

# LAB LINES



**Newsletter of the Laboratory Technicians' Association of Victoria**

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**Editor: Jessica Boys**

LABORATORY TECHNICIANS' ASSOCIATION OF VICTORIA



**LTAV Website**  
[www.ltav.org.au](http://www.ltav.org.au)

# Science ASSIST re-opens!

**CSIRO Education has offered interim funding for Science ASSIST and will work in collaboration with ASTA to secure long term sustainable funding for the program.**

The Science ASSIST team has reopened the Q&A section of the website to answer all of your questions regarding school laboratory and science room safety.

You have continued free access to all of the technical resources including SOPs, RAs, Information sheets and the Chemical Management Handbook.

To stay up-to-date on all the latest questions subscribe to the Science ASSIST eNews.

**[assist.asta.edu.au](http://assist.asta.edu.au)**



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## Deadline for next Lablines 2020

14th February 2020

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### DISCLAIMER

The views expressed in "Lablines" are not necessarily the opinions of the committee. There is no responsibility taken for the results of any experiments published in "Lablines" and replicated elsewhere. Risk assessments should be carried out before attempting same.

**Front Cover:** 'Garlic Root Tip Mitosis', Keliagh Packer, Laboratory Technician at St Francis Xavier College, Beaconsfield. Article on page 15.



Conditionaire is now offering more than just Fume Cupboard/Fume Hood/Ductless Fume Cupboard solutions for your School/Company/Research Facility/University etc. We are now in association with two other companies: Validair Sciences and Biosafety. For peace of mind, we are a Nata Accredited Company, so we get all our staff and equipment audited annually. Because of this, our reporting/results, as per the standards, must reference the correct AS/NZS 2014.8-2014 and include a photo/sketch, which is required on the reports as well. Science ASSIST reiterates/recommends using a Nata Accredited Company for testing/servicing.

Website Address <https://assist.asta.edu.au/>

Why are we associating with two other companies you may ask? Very simple; to help our existing and new clients have one Contractor who can provide expertise in three main fields:

Fume Cupboards/Fume Hoods/Biosafety Cabinets/Laminar Flow Units/HEPA Filters

Testing/Hygiene

Odour Testing (testing and supplying reports for Chem Storage Rooms/Cabinets etc. as evidence of unusually high odours in these areas so they can be rectified for proper ventilation)

We have experience in dealing with all models of Fume Cupboards that are on the current market today and most past makes/models. We can offer you original parts on your current makes/models or retro fit ours onto whatever make/model you have if those parts are not available or don't exist anymore, or you simply don't like the existing control/operating system that is already in place. This is a huge advantage over all our competitors, as most cannot do this. All associated companies have full accreditation in their respective fields. I have also presented a list of other services that are available to all our clients and new clients....and we now have access through an online portal for all our clients to see or gather their test reports and have a full asset history on their fume cupboards etc including comments/repairs...but...there will be even more capabilities coming in the future!

Repairs/Upgrades/Trouble Shooting of All Fume Cupboards/Fume Hoods/ETC.

Fume Cupboard Testing/Servicing/Cleaning and Fume Cupboard Sales

Fume Hood/Exhaust Arm Testing and Fume Hood/Exhaust Arm Sales

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Air Curtain Sales

Contact me now if you are unhappy with the current rates you are paying for fume cupboard/fume hood testing, contact me now for a competitive price and if you do become a client of ours, you will have access to our new online portal. How many other companies in today's market offer all this?



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Email: [chris.conairmfg@bigpond.com](mailto:chris.conairmfg@bigpond.com)

# President's Report

**Geoff Gleadall**  
LTAV President



As you read this, LABCON will be done and dusted. You will all be winding down towards the end of the year, still as busy as usual, but trying to fit in maintenance tasks as well.

This is perhaps a time for some reflection. It has been a busy year, but then they all are.

For me, I started in this profession at the start of the academic year in 1974. I do not have too many years left in me before I retire, but I think even after that I will continue working for and with LTAV to try to make things better for you all.

In the last 45 years some things have changed a great deal and some things, not at all. One of the sadder realisations is that many of the things that have not changed are things that needed to change and still need to.

When I began (in what is now the TAFE division of RMIT), we were all centrally employed and had a career structure. You could actually be promoted to a higher position, or one in another school. This has gone, sacrificed to the idea of school autonomy. Union coverage was with Miscellaneous trades (now United Voice), as nobody else seemed to even know we existed.

We had three terms in the year and we all got at least some of the term breaks off without losing pay to make up for it (that time was referred to as "grace and favour" days). If you had to use your private vehicle, there was no waiting, you got paid that day for it in cash! Speaking of cash, we were all paid by cheque and were permitted to go to the bank to cash the cheque during work time.

I recall having a discussion with my head of division at that time where he said, "You

are all going to have to be patient with these teachers who do not understand your role. They will get the hang of it eventually." Well after 45 years, I am still waiting for that.

Paperwork! Yes, I know I said a bad word. When I started, the only paperwork was my lab logbooks and the booking diary (yes, it was a problem even then). Now, I seem to spend half of my time filling in forms.

Workload; well that has not changed. It has always been heavy but lately many of us have less time to do it. Back then, almost everyone was full time. Now, increasing numbers of us are part time and still expected to get everything done.

The more things change, the more they stay the same. It has been interesting, but as the Chinese proverb says, "May you be cursed to live in interesting times."

## From the Editor

**Jessica Boys**  
LTAV Lablines Editor



It is my pleasure to let you know that there will be a new Lablines Editor as of January 2020. Samantha Gunning will be taking on the role and I wish her the very best as she begins this venture. I am looking forward to seeing new and fresh ideas for the magazine. I would encourage you to support her by providing any content you think may be worthwhile. It is always a challenge to fill these pages, especially when you are new to the Lab Tech world, so please be in touch. Keep an eye out for

Sam's contact details in the coming editions.

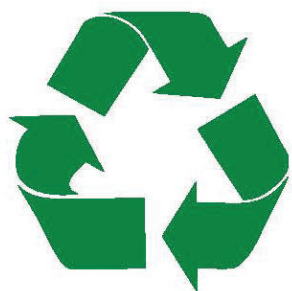
I would like to take a small space to express what a joy it has been to be Lablines Editor for the past 3 years. I have always found that I have received just as much back as I have given – contacts, friends, new skills, handy tips and words of wisdom from years of experience. I would encourage you to think about ways that you can contribute to LTAV, whether it be on the Committee, in your region, or through contributing to Lablines. My experience is that it is a lot of fun and incredibly rewarding, both professionally and personally. I can vouch for the fact that you don't have to be an expert or wealth of knowledge, just brave enough to put yourself out there. People will thank you for it, there is always someone newer than you, with the same questions that you had.

I would like to thank each and every individual who has provided content over these past years, to all those who said

'Yes! I'll give it a go!' when I emailed them out of the blue. It has always been so exciting to receive your articles and learn from your experiences. You are such a fun and lovely bunch.

I wish you all an end of term filled with finished to-do lists, clear benches, surprisingly empty sinks, gum-less bottoms of chairs, money left to spend in the budget and lovely teachers who book things in advance for 2020.





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## In the News

As we sit ripping our hair out, whilst trialing our ninth type of artificial light globe and pleading with those spinach discs to just produce enough oxygen to rise to the top of that beaker of bicarbonate solution, 'Vertical Farmers' have perfected the technique of photosynthesis with artificial light and are successfully growing a bounty of leafy greens.

In a world with a drastically growing population and limited resources, vertical farming may be part of the solution to the global food crisis and is quickly becoming one of the hottest trends of the decade for investors.

Vertical farming comes under the umbrella of Controlled Environmental Agriculture (CEA), colloquially referred to as 'Indoor Farming'. Indoor farming often includes practices such as hydroponics, aeroponics, aquaculture and aquaponics and aims to optimise the use of resources such as water and energy.

Vertical farming optimises the use of space by growing crops in vertically stacked layers. These plants are treated

to a life of luxury. LED lighting is tailored to the exact needs of the desired crop. Leafy greens enjoy light on the blue side of the spectrum whilst fruiting and flowering plants prefer the red end of the spectrum. The length of time that lighting is used each day also aids in the optimisation of photosynthetic processes. This is not to mention climate control and the complete protection that is provided from pests.

I hear you say 'Ok, Jess, that's all very nice, but I don't really see what's so amazing about it'.

Allow me to throw some stats at you. A large-scale Japanese vertical farming company called Mirai have made the following claims when comparing to traditional farming methods.

- 99% less water usage
- 80% less food waste
- 40% less energy usage
- Growing times decreased by a factor of 2.5 thanks to specialised LED lighting. In practice, this looks like 100 times the crop yield.
- No pesticides

With an estimated 2 billion extra mouths



Image: Vertical lettuce crop.

Image by Valcenteu - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=93874>

to feed by 2050, looking up may be our only option!

Maybe a little TLC is all our spinach leaves need. Or some choice profanities.

## PRINCIPLES and PRACTICE FOR REPAIRS

AMONG THE MANY THINGS WE FIX  
ARE VAN DE GRAAFF GENERATORS.



**BUT GIVE US A GO  
AND WE WILL TRY!**



In 2015, the 5 megavolt Westinghouse Atom Smasher was dismantled having served science since 1937.



Email: [harvey@principlespractice.com.au](mailto:harvey@principlespractice.com.au), Phone: 0459 768 392

# 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!**

Please send a sentence or short paragraph to  
[boys.jessica.j@edumail.vic.gov.au](mailto:boys.jessica.j@edumail.vic.gov.au)  
to be included in the next edition of Lablines.



