought from the local chemist contain 500mg SDICN per tablet. To make a 0.5% SDICN solution, dissolve 1 tablet in 100mL DI water, 2 tablets in 200mL DI water, etc.
- All other equipment as specified in SAPS method.

Tips & Tricks

- Sterilising the vials beforehand (if they don't already come prepacked and sterile) makes a difference. If you don't have an autoclave: wash in bleach or disinfectant, rinse thoroughly, and give a final rinse in DI water.
- McCartney vials and lids can be sterilized in an autoclave prior to pouring media.
- Murashige & Skoog media can be autoclaved.
 - Add kinetin after it has cooled down.
 - Add 32mL of 0.5% SDICN solution into M&S media to get a final required concentration of 0.032%.
- When pouring media into vials, I recommend using the same sterile technique as pouring agar plates for bacterial growth: spray and wipe the benchtop with 70% ethanol first, then pour media in the presence of a Bunsen flame. This reduces the risk of contamination/mould in the vials.
- When incubating, keep vial lids a little bit loose to allow aeration.

3 Weeks, 11 October 2017



4 Weeks, 20 October 2017



Tips & Tricks

- The cauliflower floret starts turning brown when it begins to grow (~2 weeks). *This is not contamination/mould!*
- Growing the cultures under direct heat/light may speed up the growth rate. Use a heat lamp or fluorescent lamp if there is no access to good sunlight.

Acknowledgments

Thank you to Therese Graham for presenting the workshop at LABCON 2016 and further discussion!

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Servicing Microscopes

with Harvey Edwards

Laboratory Technicians Association of Victoria
Gippsland Region

Debby Butler
Laboratory Technician
Catholic College Sale
Gippsland Regional Representative

On the last Wednesday of Term 3, Lab techs from all over Gippsland (Koo wee rup, Phillip Island, Wonthaggi, Korumburra, Officer, Foster, Drouin, Warragul, Trafalgar, Neerim South,

Traralgon, Sale, Yarrum and Maffra) met up for a presentation by Harvey Edwards from Principles and Practice on Microscope maintenance.

Joining us were Therese Graham (LTAV Regional Liaison Officer) and Tan Bragg from Wheelers Hill Secondary College. Heather Lawrence and Joelle Hines from Trafalgar High School hosted the event, after which we

went to the Criterion Hotel for a very nice meal.

A big thank you to LTAV for sponsoring this event and Harvey Edwards for his time and knowledge.

As our newest recruit into Lab Teching, James Shortt from Traralgon College, tells us how this day was for him.

Focussing on a New Experience with Microscopes

James Shortt, Traralgon Secondary College, Junior Campus

I step over the threshold; I'm now in the school, but where's the Administration building? Where am I going? Maybe if I keep walking I'll see something. Does that say Admin? Yes, let's make a beeline for that.

A couple of directions later and I've found myself outside the science labs, there's a person in the lab, who is later introduced as Harvey himself, with a PowerPoint ready to go, a quiet sigh of relief, I've found the right place.

After knocking and poking my head into the prep room, the introductions have begun... Names start flying around. Faces enter and exit focus. Schools begin popping up in the introductions. A quick location change and a spread of nibbles and drinks have appeared. But as the introductions continue, the feeling of comradery in the room increases, and the topics begin to change; what pracs have you set up?

What new things have you done? Have you done this before?

The introductions have come to an end as we migrate to the Lab. Harvey starts off by building the light path in the microscope, handing the key parts off to those who name them first. Afterwards, we begin cleaning the microscopes, pulling them apart to clean the lens, making sure the light works, etc.

We finish cleaning and take a tour of the labs, where the different layout and storage gives me ideas for what I would like back in my own lab prep room.

Afterwards, we adjourn to the lunch, where the conversation again shifts to pracs that we have tested and made mistakes with. With a brain overflowing and a stomach stuffed, I've found a group I gel with.

PICTURE:

Front row, left to right: William McInnes (Koo wee rup SC), Kate Fieldew (Newhaven College), Chris Johnson (Drouin SC), Julie Weller (Drouin SC), Kathy Bittner (Gippsland Grammar, Sale), Joelle Hines (Trafalgar HS), Debby Butler (Catholic College Sale).

Second Row, left to right: Patrick Hull (Traralgon SC, Senior Campus), James Shortt (Traralgon SC, Junior Campus), Therese Graham (Cathedral College Wangaratta - Regional Liaison Officer), Robyn Neville (Marist Sion, Warragul), Julie Galante (Warragul Regional College), Jess Boys (Officer SC), Heather Bassed (Foster SC), Mary-Therese Gorman (Neerim District SC), Ann Sargood (Maffra SC).

Back row, left to right: Jess Colla (Wonthaggi SC), Jenni Lovatt (Lavalla SC, Traralgon), Dianne Davey (Marist Sion, Warragul), David Akers (Yarrum SC), Tane Bragg (Wheelers Hill SC), Jenny Northe (Lavalla SC, Traralgon), Donna Muldoon (Korumburra SC), Harvey Edwards, David Collins (Catholic College Sale).