## LTAV 2019 HONOUR ROLL

LTAV would like to acknowledge members of our association who have retired or sadly passed away in 2019. We have tried our best to include as many people as have come to our attention. To those retiring, and any we may have missed, we wish you a fantastic, relaxing and fulfilling retirement. If you, or someone you know, are retiring, please send an email to [boys.jessica.j@edumail.vic.gov.au](mailto:boys.jessica.j@edumail.vic.gov.au) to be included in the LTAV Honour Roll.

### **Retired, December 2018**

Jennifer Coker  
Jan Wiese

Werribee Secondary College  
Heatherdale Christian College

### **Retired, 2019**

Sue Bell  
Judith (Judy) Finger  
Margaret Hassell  
Lois O'Meara  
Julie Weller  
Kerry Whitelegg  
Anne Whittaker

Dimboola Memorial Secondary College  
Kew High School  
Girton Grammar School  
Eltham College  
Drouin Secondary College  
Mildura Senior College  
Aitken College



## 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:

- The payment is at the discretion of the committee and will apply for the course of each membership year,
- The payment is to be made only on behalf of technicians in their first year working in education.
- Members who are given this benefit are expected to continue their membership in subsequent years.
- 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](mailto:admin@ltav.org.au)**





ABN 96 439 156 002

# LTAV

## Laboratory Technicians' Association of Victoria

By Lab Technicians for Lab Technicians

3/159 Burwood Road  
Suite 150  
Hawthorn Victoria 3122  
[www.ltav.org.au](http://www.ltav.org.au)

### LTAV MEMBERSHIP INFORMATION

**2020 LTAV membership is now open.**

**Membership is a calendar year** - 1<sup>st</sup> January 2020 to 31<sup>st</sup> December 2020, regardless of when the membership fee is paid.

**LTAV membership belongs to you, the Lab Tech** and not the school. If you leave your school, you take your membership with you. LTAV membership is not transferable.

**If you haven't been a member previously**, you need to fill in an Application for Membership form found at [www.ltav.org.au](http://www.ltav.org.au) under 'membership' OR email [membership@ltav.org.au](mailto:membership@ltav.org.au) and ask for a form. Lab Techs in their first year of employment in education are eligible for free membership.

**To renew your membership or to register for the first time** there are two options:

1. Go to [www.ltav.org.au](http://www.ltav.org.au) and under 'membership' click on '2020 renewal'. You have the choice of requesting an invoice (which is automatically sent to your email address) or paying straight away via credit card.
2. Fill in the 2020 LTAV MEMBERSHIP TAX INVOICE form which you will find in Lablines and on the LTAV website. This form needs to be emailed to [membership@ltav.org.au](mailto:membership@ltav.org.au) or mailed. *If you mail the form, please be aware that it can take up to a month to finally reach the membership officer.*

#### Payment options

1. As mentioned above you can pay online via credit card
2. You can pay directly into the LTAV bank account (details are on the tax invoices)
3. Cheques can be mailed to the LTAV post box (see the letter head for address)
4. Cash can be given directly to the membership officer

If your school is paying your membership, you need to give your accounts department the tax invoice, either the one you receive via email OR the 2020 LTAV membership tax invoice form you filled in and sent to the membership email address.

**LTAV members receive 4 issues of Lablines**, our fantastic magazine, per year. Your issue is posted just before the end of each term. The first issue is posted to all members from the previous year as a courtesy because membership payment isn't due until April 30<sup>th</sup> and the first issue goes out before then. It is important to note that although membership payment can be made any time during the membership year, you may miss out on some issues of Lablines if you pay after April 30<sup>th</sup>. The reason for this is that when Lablines goes to print, the number ordered is based on the number of members at the time, including renewals received without payment, plus about 20 extra copies.

2019 has been a fantastic year with record numbers of Lab Techs getting behind their association and taking out membership. If you have not joined LTAV yet, now is the time to do it and make our association even stronger. LABCON registration is much cheaper if you are a member with the difference in cost for a non-member being more than the actual \$44 cost of annual membership fee.

Any questions or comments please send an email to [membership@ltav.org.au](mailto:membership@ltav.org.au)

# LABCON2019

## A report from LTAV's Peter Ellis Scholarship Winner

### Natasha Burgess

This year I was thrilled to be awarded the Peter Ellis Scholarship to attend LABCON 2019 and I'm very grateful for the opportunity. Being new to the industry, I have been pleasantly surprised to find a very welcoming, sharing community that is so supportive of each other. It is reassuring to be able to spend time with others in the field, to share, learn and network with each other, not to mention the great resource that is List Serve.

During the conference, I attended sessions on keeping a lab organised, chemical management, chemical disposal and RiskAssess, and came away confident that I was covering all the administrative obligations necessary as a lab technician. Physics with Mary and Lynette in 'Life, the Universe and Everything' was good fun. If anyone else has watched 'Glitch' on TV, you'll understand why I felt a little weird when using the Chladni plates! Providing some fun learning on the second day was Prof Bunsen with his chemical toys. Carl is such an entertaining educator and showed us how to use some simple toys as teaching tools.

Dinner at The Hotel Windsor on Wednesday night was really lovely with a beautiful meal, lots of laughs and, of course, quite a bit of dancing! During the evening, while listening to tributes paid to the late Wendy Hurlle, I realised that the passion of founding members like Wendy is the reason that LTAV has evolved into such a supportive community to lab technicians, old and new.

As the second day came to an end, we all gathered in the exhibition space for the drawing of the raffle. During the conference, I had been to all the exhibitors' tables to view their



Image: Natasha Burgess; LTAV's 2019 Peter Ellis Scholarship Winner

products and chat about things. They each signed my 'passport' and, once completed, into the raffle it went. There were some great prizes given out and I was lucky enough to win a Kokadama Ball made by Therese Graham.

To any new lab technicians out there, I highly recommend applying for one of the scholarships that LTAV offer to members. It is an opportunity to learn something new and, just as importantly, to meet with others and make connections.

Thank you.



Image: Therese Graham's 'Kokadama Ball' Workshop



Image: LABCON Conference Dinner at The Windsor Hotel.





## LTAV's 2019 Award Recipients

**Peter Ellis Scholarship**  
Natasha Burgess

**Distinguished Service Award**  
Wendy Hurlle



Image: Wendy's husband and family attended the LTAV Conference Dinner to accept the posthumously awarded DSA.



Image: Christine accepting an expression of LTAV's thanks at the Conference Dinner.

## Acknowledgments

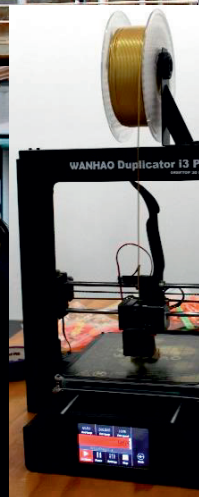
LTAV would also like to recognise the amazing commitment and hard work of two Committee members who have stepped down from the Committee this year.

Suzanne Thornley has served on the Committee for 12 years in various roles including Animal Welfare Officer, Secretary, Vice President, and a short term filling in as President last year. We thank Suzanne for her diligence and professionalism as she has faithfully performed these roles.

We would also like to acknowledge Christine Nolan. Christine has been on the Committee for six years, five of which were spent serving in the role of Secretary. We will miss Christine's amazing organisation at meetings and her friendly attitude.

We wish you both all the very best for your future endeavours!





Laboratory Technicians'  
Association of Victoria



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# Horsham College 2019 Science Extravaganza

## DESTINATION MOON: MORE MISSIONS, MORE SCIENCE.

**Jodie Pignataro**

The day is Wednesday 14<sup>th</sup> August, the time is 5.55pm and it is all systems go! The annual Horsham College Science Extravaganza is about to lift off. The doors open at 6pm. Be prepared for a large variety of activities and demonstrations. Ten, nine, eight...Blast off!



Image: Astronaut photos

The evening was a huge success with lots of activities and displays.

Any prospective astronauts underwent some training and then got their photo taken in our astronaut painting. The younger candidates visited our space shuttle and entered our space station. Others went and checked out the moon through the telescope and the stars on the iPad and TV.

Some members of the public used virtual reality to experience



Image: Orbit demonstration



Image: Making a Rover

space, while others learnt how to make air rockets and fired them off. Mars rovers were made and challenges were run to find the ones that could travel the greatest distance. Spheros could be programmed to run a set course and people also enjoyed making 'Phases of the moon' mobiles and star constellations.

There were also activities comparing the gravity of different planets and even opportunities to have a go at walking on the moon. Some checked the student work, the orbit demonstration and space technology display, as well as face painting and making sherbet (sorry... I mean, moon dust). When a bit of quiet was needed, some enjoyed watching the moon landing in the darkened room with the glowing moon as a great back drop.

There was also some chemistry from outer space lighting up the night sky as we watched the fires of Mars and saw a screaming Martian. A volcano on Venus erupted and the hydrogen from the sun burst into flames. Inside, an ethanol whoosh bottle was demonstrated before an alcohol rocket was sent along a zip line the full length of the foyer.

Overall, a very successful night.



# So, Your School Wants to Hold a Science Extravaganza?

*Well, Science Week is over for another year! Your school didn't do much to acknowledge it other than a few lunchtime activities. That's okay with you, as you know the majority of extra work would have fallen to you to do anyway.*

*The next Science meeting arrives and some bright spark suggests that 'we' should hold a Science Extravaganza next year to celebrate Science Week. We should invite the public as well as the school community. Head of Science thinks this is a terrific idea and says, "Let's tell our technician!" Yay!!*

Okay, don't panic. I'm going to give you some general tips that might help you organise a Science Extravaganza at your school.

First and most important is that you need to make sure that all Science teachers are on board. This is not a one-person undertaking. Your Head of Science needs to make sure that all Science staff know that they are expected to participate in some way to ensure a successful Extravaganza. If all staff are not ready to contribute in some capacity, it will not happen.

Once everyone is happy to do this, my suggestion is to either start a book or a file for your Extravaganza. In this, you need to jot down the administrative things that need to be attended to. These include things like getting a raffle or any fundraising approved by school finance, getting a list of possible sponsors approved by your school committee, making sure that all volunteers have a WWCC, choosing a suitable date and time on the school calendar, and deciding where you are going to hold this Extravaganza and whether you need to book the area or get permission. The Head of Science will need to add this event to the Science budget proposal, as you will need money to pay for the extra things needed. The Head of Science will also need to research which grants are available and apply them as soon as applications are open.

My next suggested step is to find out what the theme is going to be. The sooner you get onto this, the better, as everyone can start thinking up ideas. Our 2020 theme is Deep Blue: Innovations for the Future of Our Oceans. Remember, not all displays/activities have to relate to the theme. We make sherbet every year as it is a great



Image: Horsham College 2017 Science Extravaganza

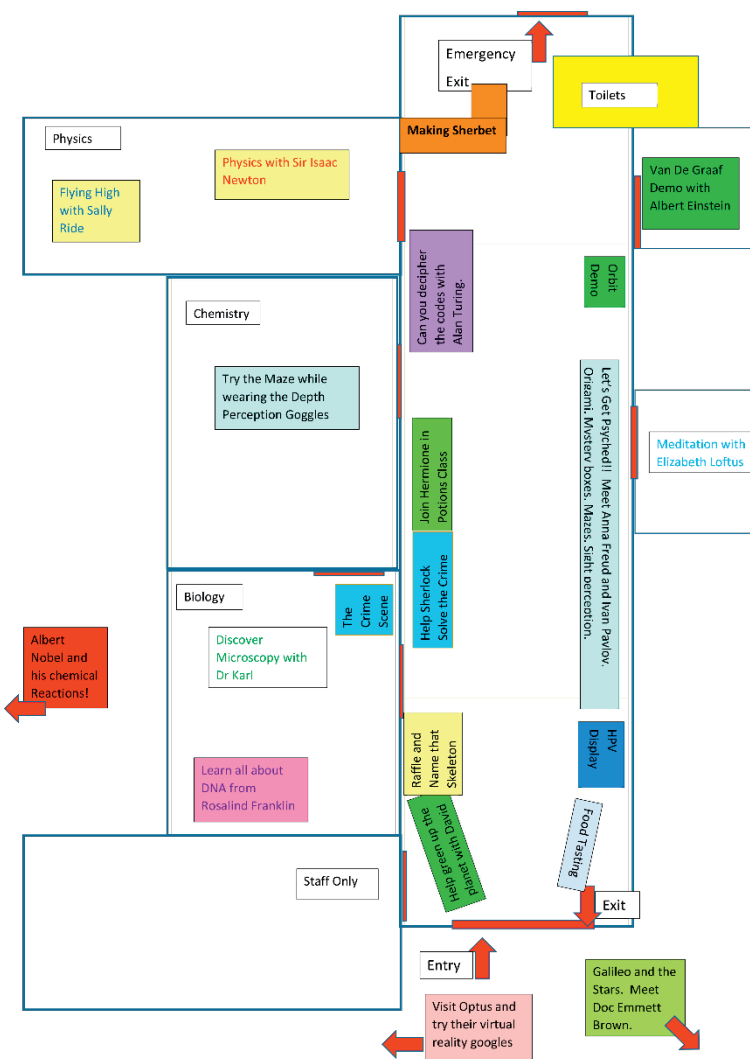


Image: 2018 Horsham College Science Extravaganza

crowd pleaser, but sometimes we rename it, eg. this year it was moon dust. Ask all school staff to think of ideas and start adding these to your book/file. This should ideally be started Term 4 of the year prior.

Term 1 is basically to remind all science staff that the Extravaganza isn't that far away and to really start thinking of ideas of what they might want to do on the night. Let any new staff know what is planned and ask for them to come up with a couple of ideas. Add any ideas that come up into your book/file.

In Term 2, things need to start to move. Get a promotional poster designed and printed (Art staff are good at this). By week 5, Science staff need to make a decision on what they want to do so that the logistics can begin to be worked out. Are we going to do presentations at the primary schools to encourage them to attend? If yes, which demos are we going to do and which staff are going to do them? This year we did whoosh bottles and alcohol rockets. In previous years, we have done hydrogen balloons, elephant's toothpaste, genie in a bottle and spaghetti towers, to name a few. Check with local primary schools if they would be happy for a

Continued pg. 15

# Serrata Science Range Now Available Through MTA

We are delighted to welcome Serrata, one of Australia's largest supplier of specialised science & education equipment, into the MTA family. Since 1969 the Scrimgeour family have established Serrata as the premier science equipment supplier across Australasia supplying the highest quality products to primary and high schools.

All of Serrata and MTA science resources can be found at [teaching.com.au](https://teaching.com.au)  
And if you know the Serrata product code, please add SER to the code to find the product on our MTA site. For example **1002034** will become **SER1002034**.





Science demo at their assemblies. Drop off posters to all schools and add the event to school newsletters, yours and any others that are happy to do it. If you are asking for sponsorship, the Head of Science will need to get a sponsorship letter written up and approved. Make sure your list of sponsors has been approved by school council and divide them up between Science staff. By the end of Term 2, make sure all staff know what they are doing for the Extravaganza and what basic needs they require for their activity/display.



Image: 'Whoosh Bottle'. Courtesy of The Wimmera Mail Times

Term 3 and it really starts to get busy, for the Extravaganza as well as normal classes. This is where you need to make sure all the Science staff have given you a list of their requirements, including how much space they need and how many tables. It is a good idea to have a couple of staff floating so that they are able to cover toilet breaks and greeting people as they arrive. You really need a checklist about now. This list should include everything that is needed, whether you are responsible for it or not. Start marking things off as they are completed; it is such a good feeling. Who is going to the primary schools and when? Are they comfortable doing the demo, or will you need to walk them through a practice run? Are you going to get senior students to help at the Extravaganza? If yes, you will need to start asking them. Start a map of the area to see where everything is going to fit and how visitors will flow around displays. You will need to print several copies of this to display on the night, but don't print them until the last minute as changes may occur. If you are having timed demos, you need a schedule displayed as well.

Put in any maintenance requests for anything that you can't do yourself, either due to time restraints or lack of knowledge. This might include the acquisition of old tables that can be damaged, external lights or a zip line put up. Put in requests to your IT department for any technology that is needed for the Extravaganza. These may include portable TVs, interactive white boards or automated PA announcements.

Have an area where you can place all Extravaganza equipment so that it is all together and everyone knows where it is and can add to it or check on their equipment. This will need to be separate from your normal equipment. Make sure you do any ordering with plenty of time for delivery. All up-the-street shopping should be complete the day before the Extravaganza. You will not have time on the day for trips to grab things. Now is the time to finalise student names, get name tags made for them and type up a sign-in sheet.

On the day of the Extravaganza, you need time most of all! We have our Extravaganza from 6pm to 8pm at night and we must start setting up at lunchtime. We check if any junior classes are available

to shift furniture, collect pin boards or make posters to put on the fence outside. Start by putting tables and noticeboards in the correct spots for each activity or display. This is the time you may need to rearrange areas because something that fit on paper may not fit in real life. You might need to update your maps; this is why you didn't print them earlier. Place the equipment that each staff member ordered at each activity or display, but do not set it up. Each staff member needs to set up their own area for two reasons. Firstly, they know how they envisioned it and secondly, you just don't have time. This is when you get students to start putting up posters, student work, information and schedules.

School finishes and this is when the teaching staff and students arrive to set up displays. This will be one of your busiest times as staff will need help troubleshooting and getting last minute equipment that they have forgotten. Your name will get called probably over 100 times in the next hour and a half. Be prepared to be run off your feet until it is nearly time to open the doors. I recommend that the Head of Science organises tea for the staff and students that are participating in the evening, as nobody will have time to go home to eat.

Make sure all students have a name tag and a lab coat. This makes them look like they are part of the night. We usually have staff in white lab coats (except for the year we all dressed up as famous scientists) and the students in navy blue. Okay, everything looks good and it is time to open the doors.

Hopefully you will have time to wander around and make sure everything is running smoothly. You will probably be called on to top things up because they will have gone through much more paper than expected or will be starting to run short of sherbet ingredients. Your evening is usually spent putting out spot fires or just supporting staff as there are more people than expected. You might like to take over supervising someone's activity so that they have time to take their kids for a quick look around.



Image: 'Potions with Hermione', Horsham College 2018 Science Extravaganza

The doors are finally shut and there are only staff left. This is the time everyone pitches in and cleans up. Working as a team, it is amazing how quickly everything gets returned to normal. Equipment should go back to where you were keeping it in the lead-up to the Extravaganza; there is no way that you want to put it all away tonight. You might have a class volunteer first thing the next morning to return the extra tables or pin boards.