Lilydale High School's Reptile Room



An Interview with Marcus Whiteby, Lilydale High School's Reptile Room Coordinator

Marcus, tell us a bit about how the Reptile Room started. Where did the idea come from? How did you manage to end up with over 100 reptiles in a school?

Whether it's because of a passionate interest in reptiles, amphibians and invertebrates; a phobia of all things creepy crawlly; or simply a fascination with animals that people don't normally come in contact with, there is no denying it, these amazing animals grab the attention of anyone who sees them and they can't help but want to know more. It is this undeniable fascination which spans all ages and genders that underpinned the humble beginnings of the Reptile Room at Lilydale High School, which has grown into a collection of more than 250 animals.

The first stage of the Reptile Room began in 2002 with two animals in simple enclosures in a science classroom as classroom pets that were occasionally used for science classes. Little did I know, these class pets that occasionally starred in science classes would spark the interest of students and teachers alike. It was an instant hit and more animals joined the program.



One of our senior Keepers with Charlie, one of our founding animals
After realising the positive impact the animals were having

on the students involved, the school eagerly supported an expansion of the room which led to the beginning of Stage Two of the Reptile program.

An unused portable was taken over in 2006. A team of volunteers made up of students and staff built floor to ceiling enclosures complete with fake rock work, waterfalls and 900 litre water tanks for underwater viewing of turtles and water monitors.



The development and completion of stage 2 of the Reptile Room, 2005

The new setup and the introduction of some new animals, saw the popularity of the Reptile program increase once again. Over the next nine years, new enclosures were built annually to house the expanding collection of animals.

In 2009 we incorporated large outdoor areas for the animals to enjoy natural sunlight and for environmental enrichment. It also meant that the animals and their keepers could now enjoy lunchtimes together in the fresh air. We were fortunate enough to have our local Bunnings support us and provide all the plants and labour to plant out our enclosures to create naturalistic habitats. These outdoor areas enabled students who wouldn't normally venture into the Reptile Room to have the opportunity to see the animals as they walked past. Once again the popularity of the program significantly increased and suddenly more than 100 new students were keen to sign up for the program each year.

You are the Reptile Room Coordinator, explain how you got here and what this role entails.

In the early days of the program it was purely a voluntary role which saw me managing a small collection of reptiles and supervising students during lunchtimes a couple of times a week, but as the collection grew, so did the responsibilities. In 2005 the school recognised the extra time

required to run the program and created a position of responsibility and small budget to help run the program. Since then the role as the Reptile Room Coordinator has evolved to managing a team of about 30 students, volunteers and one employed animal attendant as well as overseeing the husbandry of the 250+ animals which are spread over 5 rooms. I am now responsible for running the Zoo Keeper club 5 lunchtimes a week, running an after school club on Friday afternoons, coming in on weekends to feed the crickets and check on the collection, as well as running holiday sessions twice a week during holidays and managing all the official paperwork and permits required to keep a collection of native wildlife.

I'm fortunate enough though to have ex student volunteers and school families help me out on weekends and holidays which means I don't have to do it all myself. As the coordinator, I organise tours of the reptile room and off campus displays of our animals for other schools and community groups. I also organise fundraising activities such as Bunnings BBQs to help support the financial requirements of running the program. A big part of my role has been finding ways to incorporate the program into curriculum, providing PD for staff and looking at ways to improve the program by improving the living conditions of the animals and also the husbandry practices of the students and staff involved in the program.

You have students playing a big role and working hands-on in the Reptile Room, how did you make this happen? How did you get students to engage with this part of the school? Logistically, how do you do it?

I think what made this program so successful was, in part, not trying to make it too big too quickly. I never actually planned for it to be this big, but rather let student interest dictate its size. As the interest grew, I needed more animals to cater for the interest. I was conscious of the fact that the students love to interact with the animals but also that I needed to be careful that the animals weren't becoming too stressed with this regular interaction. By increasing the number of animals, the love was spread around a little more, rather than being concentrated on one or two animals. In the process, I found the introduction of new animals always sparked new interest and maintained student interest on a long-term basis. Probably the most important thing was the creation of the Zoo Keeper program which meant students had a sense of ownership and belonging.

Students who are interested in being part of the Reptile Room Zoo Keeper program attend an initial information and signup session at the beginning of the year. At this time, they are given a job card that lists 20 jobs that the students need to show competency in. The senior Zoo Keepers (students who have been in the program for at least a year and who have already shown competency) mentor the new Zoo Keepers. Once they have demonstrated competency in the basic jobs and animal handling they then sit a test, which tests their knowledge of handling the animals and animal

behaviours. Upon completing this, they are awarded a Zoo Keeper badge, access to the Zoo Keeper uniform and are welcomed into the team. They can then choose to be an Assistant Keeper of a particular animal or continue as a General Keeper. As an Assistant Keeper they learn specific husbandry skills and behaviour traits of their animal. Once they have spent significant time learning about that animal they then have the opportunity to demonstrate that knowledge and ultimately become the Head Keeper of that animal. One of the benefits of them being a Keeper is to participate in education sessions for classes, small groups of students, teachers and community groups on a regular basis. They also have the opportunity to visit other schools with the animals as we occasionally take the animals on the road for education displays and information sessions.