It is all over. Don't talk to me about another Extravaganza until at least November!

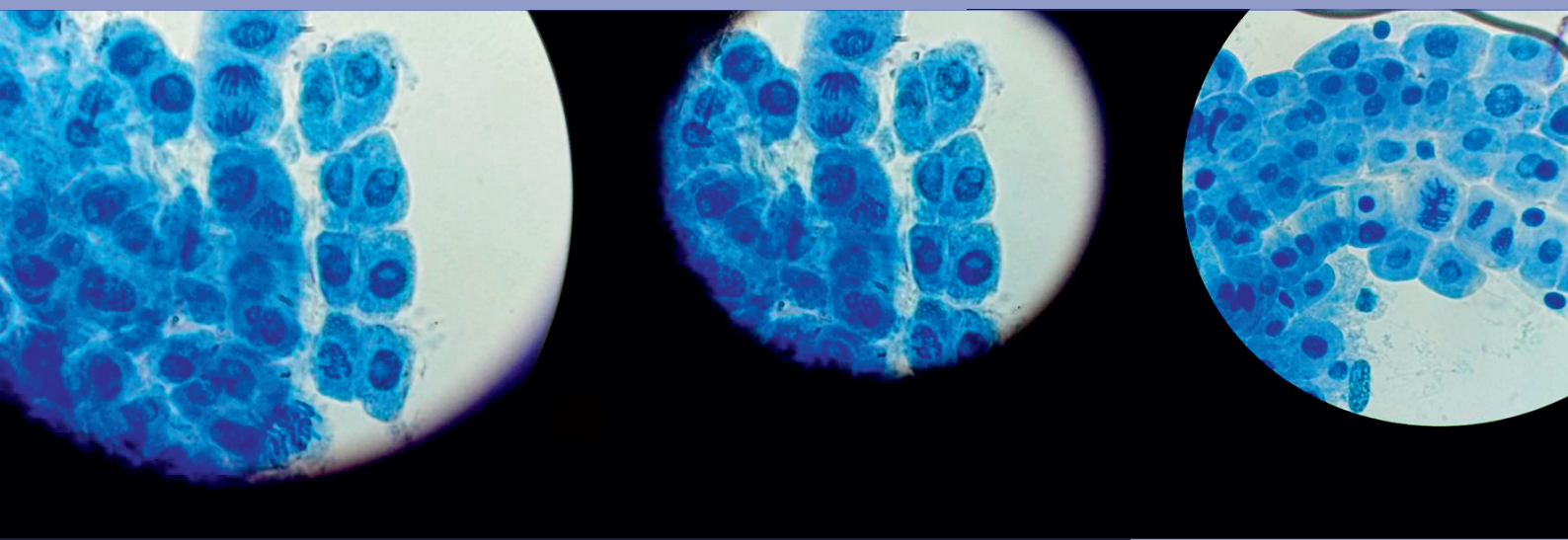


Image: 'Experimental Results', taken by Keliegh Packer

# Garlic Root Tip Mitosis

**Keliegh Packer**

Laboratory Technician

St Francis Xavier College, Beaconsfield

The garlic root tip mitosis prac has been a go-to for many Biology teachers over the years, to show students how cell division works and the phases that are produced in the process.

However, sure enough, every year the Biology teachers ask, "Can we do this prac?" and, like many other lab techs, without fail I dread, and in most cases go into a frenzy, trying to pull something out of a hat at the last minute to make the experiment actually run smoothly and successfully. Of course, it never does.

So, as this year came about, I was determined to get on top of this once and for all, to make sure I had a foolproof method that would actually yield great results, so I wouldn't be freaking out when the teacher inevitably asks if can we do this prac again. I thought the best place to start would be emailing my fellow lab techs, who I know have so much knowledge and insight. They would be more than happy and willing to share their notes. So, I sent the email and, as expected, my fellow lab techies pulled through for me. I received a response literally straight after I sent my question. To say I was excited was an understatement! I thought, wow, this is going to be so much easier than I thought and I am an idiot for not thinking of doing this last year! It wasn't until I looked at my emails minutes later that I noticed 2-3 more replies. Another 5 minutes passed and another 2-3 replies came through. As I started to read each one, I noticed each email had a slightly different version or opinion on the best method to work with. Gradually, more and more emails came through over the day, while I tried my best to clarify with each person. Each person had a different suggestion. One person would say that growing them in light was best, then someone else would say, "No, dark is best." Someone would say use this stain; another would say, "No, use this stain." Or, "Organic garlic works best," then another response would be,

"Use onion shallots." To peel or not to peel, that is the question. I have to say, it did make me laugh, but by the end of the day I was more frazzled and confused as to how to run this prac than I was at the beginning of the day.

Don't get me wrong, I appreciated everyone's generosity and help with offering what works best for them, however I felt something needed to be done to at least try to cut out some of these variables/differences.

So, I figured the only way I was going to get the answer I was looking for, was to take the time and experiment and analyse all the information given to me, compile it into one big experiment, and try and test every suggestion... and that's what I did. Over the next couple of weeks, I self-designed an experiment that would test all the different methods - from light vs dark, to organic garlic vs Woolies brand vs onion shallot, to distilled water vs tap water, to water change vs no water change, to cutting the bottoms off the garlic vs not cutting the bottoms off. I developed a spreadsheet with all this data and table formatted it into days. Every day I would record the growth/length/rate/quality of the root tips and overall health of the garlic/onion. Obviously, the main outcome I was looking for was the method that would give me quick root growth. As we all know, teachers don't like to wait for nature; they like things sped up as much as possible. I also wanted to know which tips were best for seeing the mitotic phases.

It was no easy task and I had to question myself at many points, asking, "Why am I doing this?" But ultimately, I decided that if I wanted a foolproof, precise method that was going to work 100% for me every time, this was the only way I was going to get my answers. I wasn't disappointed. After weeks of data collection, my hard work paid off. All the questions I had were answered and there was nothing left to do but write up my findings so that I could refer to it if needed. I'm extremely happy with the outcome and so are my teachers, which is always a good thing.

I hope this helps others out, or at least cuts out some of those annoying questions you've always had in regards to this practical.



## Tips

- Do not use Woolworths garlic as it does not grow any roots at all.
- Root tip growth does depend on the condition of the garlic tips when they are bought from the shops. Look for garlic root tips that are not damaged.
- Do not cut/slice the bottoms off the garlic.
- Use organic garlic if possible, or a mixture of organic garlic and French onion shallots for growing.
- Use distilled water only.
- My preference is to grow the garlic on a bench under light, and unpeeled. However, it doesn't really matter if they are peeled/not peeled or grown in light or dark.
- 10-14 days is the ideal growth/harvest range.
- Water changes are necessary so that the water doesn't get smelly.



Image: 'Experimental Set Up', taken by Keliagh Packer

## Method

1. Purchase organic garlic or a mixture of organic garlic and French onion shallots.
2. Using small clear plastic cups (easy for disposal), set up as per photo above. Remember to only use distilled water – just enough so that the root tips of the garlic are submerged in water. You don't have to peel the garlic and it can be placed on the bench under LED light.
3. Top up the water every so often, when roots are no longer submerged.
4. You will also have to do a full water change every time the water in the cup starts to become cloudy/smelly. Root tips generally take 10-14 days for harvest.
5. When ready to harvest, students are referred to the following video for preparation of the root tips for viewing under a microscope: <https://www.youtube.com/watch?v=RYxVaNyaQi>



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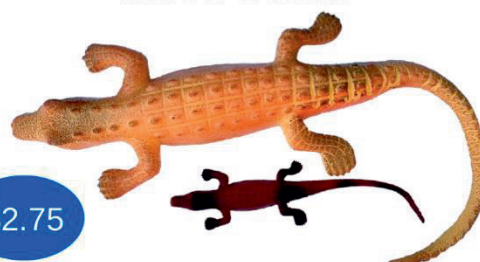
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# Launching a High-Altitude Weather Balloon

Valmai Hicks

Science Laboratory Technician  
Mount Lilydale Mercy College

Mount Lilydale Mercy College, with sponsorship from Catholic Education Melbourne, took part in the High-Altitude Balloon (HAB) Project, inspired by this year's Science week theme "*Destination Moon*". A team of 8 students, 2 teachers and I worked together during lunchtimes for 5 months to plan the launch of an unmanned weather balloon. Depending on weather conditions, we were expecting it to gain an altitude of between 24,000 and 32,000 metres and collect a range of data such as temperature and carbon dioxide levels and photograph the curvature of the Earth.



Image: Contents of our payload.

An enormous amount of planning and organisation was undertaken, particularly by our Physics teacher, John, who had to source the original tracking device from the USA, purchase weather balloons from the UK, and undertake the training to get his radio licence. My main task was to source the supply of helium



Image: Ready to attach to the balloon

and to create a device to safely and securely inflate the 1kg balloon. Supagas were incredibly helpful, even lending us a trolley for a couple of months and creating the hosing connection to the inflator that we made from PVC piping.



Image: Inflation took a while and required 4-5 people to support the balloon

The original launch date was set for August 10th. Prior to the launch, we had to seek the approval of CASA and liaise with Catholic Education as to the timing of the event. The students tested all of the equipment and held a trial loading of the payload. This was when we discovered that the APRS tracker, shipped in from America, had arrived faulty! The weather was also against us and we had to reschedule to Term 4.