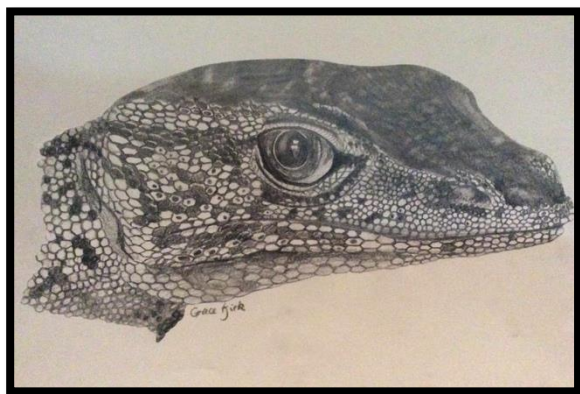
One of our senior Keepers showing younger students how to handle one of our Stimson's Pythons

None of this would be possible without student participation. There is no way I could manage this collection on my own and there is no way there would be the same level of interest and long term participation without the zoo keeper program which creates a tight knit social group and sense of belonging amongst those who participate.

How do you use the Reptile room to educate students? What areas of science can involve the use of reptiles?

The nature of Education is changing at crazy rate. Students now have access to information, entertainment and social interaction at their fingertips through advances in technology like never before. As a teacher it can be difficult to compete against such dynamic media to offer students an engaging educational experience that will keep them interested in the long term and has a positive impact beyond their school years. I have found however, that if you introduce something students are interested in, give them opportunities they wouldn't get anywhere else and give them some control, you'd be amazed at what they can achieve.

I see students on the Autism spectrum, those with ADHD, learning and behavioural difficulties and school refusal shine in their roles as Zoo Keepers. I see students with dyslexia write pages of information in reports on an animal they are passionate about. I see the most introverted of students give some of the most informative presentations to large groups of people. I've seen students interacting with younger special education students using reptiles to bridge a social gap that young people often struggle with. I see students inspired to create incredible artwork of a professional standard.



Drawing of one of our Spencer's monitors by Grace Kirk one of our senior Keepers.

An important part of the program is to educate the future generation about reptiles and amphibians in the hope that there will be a greater understanding and respect for these animals and in doing so have more reptile and amphibian enthusiasts, hobbyists and sympathisers in the future.

The program offers students ownership and control, which gives them pride in what they do and achieve. It offers them an experience of success unsurpassed in any other activity they participate in. It teaches them responsibility, initiative, leadership, respect, empathy and team work on a daily basis, all of which are skills crucial to success beyond school.

As always, hard work is involved, so students also learn that achieving success, for example, in the mating and hatching process, is only half the story and that once the hatchlings have arrived there is endless feeding required and absolute patience needed to get those who are not feeding eating properly in the long term.

In 2013 Lilydale High School commenced the Certificate II in Captive Animal Studies in association with Box Hill Institute, with a focus on reptiles, amphibians and invertebrates. This course gives students an excellent insight into working in the animal care industry with plenty of opportunities to hear from industry experts and see the inner workings of animal care facilities.

As well as this, the Reptile Room is used by science teachers for things such as classification, endangered species, adaptations, habitats and eco systems, genetics and behavioural studies. There is so much scope for a whole lot more and we are currently looking at ways to incorporate



First time experiences occur daily, such as feeding Green Tree Frogs – needless to say, the experiences are powerful and remembered for a long time

STEAM education into the program and have some exciting ideas for the future.

As Laboratory Technicians, we often worry about the legal requirements associated with having a reptile in a school. How do you deal with this? Where do you find information? How do you stay compliant and keep your reptile properly cared for?

While the legalities of keeping wildlife in a school may seem daunting, there really isn't much to it, and we'd be more than happy to guide people through the process.

Being a school, we are under the Scientific Permit system, which is different to the private system. Like the private system, however, we are still required to keep a record book and only trade with other licensed people.

All government school's have been granted a general schools scientific permit which outlines the legal requirements of a school in keeping native wildlife and also lists the animals that schools are allowed to keep for display purposes. See the following link for details:

<http://www.education.vic.gov.au/Documents/school/principals/curriculum/WildlifePermitGenAuthorisationFrm.PDF>

It is also beneficial to read the codes of practice so you are familiar with the best husbandry practices for animals you are planning on keeping:

<http://agriculture.vic.gov.au/agriculture/animal-health-and-welfare/animal-welfare/animal-welfare-legislation/victorian-codes-of-practice-for-animal-welfare>

If you are interested in keeping animals that are not listed on the general schools authorisation, you need to get approval from the Department of Environment, Land, Water and Planning (DELWP) prior to acquiring animals. We also needed to seek permission to breed and demonstrate our animals, both of which have conditions that we must adhere to.

Any activity involving animals that is outside the scope of their normal husbandry needs must be approved by the

Victorian Schools Animal Ethics Committee. Information about this can be found here:

<http://www.education.vic.gov.au/school/teachers/management/Pages/animals.aspx#link87>

Animal welfare is extremely important and the Victorian School's Animal Ethics Committee (VSAEC) has been set up to protect schools and support them in creating activities that not only promote the importance of animals in education but also carefully considers the welfare of animals kept in schools. The VSAEC aims to address the '3 Rs'.

Replacement of animals where alternatives are possible, *Reduction* in the number of animals used or *Refinement* of the techniques that we use to reduce the impact on the animals.

By having a school population of nearly 2000 students with over 100 students signing up for the program every year, we recognise the considerable strain this places on resources and potentially on the animals themselves. In addressing the 3 Rs, we believe having a large number of animals reduces the potential stress placed on any individual animal. Of course, having a large number of animals is not adequate in itself. We also have policies and procedures in place to ensure no individual animal is placed under undue stress. We ensure the handling of animals is limited to a time and frequency that is appropriate for the species and individual. Any animals that show signs of stress or possible illness are off limits, other than to administer medication or to clean their cage.

Animals that show signs of illness are taken to one of two veterinarians with considerable reptile experience, either Shane Simpson of Karringal Veterinary Clinic or Brendan Carmel of Warranwood Veterinary clinic. All students are carefully instructed on how to fill out record cards and identify and report any behavioural abnormalities. We are constantly reviewing our techniques as all good animal keepers should. We are in regular contact with industry experts and we are always looking at ways we can reduce the impact on the animals and provide them with all that they need. We maintain accurate records for all our animals and

are constantly looking at ways to improve the recording of data. The students, although very keen to interact with the animals, are extremely protective of their animals and are keenly observant of any change in their behavior or physical condition that may indicate health concerns.

With our years of experience, we are also a good source of information for schools looking to start up their own program and are only too happy to help other schools get started and give them all the information they need to make sure their animals are properly cared for. We are also used by DELWP to rehome reptiles so we are also able to help out schools with animals from time to time.

What would your advice be for any Laboratory Technician who is thinking about getting a reptile as a school pet?

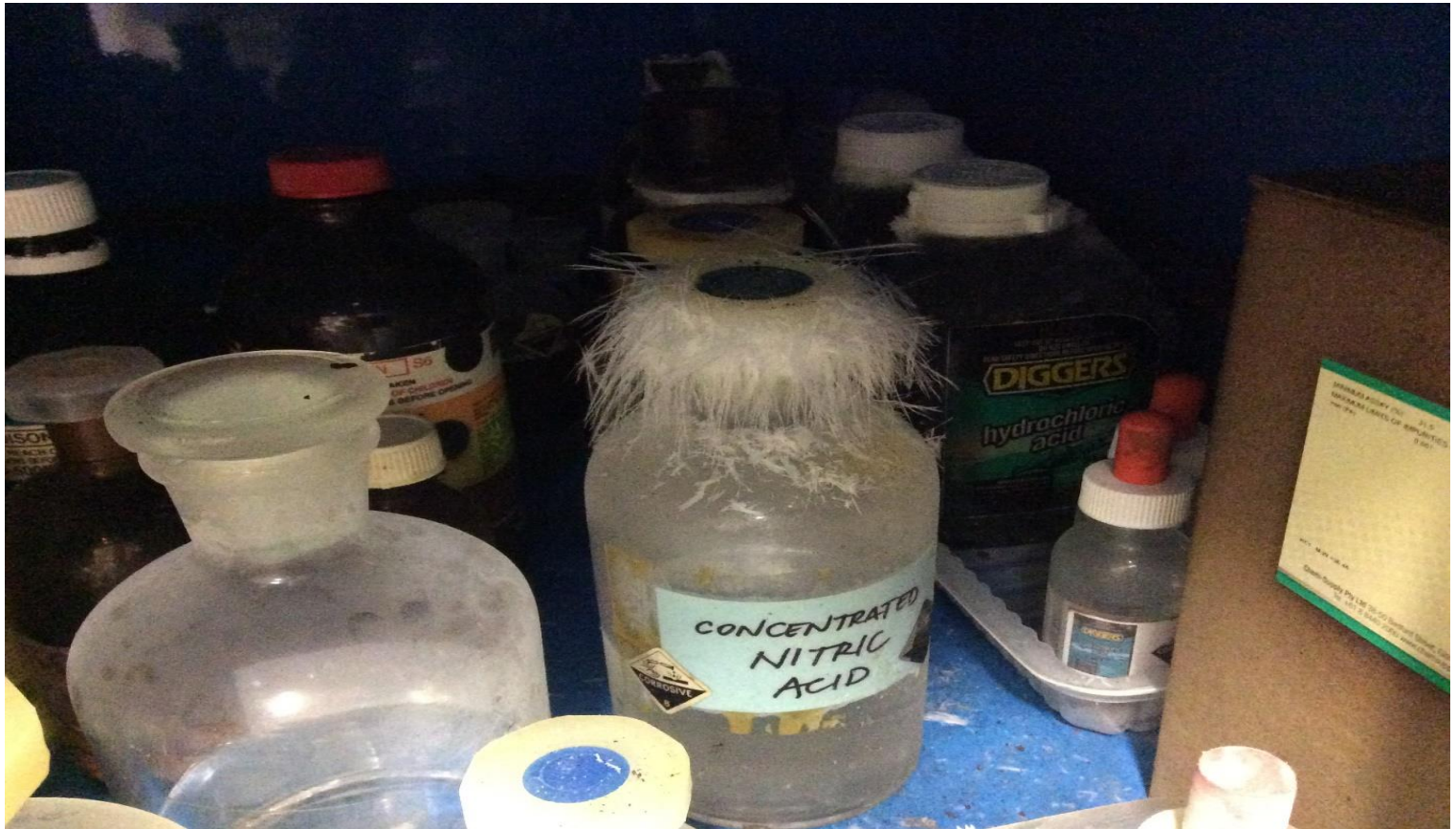
Reptiles are fantastic school pets and I highly recommend them as they are generally hardier and require less maintenance than most other animal groups and definitely spark student interest. Anyone interested in keeping reptiles in their school do need to consider, however, that they still require a decent level of commitment to their basic needs including the provisions and maintenance of specialist equipment. Serious thought needs to be put into how the animals will be cared for on weekends and holidays and how expenses such as occasional veterinary bills and food will be paid for in the long term. I would highly recommend starting small with just a couple of animals such as bearded dragons, blue tongues or green tree frogs. Small collections can easily be taken home over holidays by either a Laboratory Technician, staff member or a responsible student and legal provisions are made for this arrangement in the school's permit.