We received some help from a HAM radio operator, Andy Nguyen, who built us a UHF tracking device as a backup. As well as hardware setbacks, we experienced many weather setbacks and too much wind. Using the HAB Hub tracker app, which is used for all High-Altitude Balloon projects, we could predict the potential landing location. On certain days it had us landing in a wind farm, the centre of Ballarat, the freeway near Geelong, or in Port Phillip Bay!

Finally, on October 24th, we were able to launch our balloon at 8.20am from the Lake Bolac football oval. The wind strength was

Flight Details	
Launch Location	Lake Bolac Lat: -37.7192 Long:142.8426
Launch Date	17th October 2019
Launch Time	8:20 am
Balloon type	Hwoyee 1 kg Latex
Payload mass	1.7 kg
Neck lift	3.511 kg
Helium volume	4.39 m3
<b>Altitude</b> Predicted: Actual:	28354 m 28013 m
<b>Landing site</b> Predicted: Actual:	Lat: -37.6281 Lon: 144.018 Lat: -37.702611 Lon: 143.798806  Payload landed within 20km of predicted location
Predicted Range	103.9 km
Predicted Duration	2 hr 11 min



Image: Lift off!

a critical factor in timing our launch and earlier was better (we were originally going to launch at 9.30am). With just over 4 cubic metres of helium gas, we achieved the required neck lift and the balloon would expand from approximately 2 metres diameter to around 8 metres before bursting. We just had to hope that the parachute

would deploy on the descent.

Using the HAB Hub tracker app, we were able to estimate the distance travelled and approximately where it was going to land. The co-ordinates proved to be very accurate on the day of launch

Item	Description
Byonics APRS tracker	<ul style="list-style-type: none"> <li>• A commercial VHF radio transmitter with onboard GPS chip.</li> <li>• The GPS measured data values like latitude and longitude, speed and altitude. The radio then transmitted this data on a frequency of 145.175 MHz.</li> <li>• Signal was picked up by receiving stations that uploaded the GPS data to the Internet.</li> <li>• Allowed us to follow the path of the balloon using the aprs.fi website.</li> </ul>
Spot GPS tracker	<ul style="list-style-type: none"> <li>• Commercial device which has an onboard GPS chip.</li> <li>• The chip determined the GPS location and sent the data location to communication satellites.</li> <li>• Communication satellites passed this information to specific satellite antennae around the world.</li> <li>• An app on our mobile phones was then able to display the data in real time.</li> </ul>
Custom made UHF transmitter	<ul style="list-style-type: none"> <li>• Performed a similar function to the APRS radio, but this was built by Andy Nguyen.</li> <li>• The signal was transmitted and picked up by a mounted antenna on the chase vehicle.</li> <li>• Signal was fed into a software program on a laptop operated by a student.</li> <li>• The software decoded the signal and uploaded the balloon's location data to the internet via a mobile phone.</li> <li>• Allowed us to follow the path of the balloon using the tracker.habhub.org website.</li> </ul>
Raspberry Pi with Sense Hat and Camera module attached	<ul style="list-style-type: none"> <li>• The Raspberry Pi is a credit card sized computer costing about \$50.</li> <li>• It was powered by a bank of 6 AA batteries.</li> <li>• The Sense Hat is a piece of hardware that contains a range of sensors including temperature, pressure and humidity.</li> <li>• The camera module is another piece of hardware that was attached to the Pi.</li> <li>• A student wrote Python code to run on the Pi to record still and moving images, as well as sensor data from the Sense Hat as the balloon rose through the atmosphere, and to save them to a SD card.</li> </ul>



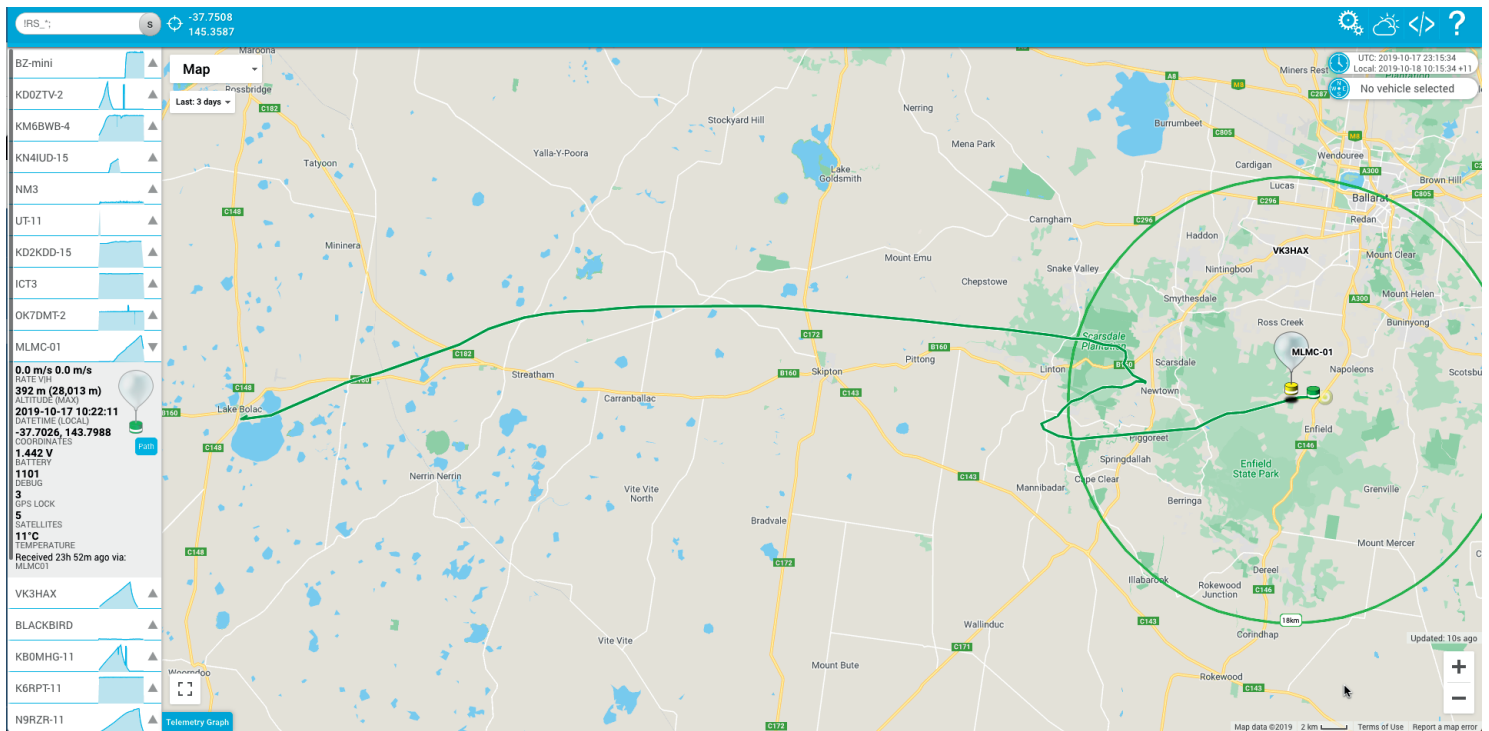


Image: Created using HAB Hub Tracker



Image: Retrieval from the sheep paddock

and we were able to recover our payload in the middle of a sheep paddock, essentially undamaged. It was very exciting chasing it across the country, with updates every minute as to its altitude and velocity. The farmer was in his woolshed and a little surprised to have a group of 12 knocking on his door, seeking permission to retrieve a balloon!

Whilst the launch and recovery process went extremely well, our data collection was a bit limited due to sensor placement and batteries that dislodged on takeoff, preventing some of the data being collected. With some improvements to the design of our payload, we hope to launch again next year with a better result.

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Professor Gordon Sanson, Monash University



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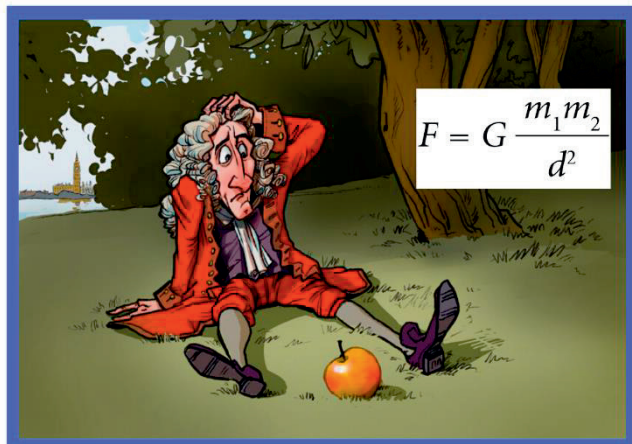
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# Science Demonstrations that Teach

## No 2 Gravity rules

Carl Ahlers Prof Bunsen Science



Gravity is the basic pull force that exists between **any two objects** in the universe. (Object = something with mass). Yes, it exists between you and the chair and even the person next to you! But hey, I am not 'attracted' to this person or chair? Yes, you are, in a physical way, but you do not experience the force. The gravitational force between you and the chair is negligibly small compared to the force between you and the Earth. The biggest contributor being the Earth's mass. This can be calculated from Isaac Newton's Law of Universal Gravitation - in the white block on the left.

In this simple, but oh so effective demonstration, gravity will pull a long string of beads towards the centre of the Earth. Gravity is always "on" but is initially balanced by the upward force of the beaker, so no motion. However, when the beads bypass the beaker, an **unbalanced force** is established between Earth and beads. The string now moves towards the Earth and demonstrates some inertial tendency by first moving upwards, past the rim of the beaker, and then, downwards. The beads seem to be suspended in air above the beaker. The motion is assisted by very low frictional forces on the beads as well as the momentum of the beads.

### Required

Party necklaces made of plastic beads or Christmas tree beads. Should make up 10m +  
Large plastic beaker or glass of 500mL plus  
Scissors and super glue or a bunsen flame



### Preparation

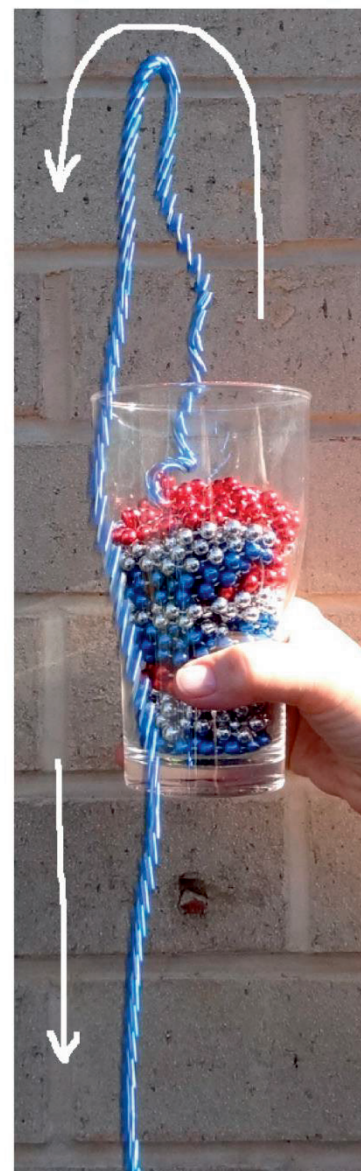
1. A long string of beads (~10m) is prepared by interconnecting a number of shorter strings. Cut the necklace so the loop becomes a short string.
2. Carefully heat two end beads on two separate strings in a small flame and melt the two string ends together. Connect all the strings into one long string.  
Tip: Wet your fingers or wear gloves or alternatively use super glue.
3. Important: Feed the long string into the beaker from one end of the string, layer by layer, to minimise frictional forces.

### Action

Check that the worktop below is open and that the beads can flow to a lower level. Lift the beaker as high as possible and then lift the end of the string over the beaker's rim. You can even create a "staircase" with small tables or objects and mimic a walking slinky spring.

### Safety

- Careful with hot flames during preparation
- Do not stand on a table or chair to lift the beaker



View the demonstration video under Snippets at [www.profbunsen.com.au](http://www.profbunsen.com.au)



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The [Envirostore.com.au](http://Envirostore.com.au) web site has a special “For Schools” section where you will find some handy downloadable materials addressing spills, banned chemicals, the GHS and more and you can enter details of your chemical waste on line for a disposal quote. Michael Pola’s Labcon and STAV presentations for 2018 are also available

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# Welcome to the Wonderful World of Waste

## and the School Laboratory

### Part VII

Michael Pola

Envirostore Chemical Consulting

mike@envirostore.com.au

This quarters' article will mention a few of our favourite chemicals, as well as gas cylinders, which will lead us into types of fire extinguishers.

What makes a chemical a favourite? A number of things. Can it be reused or recycled? These are not the same thing; reuse is for immediate use as is, recycle may require repacking, filtering or some other clean-up step. Is it a non-dangerous good or non-hazardous substance? Again, these are not the same thing. Dangerous goods represent an immediate danger, ie. explosive, toxic, flammable, etc., while 'hazardous' is a term used in the GHS system of classifying chemical substances for potential harm when being exposed to them during use. Dangerous goods present an immediate danger and are an acute and immediate hazard. Hazardous substances usually present a chronic hazard over a period of time, not necessarily immediate. There is plenty of overlap between the two systems, but keep in mind that the dangerous goods classification (with coloured diamonds, UN numbers, segregation and storage rules) is primarily for transport and storage. Hazardous substance classification applies when you wish to actually use them, such as weighing it out, dissolving, mixing, etc. The much-maligned Safety Data Sheet (SDS) is supposed to tell potential users whether a substance is hazardous and why, according to the criteria of Safe Work Australia. It should also contain any dangerous goods information, usually under the transport section of the SDS.

So, a laboratory chemical is neither a dangerous good nor a hazardous substance and can be reused, so it is an immediate favourite. Examples would be sodium carbonate anhydrous (soda ash) which you can use to deodorise your acids cabinet and fridge and use as an acid neutraliser. Sodium bicarbonate has the same potential uses. Citric acid is good to neutralise ammonia solutions. Kieselguhr or Fuller's earth is a good absorbent. Alumina or aluminium hydroxide are excellent inert powders to dilute solid metal powders such as aluminium powder or zinc powder. It is the same with magnesium oxide, although it is a bit light. Ammonium sulphate is good for the lawn too, as is urea. We never throw any of these chemicals away and suggest that you hang onto them in your lab too.

Some dangerous goods can be favourites, such as those that can be used as plant fertilisers – calcium, ammonium and potassium nitrate, for example. Silver nitrate will always be recovered for silver, as will any precious metal salt or solution

Lead, tin, nickel, zinc granules (not the dust) and copper are always recycled. Not so with sodium, potassium, calcium, barium or strontium as elements. We have never had any request or cause to recycle or reuse any of these dodgy alkaline earth metals.

Gas cylinders are dangerous goods class 2 and are fairly rare in the school laboratory these days. The quality that makes them dangerous is the very high pressure of gas in a cylinder. The pressure in a typical car tyre is around 30 pounds per square inch (psi). A cylinder of compressed air may be as high as 30,000 psi. That's a lot of energy stored in a cylinder. Don't forget that BBQ gas bottles are under high pressure as well as being a flammable gas. If you intend on using a gas cylinder in the school laboratory, you must address storage and handling, even if it is just a small gas cylinder of LPG for a Bunsen burner.

This brings us to fire extinguishers. You should be familiar with the colour coding system of fire extinguishers. They are all red with various coloured stripes. A blue stripe indicates that it is a foam extinguisher, white is a dry powder, black is carbon dioxide and no stripe is plain, low pressure water. They all have specific uses but I won't go into these here. Suffice to say, the best all-rounder is probably the dry powder extinguisher. The carbon dioxide extinguisher is an actual gas cylinder with CO<sub>2</sub> under high pressure. You will only get about 20 seconds of gas from a CO<sub>2</sub> extinguisher but, as it comes out under pressure, it is sufficient to extinguish most fires. Solid CO<sub>2</sub> (ie. dry ice) holds a temperature around -40°C, so you don't want to spray any exposed skin with a CO<sub>2</sub> extinguisher. The other cylinders are just above normal air pressure and so present no freezing hazards.

It is also incumbent to have your fire extinguishers serviced regularly, usually every 6 months. The last thing you want is to reach for your extinguisher to put out a small fire at school and nothing happens because the extinguisher has expired. *Très embarrassment!*

An update on the EPA electronic transport certificates. These have been required for every disposer since 1 July this year and most schools have managed to work them out. We will help you do the certificate when we are collecting your chemicals, but the school must register on the EPA portal. Most of the problems with the certificates is that the computer you use to log on must have Microsoft Internet Explorer and at least Acrobat version 7 or better. These are not commonly used, but the entire thing won't work with other browsers. We are hoping EPA will visit the 21st century soon and recognise that not many people actually use Internet Explorer. Anyone heard of Apple? As a last resort, we can produce an accredited agent certificate for you if you have genuine trouble completing a transport certificate, but we encourage you to get registered. It won't hurt and you should talk to your colleagues at other schools. We are trying to have an online demonstration to show at the upcoming LABCON in November, but our preferred laptop which holds the presentations is an Apple.

# A Week in the Life of a Lab Tech

Suzanne Thornley

Laboratory Technician

Mentone Girls' Secondary College

This week is the last week of VCE exams and internal exams for Years 9, 10 and 11. Next week we start our transition into the 2020 program, Headstart (2 weeks for middle and senior schools and three weeks for the new Year 8 classes).

Our Headstart program is fairly prac heavy. We do Cells for Year 8, Forensics for Year 7 and Cosmetic Chemistry for Year 10. VCE subjects (Chemistry, Biology, Physics and Environmental Science) start their Unit 1 courses.

As most of the labs will be free at some stage during the week, I have allocated time to sorting, cleaning and auditing the equipment in our junior and VCE labs.

Monday consists of working in the two junior labs. Our students are great, but for some strange reason, they seem to have a kind of brain freeze when it comes to returning individual pieces of equipment to their respective drawers and cupboards. Several drawers have six measuring cylinders, four funnels but no test tube holders; how does that make sense? The sinks in our labs are a constant worry for me, especially when we have been making slime or using marble chips. Today, I have decided to give them a thorough clean with Gumption and bleach. Paper towels and matches are refilled, ready for next week.

This year we are holding a three-day design thinking project for the Year 9 cohort (191 students to date). This is the first year we've held such an exercise and it has involved much planning and negotiation. My job has been to source large amounts of construction card, corrugated card, wristbands, masking tape, etc. I spent much of Tuesday writing lists and phoning suppliers to see if they could deliver on time.

The Physics lab also had a makeover today. Our Physics classes are small, so they tend to look after themselves, but there are always pieces of equipment to put away and repair. Today I fixed the mirrors on the ripple tanks, polished the concave/convex lenses and checked the light boxes that the Year 8 classes have just finished with.