I also highly recommend giving students a lot of control over the program. Allow them to get involved wherever possible and provide them with opportunities that make them feel valued and an important part of the animal's welfare. Publicise the program and the student involvement by writing newsletter articles, getting local newspapers to write a piece on the program or putting up photos of students with their animals. Reward the students who get involved with something as simple as a certificate or a badge. Try to create a social group for the students involved by maybe having the occasional pizza lunch for the team or taking them on an excursion as a reward for their hard work. And of course, if anyone would like any assistance with starting up, we are only too happy to help – and the students are always excited about the opportunity to give people a tour of the Reptile Room so anyone is more than welcome to come and visit us and see it all in action.



The excitement students experience when they interact with the animals is priceless.

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Pickling Brains

Patrick Hull

Laboratory Manager

Traralgon Secondary College, Senior Campus

This recipe makes brains so firm you can practically bounce them, meaning students can dissect and observe brain structure and not end up with a pile of pinky/grey sludge.

Advantages

- Keeps brains very firm for months, possibly years, with minimum discolouration, thus making them available for a sophisticated aperitif or failing that, for a prac class. I have some that are nearly a year old and I will be handing them out this term.
- When a teacher wants to do a brain prac (giving you the customary 20 minutes warning) the students do not miss out. I usually have about 30 in stock.
- Product does not require refrigeration - technically it should be stored in your flammable goods cabinet.

NOTE: Using frozen brains is not advisable because the cellular rupture makes them a bit too squidgy.

Materials

- You will need large glass sealable storage jars (Kmart). I use clear jars because there is nothing like a couple of jars of pickled brains to give that mad scientist/ deranged homicidal maniac look to the place.
- Glycerine
- Methylated Spirits
- Eucalyptus oil (or any nicely smelling oil)
- Syringe & needle (over 20ml)



PICTURE: 2.5kg balanced on approximately one-year-old preserved brain

Method

1. Mix up the glycerine & Methylated Spirits 1:2 ratio
2. Label the jars
3. Inject each brain in several places with the solution & place in solution overnight
4. Discard solution & reinject brains.
5. Replace in fresh solution for a couple of days
6. Discard solution, replace with fresh. (repeat if solution is still pink from blood after a week)

Add eucalyptus oil about 0.1% to taste. This is not essential but makes it less objectionable for students if it smells nice.

Science ASSIST WE'RE BACK!!

ASTA and SETA have secured further support from the Commonwealth Department of Education and Training to 'reboot' Science ASSIST.

The Science ASSIST Advisory Service will focus wholly on school laboratory safety for teachers and technicians.

The Science ASSIST team:

- has reopened the Q&A section of the website to **answer all your questions** regarding school laboratory and science room safety.
- will continue the **development of minor technical resources** including Standard Operating Procedures (SOPs), Risk Assessments and Information sheets.

To stay up-to-date on all the latest questions and resources subscribe to the Science ASSIST E-news on the ASTA website.

Southern Biological PD Day

Marist College, Bendigo

Laboratory Technicians Association of Victoria
Loddon Mallee Campaspe Region

Karen Egan

Laboratory Technician

Marist College, Bendigo

Loddon Mallee Campaspe Regional
Representative

On Thursday 7th September 2017, I had the pleasure of hosting this workshop at my new work place, Marist College Bendigo. Peter Ball, from Southern Biological, presented three workshops to 17 lab Techs from the Loddon Mallee Campaspe Region and beyond.