On Wednesday morning, I spent a few hours in our portable lab, cleaning, checking, tidying and taking our box of forensics equipment to my prep room.

In the afternoon I went to Waverley Christian College to a PD hosted by Deborah Sun and Leonie Leishman. Theresa from Southern Biological presented a workshop on Chlorella algal balls.

It was a good afternoon and lovely to meet techies from another



region. Now, I have to get my head around growing enough algae for our Biology classes next year, eek!

Thursday, I spent preparing the trolleys for Year 8 Cells and Year 9 Forensics topics. I had a meeting after school with various members of staff and the architects for our new STEAM building that is starting next year. We will have another Science lab, making seven in total and another set of sinks to worry about!!

Friday was a repeat of Thursday, setting up our trolleys for the Year 10 Cosmetic Chemistry unit. This is such a great topic, the girls love making the preparations and we have dedicated glassware, containers and cosmetic-grade chemicals so that they can take their goodies home. I always have to try out the recipes each year and I can attest that the hand cream and lip balm are amazing! We are hoping to encourage our students to pursue chemistry at VCE level by showing them some of the real-life applications of chemistry.



It has been a busy week, but one that I enjoy. I think most of us like having our lists made and our labs sorted, ready for next year. Of course, I still have a list of things to do (chemical waste, I'm thinking of you), but it's LABCON next week, meaning a couple of restful days learning new skills, meeting new people and eating a delicious lunch that you haven't had to prepare!



# Professional Development

## Around Victoria

If you would like to find out more about upcoming LTAV Professional Development opportunities in your region, please contact your Regional Representative (contact details p.33). If you are unsure which region you are part of, check your LTAV membership receipt, or contact one of our Regional Liaison Officers (contact details p.34).

### Eastern/Maroondah Regional Meeting

September 2019

Report by Simone Martyn, Bayswater Secondary College,  
Eastern/Maroondah Regional Representative

On Thursday 5<sup>th</sup> September, 18 Lab Techs descended on Science Supply Australia (SSA) for a STEM PD, networking and a tour through the SSA warehouse.

Science Supply Australia is in Mitcham and so is within our Eastern/Maroondah Region. Daniela from SSA offered their boardroom for our Term 3 PD. On arrival we received such a warm welcome and we also met Daniela's dad, John, the managing director who set up Science Supply. Daniela gave us a brief rundown of the business.

We had Chad from iworld demonstrate the 3 STEM products we got to "play with".

First up we had Circuit Scribe where you draw your own circuit with a silver conductive ink pen. It's like drawing wires between electronic components. You place paper over a steel sheet and draw a circuit and place the modules like a light module into your circuit and watch it light up.

Next, we were introduced to Ozobot which blends the physical and digital worlds and teaches students coding and programming. I had soooo much fun with this one!



There are coloured codes that you draw on a piece of paper (connected by black lines which you also draw) that tell your Ozobot what to do, such as speed up, zigzag or spin, as it travels along the path. I could have spent much longer drawing a longer path and putting in more coloured coding for my Ozobot to follow!!

Lastly, we discovered the Merge Holographic Cube. This is an augmented reality STEM tool. You hold the cube in your hand behind a phone or iPad and you can see things like the solar system or a beating heart in 3D held in your hand. It's holding a

virtual object right in your very own hand. As you turn the cube you see more of the virtual object. When you tap on the screen you can go 'deeper' into the object, ie. seeing the blood vessels in the heart or zooming in on one of the planets of the solar system. You have to experience it to believe it!!!! One lucky member of our group, Wendy Oh, from Oxley Christian College, won a Merge Cube. She found her prize tag under her seat. Thanks to SSA and iworld.



Image: Simon Berryman won SSA's Year of the Periodic Table T-shirt Competition! Photo provided by SSA.

This year Science Supply Australia held a competition to design a t-shirt to celebrate the Year of the Periodic Table. The winner was announced at our PD as it was Simon Berryman from our region. Simon innovated a very awesome design. Congratulations Simon!!!

We had an amazing, scrumptious afternoon tea provided by Science Supply Australia including homemade scones with jam and cream, muffins, berries, a chocolate platter and slice platter. So spoilt! As if that wasn't enough, we also received a disposable cup with the periodic table on it containing mini choc bars and a Periodic Table lanyard.

A fun, educational and beneficial afternoon was had by all! Happy and smiling Lab Techs left Science Supply after a special behind-the-scenes tour of the warehouse where quite a few of us ended up buying items we saw there that we could do with.

Thanks so much to Daniela and Science Supply Australia for hosting us, and Chad from iworld for the demonstrations and hands-on opportunity and giving us an enjoyable and worthwhile PD experience.

If any other regions would like to either go to SSA for a PD or have them visit you in country regions, please contact your regional liaison officer or Daniela directly.

### Dandenong Regional Meeting

November 2019

Report by Leonie Leishman, Cranbourne East Secondary College, Dandenong Regional Representative

On Wednesday 20<sup>th</sup> November, 15 Lab Technicians assembled at Waverley Christian College for a PD hosted and organised by

Deborah Sun and Leonie Leishman from the Dandenong Region. This PD was open to everybody and we had a wide range of technicians from other regions. It was so good to network and share experiences and information, and to put names to faces of techs that are active on the list-serv.

We started in the staffroom with introductions and welcomes along with some sumptuous sandwiches, cake and fruit. We then

moved to the 2nd-floor laboratory for instruction and a look at the wonderful facilities at the College.

We ran as the 'crash test dummies' for Theresa from Southern Biological as she presented the new kits developed for school use. We all learnt the intricacies of how to make chlorella algal balls for testing and followed the instructions provided. The kit had pre-prepared sodium alginate solution to which we added the chlorella, then mixed well and put into a plastic syringe that we then dripped into calcium chloride solution to form small green balls.

Then we all had a chat, and checked each other's work while we waited for the magic to happen... 10 minutes to make beautiful little green balls, formed as they dripped into the calcium chloride solution, then they were ready to be rinsed and transferred into the indicator solution. We carefully counted the little green balls into bottles of sodium bicarbonate solution with pH indicator to



measure the rate of photosynthesis.

These were then placed into different environments – direct light, partial light and dark. The rate of photosynthesis was measured by the rate of colour change

More discussions followed, while we talked through how this would work in a classroom with the down-time and students waiting, and what activities they could do while waiting for some of the steps to happen.

Find attached the link to the Southern Biological website and the algal ball kit

<https://www.southernbiological.com/biology/specimens/living-specimens/algae/1-60-algal-photosynthesis-kit/>

Good fun was had by all.



## Wimmera/Horsham Regional Meeting

October 2019

Report by Jodie Pignataro, Horsham College,  
Wimmera/Horsham Regional Representative

The annual Wimmera Lab Tech PD was held this year on Tuesday 22nd October at Nhill.

We had 10 Lab Techs from 10 different schools attend.

We were a little bit late starting the day as there was a Shelter in Place drill that we took part in. This just extended our morning tea a little bit. Once the drill was over, we all got down to business and discussed OHS issues including Welfare and Wellbeing. This is



very important as we are all solo lab Techs and can get quite isolated. It was good to talk to others that are facing the same issues.

We also discussed equipment servicing, Chemical Management, RiskAssess and LTAV membership. Then it was time for lunch.

After lunch, Russell Grace from Westlab did a presentation and showed us some equipment that is available.

Overall it was a very successful day. I would like to thank Carol Case-Hassall for hosting us at her school and doing a brilliant job organising students to cater for us. I would also like to thank Russell for his presentation.





# 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](http://www.ltav.org.au) and click 'Join the LTAV List'.

## Some end-of-year tips from the LTAV list-serv.

**Sender:** Fera Luciwati

**Subject:** 'What else should I do?'

I am just finding Term 4 very easy and relaxing. I just want to double check that I have not missed doing anything major to prepare for next year.

I have done the following:

1. Updating SDSs for all chemicals
2. Chemical stock-take
3. Budget proposal
4. Equipment stock-take
5. Cleaning equipment (autoclave, incubator, etc.), calibrating equipment, fixing & checking equipment
6. Non-hazardous substances stock-take (eg. sugar, cooking salt, Milo, etc.)
7. Drafting purchases for next term (when to order what)
8. Cleaning the labs, lab coats
9. Waste disposal
10. Drafting equipment service for next year (when to service what)

Is there anything else that I need to do? Have I missed anything?

Sorry, this is my first year as a lab tech and I need some guidance.

Thank you everyone.

**Sender:** Mary L. Jones

**Subject:** RE: What else should I do?

Great list, Fera. I might ask, do you have a routine set-up for checking your batteries on equipment? It is good to determine how often you will test the batteries as some equipment is used less often and might have the batteries die before the next use. Example: Lux meters = get used one term by physics and one week by biology. I check them every term to see if they are still working. Worst thing is when something has sat for ages and you go to use it and find that not only is the battery dead, but it has started corroding. Lesson that I learned a long time ago at home, and ever since then, is to keep a list and check my batteries at home and work.

**Sender:** Amanda Gluyas

**Subject:** RE: What else should I do?

Maintenance check: furniture/blinds/etc.

IT check: cables

First aid boxes, etc.

Make up basic solutions: refill class sets

**Sender:** Samantha Gunning

**Subject:** RE: What else should I do?

Servicing, checking and cleaning the Bunsen burners. I love a Bunsen burner day :)

## 10 of the Best

1. What was the name of the ship used by Charles Darwin as he came up with the theory of evolution?
2. What is the largest moon of Saturn called?
3. What is the name of the light sensitive panel of cells at the rear of the eye?
4. Percy Spencer invented which time-saving kitchen appliance?
5. What colour fur does the Arctic Fox have: white or brown?
6. True or False? Argon is a noble gas.
7. What is the name of the instrument that measures relative humidity of air?
8. The shape of our universe is circular, elliptical or spiral?
9. A 'flutter' is the collective noun for which creature?
10. Which of the following has the highest pH value? Lime juice, Wine, Water or Caustic Soda?

(Answers page 30)

# Brain Break

I have to stop making mitosis jokes; ...

Unscramble each set of letters below to make words relating to cell division. Rearrange the shaded letters to finish the sentence.

S I N I S O F

M O N G E E

S H A P E

L E C C Y

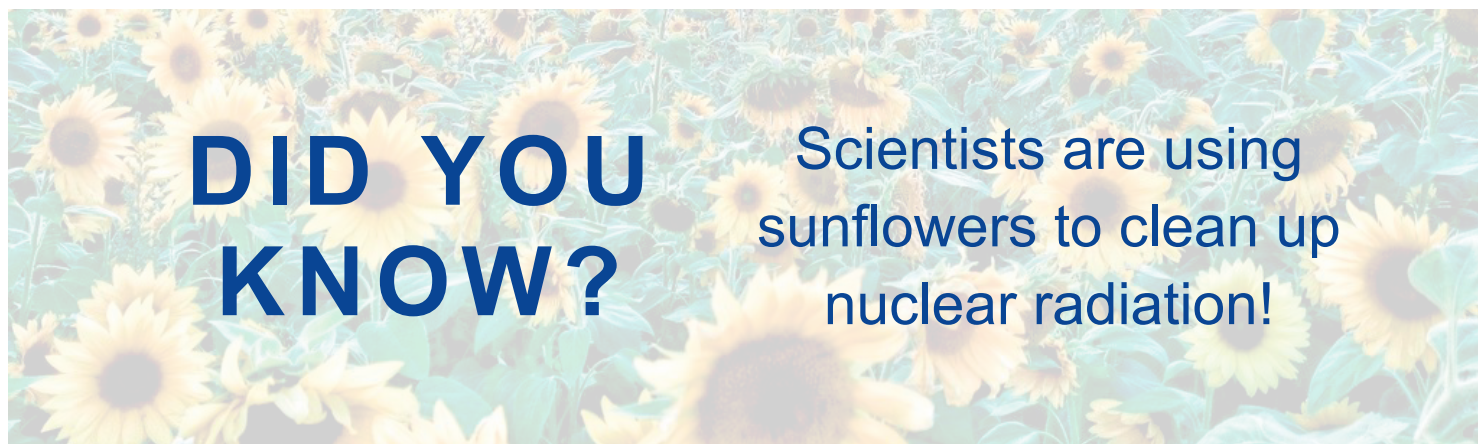
I D I V E D

L E V A C E

R E S I S T

*'There is nothing more wonderful than being a scientist, nowhere I would rather be than in my lab, staining up my clothes and getting paid to play.'*

— Marie Curie



## 10 of the Best Answers

- 1 The Beagle
- 2 Titan
- 3 Retina
- 4 Microwave
- 5 Both! It changes seasonally
- 6 True
- 7 Hygrometer
- 8 Spiral
- 9 Butterfly
- 10 Caustic Soda





# LTAV

## Laboratory Technicians' Association of Victoria

By Lab Technicians for Lab Technicians  
S3/159 Burwood Road  
Suite 150  
Hawthorn VIC 3122  
www.ltav.org.au

## LTAV PUBLICATIONS 2019

The following laboratory reference manuals and/or CD are available from LTAV:

- **BIOLOGY REFERENCE MANUAL, 2013:** \$25.00 for CD and black and white hard copy combination.  
This REVISED handbook contains information on biological techniques, reagents, stains and culture media commonly used in secondary schools. Dale Carroll, Ritva Fazio, Sarah Daniele and Wendy Hurle have updated the earlier version by Dale Carroll, Ritva Fazio, Jeannene Bradbury and Marg Rubans of the original authors of: Jenny Kopsidas, Rita Poole, Jean Stokes and Maya Wagner.
- **PHYSICS REFERENCE MANUAL, 2013:** \$25 for CD and black and white hard copy combination.  
Svetlana Machouba has made many updates to the earlier version by Sabino Del Balso and Valerie Clements.
- **CHEMISTRY: A REFERENCE MANUAL FOR LABORATORY TECHNICIANS, 2008:** \$27.50 by Geoff Gleadall, Dip.App.Sci. A comprehensive guide for the beginning and experienced Laboratory Technician in all aspects of the chemistry laboratory.
- **LABORATORY MANAGEMENT DATABASES CD, Version 2, 2009** \$33 by Geoff Gleadall, Dip.App.Sci.

### LTAV PUBLICATIONS TAX INVOICE & ORDER FORM

ABN 96 439 156 002

Name: \_\_\_\_\_

School: \_\_\_\_\_

Address: \_\_\_\_\_ Postcode: \_\_\_\_\_

Phone / Fax: \_\_\_\_\_ Email: \_\_\_\_\_

Publication	Price (each)	Quantity	Sub total
Biology Ref Manual 2013 CD + Hard copy	\$25		
Physics Ref Manual 2013 CD + Hard copy	\$25		
Laboratory Management Databases 2009 CD v2	\$33		
Chemistry a Ref Manual for Lab Technicians 2008	\$27.50		
Postage (\$4 per for each copy)	Number of units	x\$4	
Goods will not be posted until payment has been processed.			
Prices are inclusive of GST	TOTAL		

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Payment By Direct Deposit	Payment By Cheque
<b>Account name:</b> Laboratory Technicians' Association of Victoria <b>BSB:</b> 063 532 <b>Account No:</b> 1040 1068 <b>Bank:</b> Commonwealth Bank of Australia <b>Reference payment with Surname or School Name</b> <b>REF:</b> <b>Email remittance to Andy Baful or post with this form.</b> publications@ltav.org.au	<b>Payable to:</b> Laboratory Technicians' Association of Victoria  <b>Post with order form to:</b> LTAV Inc S3/159 Burwood Road, Suite 150 Hawthorn, Victoria 3122



# LTAV

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of Victoria

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## 2020 LTAV MEMBERSHIP TAX INVOICE

ABN: 96 439 156 002

**REGISTRATION** (first time members) / **DETAILS** (continuing members)  
(please circle one)

**New members to LTAV must complete an APPLICATION FORM as well (refer to website above)**

Technicians employed or formerly employed in educational institutions are eligible for membership of LTAV. Financial members receive Lablines, LABCON 2020 Registration Booklet plus discount and voting rights at the Annual General Meeting at LABCON.

Member name: \_\_\_\_\_

Name of School / Institution: \_\_\_\_\_

Postal address of School / Institution: \_\_\_\_\_

Suburb: \_\_\_\_\_ State: \_\_\_\_\_ Postcode: \_\_\_\_\_

Email address: \_\_\_\_\_

Phone number: \_\_\_\_\_

Position in organisation: \_\_\_\_\_ Temporary or permanent? (circle one)

If temporary please give details of term of employment: \_\_\_\_\_

Have you registered at more than one school / Organisation? Yes / No

If yes, please indicate where you would like your Lablines sent: \_\_\_\_\_

Region: \_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

PLEASE TICK THIS BOX if you are a new Laboratory Technician or Assistant in your 1<sup>st</sup> year of employment in education and LTAV will cover the cost of your Membership for this 1<sup>st</sup> year. ☐

**INDIVIDUAL MEMBERSHIP FEE – FULL YEAR** (1st Jan 2020 to 31<sup>st</sup> Dec 2020) \$44.00 ( includes GST ).

**Payment due by 30<sup>th</sup> April 2020**

**Send payment to:** Laboratory Technicians' Association of Victoria Inc  
S3/159 Burwood Road, Suite 150, Hawthorn, Victoria 3122

Please make Cheque or Money Order payable to: Laboratory Technicians Association of Victoria.

**This Membership Tax Invoice must be sent with payment.**

**Direct Banking details:** Commonwealth Bank of Australia

**BSB: 063 532 Account Number: 1040 1068**

**Reference payment with SURNAME AND SCHOOL NAME**

### OFFICE USE ONLY

Tax Receipt No:

Payment date:

Method:

If paying by Direct Credit the Remittance Advice must be posted or can be emailed to: membership@ltav.org.au Please ensure this Membership Form is posted or emailed at the same time. Please note that Memberships cannot be processed if paperwork is incomplete. Tax Receipts will be issued to confirm LTAV Membership.



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# Laboratory Technicians' Association of Victoria

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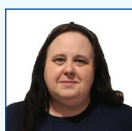
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Please feel free to contact any member of your committee with any queries or concerns.  
Members are always welcome at committee meetings. Contact any committee member for more information.

## LTAV Committee Meeting Dates 2019.

The Committee meets at CBC St Kilda, 11 Westbury Street, St Kilda East and  
St Michael's Grammar School, 25 Chapel Street, St Kilda.

The meetings usually go from 6:30– 9:30 p.m.

All members of LTAV are most welcome to attend. Please be in touch with the LTAV Secretary to confirm the location.

**19 February, 7 May, 23 July, 10 September, 22 October**