The first workshop, 'Working with Enzymes', involved a little hands-on work to see how enzymes have an effect on basic household ingredients such as milk and apple puree. We soon knew the Lab Techs with cold hands as their reactions took longer (or maybe they weren't showing their test tubes as much tender loving care as others?)

Our second workshop 'Practical Photosynthesis' saw the wonder of Algal Balls forming before our very eyes and dancing variegated leaf discs. Algal balls have nearly achieved fad-status amongst Lab Techs this year and we all watched in awe as the little discs



dropped and formed pea-like balls. Such a scientific beauty!

Finally, we had fun with Fungi and Bacteria. Who doesn't love a bit of fur and germs?! And of course we also talked about killing our newfound pets off so as not to create some new media-making outbreak amongst our workplaces.

These PD days are not only a way for Lab Techs to learn new techniques and to further develop our skills but they are an important part of life for us all.

Networking with others who face the same challenges and ask the same questions every day; allows us to put faces to names, exchange details, follow up on email conversations and find a confidence in that we are all

doing the best we can and are not alone.

These days do not happen without a lot of work in the lead up. I must make a special mention of Therese Graham; for guiding me in her LTAV Committee Member capacity, the LTAV; for providing funding for our lunch, the Maiden Gully Bakery; for providing the delicious food, Marist College, Bendigo; for allowing me to host this day so early in my employment, Peter and Heather Ball from Southern Biological; for their dedication, organisation and commitment to providing science supplies and educating us and to all the Lab Techs that took time out of their busy schedules to attend.

I look forward to meeting with you all again very soon.



Kyabram P-12 College

Nestlé Agricultural & Horticultural Centre

Matt McCreedy
Agriculture and Horticulture Teacher
Kyabram P-12 College

Agricultural and Horticultural studies are alive and growing at Kyabram P-12 College. Staff and students have been working tirelessly on contributing to their very own specialised learning environment. Staff and students are very fortunate to have access to the wonderful Nestlé Sustainability Agriculture and Horticulture Centre that helps to provide meaningful hands on and theory based learning opportunity.

Students have options from year 9 to select a Science based elective; Seeds to market, in year 10; Agriculture and Natural Resources and VCE; Agricultural and Horticultural Studies. In year 9 students are able to run their own agricultural or horticultural small businesses that operates for one term. These small businesses provide students with both planning and conducting skills, promotes excellent communication skills and allows students to interact with members of the local community.



PHOTO: Kyabram P-12 College students maintaining the hydroponic setup

Student businesses include growing vegetables, raising chickens, using an aquaponics setup to grow both fish and a variety of vegetables. The program is very rewarding and allows students to demonstrate key outcomes in record planning, record keeping of purchased goods and sales of products, creating a photo journal and advertising techniques.

At year 10, students undertake a number of scientific investigations that allow them the opportunity to explore the effects of a range of variables on the growth and germination of pea plants. Students are able to work individually on this task, as there is plenty of space and many successful harvests of student grown pea crops in the numerous garden beds have made pea seeds readily available. Students are also able to participate in the Cows Create Careers Program. This is a fantastic program and demonstrates to all students the numerous avenues for future employment within agricultural and horticultural industries. Students take ownership of the care and wellbeing of a number of calves over the period of a month. Aspects such as creating a well-formulated ration, animal and personal hygiene programs and consistent monitoring of animal weight gain are observed. All students are able to participate in the program with a weekly roster established so all students can share the workload.

Kyabram P-12 College offers a VCE Agricultural and Horticultural program

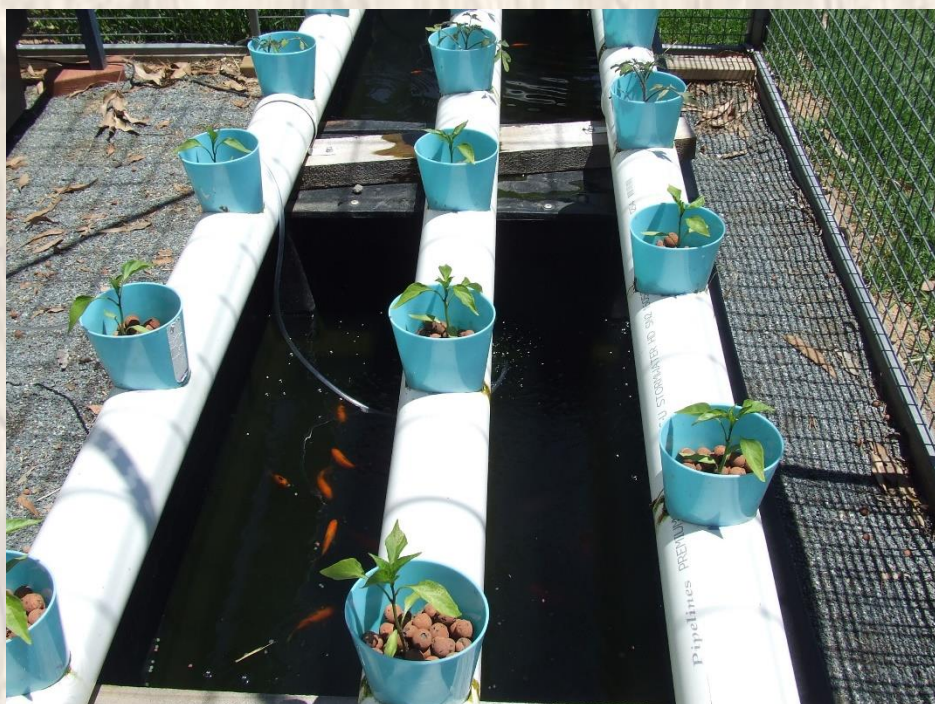


PHOTO: A close up of the the hydroponic setup



PHOTO: Kyabram P-12 College students in the vegetable garden

that allows students to complete large portions of theory and then be able to put their newly acquired knowledge into practise on a small scale within the vegetable gardens, trial plots or even to help formulate rations for animals. VCE students also have the opportunity to take part in a number of field trips to local farms. During these visits, students are able to interact with the landowners or managers and seek information regarding some of their studies. This year our VCE class was able to visit a local dairy farm to identify how to formulate a ration, visit a goat farm to discuss sustainability and animal health traits compared to a dairy farm, as well as visiting an aquaponics facility to gain a greater understanding of how to best establish our own system.

On Monday the 13th of November, Kyabram P-12 College opened the doors to the Nestlé Agricultural and Sustainability Centre to showcase to the local community all of the hard work students have been completing over the past 12 months. Representatives from Nestlé, local councillors, College principals, parents, students and a number of staff made the event a celebration to see how the centre has grown. Students from years 9-12 were able to take visitors on guided tours that really demonstrated to our guests the keen interest and connectedness students have with their own education within agriculture and horticulture. All visitors were overwhelmed with the development of the centre and very pleased with the

commitment to education that both staff and students have shown.

Students were able to explain to our guests that they were involved with all stages of the building of the Nestlé Agriculture and Sustainability centre. During building stages, students were able to help determine positioning of garden beds, location of rainwater tanks, animal enclosures and have recently started to plan for our future aspirations both within the classroom and in the centre grounds. Some of these future aspirations include more infrastructure such as a Sproutwell hothouse, grass trial plots, a number of computers, a printer for the classroom and an overhead projector

to help students complete their coursework within the one facility.

It was evident that visitors were pleased to see that staff and students have been able to, and will continue to, recycle a number of items from around the school.

At Kyabram P-12 College it is visible that the positive working relationships across domains is healthy. Science and Technology subjects have had some outstanding work completed by very skilful teachers, Mr Lionel Curling and Mr Peter Aitken, who regularly assist with the developments within the Nestlé Agriculture and Sustainability centre. Both teachers regularly contribute with welding or building tasks such as animal enclosures, aquaponics setups and even contributing to the design elements of garden beds and herb gardens. Matt McCready, the Agricultural Science teacher at Kyabram P-12 College said, "Students are able to demonstrate key outcomes through a variety of approaches thanks to the Nestlé Agriculture and Sustainability centre and enthusiastic educators to guide the learning process."

A big focus of the Nestlé Agriculture and Sustainability centre is to continue to build on strengthening positive relationships and promote an environment that is educationally first rate and everlasting.



PHOTO: Aquaponics setup at Kyabram P-12 College

A Week in the Life of a Lab Tech

Lauren Farrugia
Laboratory Manager
Bialik College

Jobs to do during one week can be cyclic or completely new. However, most Mondays start with making sure all our animals are comfortable. I change and treat about 150L of water over 2 fish tanks, check the pH and feed them. I often spend a bit of time observing them all to make sure they are swimming properly and appear to be happy.

I will then usually go and pick a fresh branch of gum leaves to replace the old one (that dries out in one week over summer - longer in winter) in our stick insect enclosure. The other animal at school is a bearded dragon named Harriett. I give her a warm bath most Mondays (or early in the week) to hydrate her and to allow her to poop comfortably.



Once animals are all taken care of, I look at RiskAssess.com to check which pracs I have coming up. Sometimes a teacher has sneakily booked a prac last minute, in which case I go and have a chat with them to try and figure out what we can do in the time provided.

Some weeks it can be ridiculously busy while others are quieter. Quiet times provide the perfect opportunity to knock out all those important jobs that get pushed aside during busy times. These include fun and exciting things like annual stocktake, MSDS updates and annual chemical register updates. I also like to fill my time with new projects that relate to current curriculums.

My latest project to work on is setting up a Cichlid tank for next year. This will be useful in Year 12 Biology as they study how the phenotypes of offspring cichlids can look exceptionally different to parental phenotypes. I am doing a heap of research to make sure the fish will be super comfortable and happy. The research alone takes quite a bit of time and I also like to visit local aquariums and chat to knowledgeable people. I like to make sure that whatever new 'thing' I implement can be maintained at a level that will not induce mass amounts of stress. Cichlid tanks are fresh water and tropical, so popping a heater in the tank to maintain temperature will not be a problem.



PHOTO: Stick insect enclosure, hand made by me

Things like maintaining marine tanks at schools is almost impossible with holidays and long weekends.

We are also in the process of (slowly) buying equipment to set up Molecular Biology experiments such as DNA barcoding, gel electrophoresis, PCR and restriction enzymes. I thoroughly enjoy developing methods for these types of experiments and spend quite a bit of time doing so.

Overall a week in the life of a lab tech can be very different from one to the next, which is why I enjoy this job so much. It is so rare to have a job that allows for such diversity, creativity and autonomy all at once. I'll never be paid the big bucks, but making the decision to value a good work/life balance has been a satisfying one.



PHOTO: (Top) 4ft broken fish tank repurposed as bearded dragon enclosure after it could no longer hold water (Bottom) 4ft goldfish tank

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List Laughs and Life Hacks

The LTAV list-serv is provided to all LTAV members and is an amazing resource for laboratory technicians working in educational institutions. Whether you have a question that needs to be answered, or just need a laugh every now and then, sign up to the list-serv forum and meet a bunch of fun, friendly and helpful lab techs, just like yourself! Go to www.ltav.org.au and click 'Join the LTAV List'.

Sender: Miranda Ford

Subject: [LTAVlist] Not all equipment gets returned in a mess!

Attachment: IMG_7486.JPG

So we all know that sometimes things can get returned to us in a bit of a mess, especially those wonderful molymod molecular kits which I am sure we've all spent a while going over every so often. I usually leave them in a neat state after having checked them, but when a Year 8 teacher told her students to return theirs with all bits included, well, this group left even me behind for neatness LOL! (see attached pic) The symmetry is quite pleasing!



Helpful Hints

With Julie Stallwood, Thornbury High School

"My family think I am mad for collecting bread ties, wine corks, soy sauce fish, empty jars, bottles, pinching scraps of sisalation off rubbish skips..... it'll come in handy one day I say!"

Has the Freezer Been Off for Long?

I saw this a few weeks ago and thought it would come in handy. After implementing it last Monday, it has saved me today!

If your power has been off and you are not sure how long it has been off for or if things in your freezer have defrosted and then refrozen, there is a simple way to tell if a melt has occurred and to what extent.

1. Place a plastic cup with water in the freezer, allow to freeze solid. place a coin or washer on the ice block.
2. Return to the freezer.
3. If the freezer completely defrosted and then refroze, the coin will be at the bottom of the cup of ice not at the top.

I have 20 rats in my freezer at the moment, a significant outlay. I came in this morning to find my power was out after the safety switch had tripped. I checked the cup and although there was some melt around the perimeter of the ice in the cup the coin was still on top of the ice. Theory is rats are still ok for Thursday! Phew not peeuw (sp?)



Easy Decanting

This little blue jug is from Bunnings and with the long spout it is perfect for filling bottles with small openings such as still bottles.



Filtration

This filtration set up fits beautifully on top of a beaker. It is a coffee filter as used by Dutch people, amongst others. You can buy the plastic holder and papers quite cheaply at Daiso the Japanese \$2.80 store. It filters quickly and I use it when separating clearing a solution of contamination.



Brain Break

A Sudoku Puzzle with a twist!

Instead of numbers, each row, column, 3x3 square and diagonal must contain one of each of the 9 letters in the word **CHEMISTRY**.

Rating: MEDIUM

	E				R	C		
I					M	Y		
				E	C		H	
E		H				M		S
	H		M	T				
		R	I					T
		I	C				E	

10 of the Best

1. Who invented the periodic table?
2. Which vitamin is also known as retinol?
3. Which element is secreted through human sweat?
4. True or False? Stephen Hawking was born exactly 300 years following the death of Galileo.
5. Umami is one of the 5 basic what?
6. What kind of plant has no roots, stem or leaves?
7. How many minutes does it take for light from the Sun to reach Earth? 5, 10 or 25?
8. Where is geothermal energy produced?
9. A 'keloid' on the human body is a type of what?
10. Which physical quantity is measured in kilogram-metre per second?

(Answers on page 26)

Rules of the Laboratory

1. If an experiment works, something has gone wrong.
2. When you don't know what you're doing, do it neatly.
3. Experiments must be reproducible; they should fail the same way each time.
4. First draw your curves, then plot your data.
5. Experience is directly proportional to equipment ruined.
6. Always keep a record of your data. It indicates that you have been working.
7. If you can't get the answer in the usual manner, start at the answer and derive the question.
8. Team work is essential; it allows you to blame someone else.
9. All unmarked beakers contain fast-acting, extremely toxic poisons.
10. No experiment is a complete failure. At least it can serve as a negative example.

DID YOU KNOW?

85% of plant
life is found in
the ocean

10 of the Best Answers

- 1 Dmitri Mendeleev 2 Vitamin A 3 Sulfur 4 True 5 Tastes 6 A fungus 7 5 minutes to reach the earth
- 8 Inside our Earth 9 Scar 10 Momentum