

Volume 40 Issue 3 | September 2020

Editor: Samantha Gunning



# 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





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Geoff Gleada
LTAV President

This has been a challenging year to say the least. Almost all of us are dealing with conditions that make our work difficult and some sadly find themselves with no work at all

Financially, this has been a difficult year as well. We have been looking at in increase in the membership fee even before the pandemic raised its distinctly unattractive head. The \$40 (plus GST) that we have had since incorporation is unfortunately now no

## **President's Report**

longer enough to cover our running costs and the production of LABLINES. So, as you can see from the Motion on Notice (pg. 5), we are proposing to increase it to \$50 per annum plus tax. This must be done at the AGM as the fee is part of our Rules and that is something that can only be decided by the membership base as a whole.

It is also sad that LABCON will not be held this year for obvious reasons, but rest assured it will be back bigger and better than before, just as soon as the situation allows.

Your committee has been working hard to maintain services to you all and I have to say it has not been easy. Meetings held by videoconference are slow and take much longer and since we are spread over a wide area it can be difficult.

If you are reading this, it means you are one of the loyal members who have remained financial this year. We thank you for that and urge you to speak to those who think the only reason to be a member is a lower fee for LABCON and who have not renewed this year, and remind them of what else we do for them.

I would like to personally thank the members of your committee for their ongoing dedication and hard work. Without them there would be no list server, there would be no LABLINES, and we, as a profession would no longer have a voice.



Samantha Gunning Lablines Editor

Hello all! Welcome to your September edition of Lablines. Can you believe that we are three quarters though 2020?! (And yeah...we're STILL in lockdown!)

I hope that this edition made its way to you in a timely manner. I apologise for the delays with June – there were a string of issues, combined with all-round production and postage delays (thanks COVID!), which caused its arrival to be a little late. I know also many of you have been working from home

### From the Editor

(open to interpretation!) and mightn't have been able to come to your workplace to pick up the hard copy. There were also a couple of typos, and pictures in the wrong places in the June edition which I apologise for also – ahh... can we just blame COVID and call it a year already?!

ANYWAY... I'd like to openly highlight that the position of editor for Lablines will be up for grabs for 2021. As you would know, all committee positions fall vacant at our AGM each year. I've enjoyed working on Lablines for 2020, and how many of YOU wonderful people I've been able to connect with in the process. It is a great way to connect with others in our community and perhaps you're looking for a new challenge, something to do

on your days off if you're part-time, or have an interest in growing your publishing skills. This is just a reminder that if you are interested in taking on the role, you can fill out a committee nomination form (you'd have received one with your June edition), or you can download one from Itav.org.au/about/committee/

Feel free to email me with any questions you may have regarding your interest in the role - I am more than happy to help guide you through any uncertainties. If you have the interest, we can make it work! Jess Boys was an amazing mentor and guide for me when I took on the role, and I hope to be the same for anyone else who might be interested for the year ahead!

## **2020 AGM**

Due to restrictions, we are going to have to carry out the 2020 LTAV AGM differently.

The most important aspects of this are of course the election of the committee as well as a motion on notice to alter our constitution to increase the annual membership fee.

The reasons for the fee increase are included with the motion which you can read below.

Nominations for the committee's elected positions must be in writing and proposed and seconded by two financial members of the Association and must be in the hands of the secretary no less than seven days before the AGM. I encourage anyone who has an interest in serving on the committee to nominate. The nomination form is available on the website but if you have problems with that and wish to nominate please contact us.

You may receive your seconder's signature by scanning your form and emailing it.

Voting is only available to financial members of LTAV (inc.)

This has been a difficult year for all of us and your patience in dealing with the unusual manner of this AGM is appreciated.

We are going to email the reports to each of you prior to the AGM, so please make sure that your email details with is are current.

Geoff Gleadall, President, LTAV

## **Motion on Notice**

#### A motion to amend the constitution of LTAV (inc)

Rationale:

The annual membership fee for the association was set at \$40 per annum at the time of our incorporation and has not been altered since then.

This amount was set to cover our operating costs and the cost of our newsletter LABLINES, however since then our costs have been steadily increasing and it is necessary to increase the fees.

This must be done by amending our constitution and so must be a motion on notice for the AGM, which this year because of restrictions caused by the COVID19 pandemic, will have to be carried out by electronic means and any vote taken by postal (email) vote.

The proposed increase is quite modest. The current fee is \$40 (+GST) and it is proposed to increase this to \$50 (plus GST) to represent a total payment of \$55.

#### The motion

It is proposed that the Rules of the Laboratory Technicians' Association of Victoria,

Schedule 4

Membership fees

Be amended to replace in Annual fee "\$40" with "\$50".

Proposed Kellee Ballard

Seconded Dale Carroll

## NOTICE

## JOIN THE LTAV COMMITTEE IN 2021!

Each year at the LTAV AGM, all committee positions fall vacant. If you would like to contribute to the LTAV community, then there is a committee position for you! Fill in your nomination form that was sent with June Lablines or, alternatively, one can be downloaded from the LTAV website. If you have any questions about committee positions, feel free to email any of your 2020 committee members (details on back cover page of Lablines).

#### KEY DATES 2020

Deadline for contributions to next Lablines (Dec)

| 13<sup>th</sup> November

Next LTAV Committee Meeting (AGM)

| 1st December

## THANK YOU! YOU ARE AWESOME!

"I would like to nominate every single Lab Tech as you are all awesome. Without every single one of you, science in schools would only be theory based and that is no way to encourage students to continue to study in a science-based field. Congratulations to you all and even if your school staff don't really appreciate you or know what you do, all other Lab Techs do!

Well done and keep up the amazing work!!!!"

Jodie Pignataro, Horsham College

"Huge thanks to Leonie Leishman for sharing her carefully collated data on Daphnia heart rates."

Janelle Gehling, Braemar College

Ever had a fellow 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 s.gunning@braemar.vic.edu.au

to be included in the next edition of Lablines.

## BOARD

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

#### WANTED URGENTLY

#### RELIEF LABORATORY TECHNICIANS

If you work part time or you know someone who has school laboratory experience and would like to earn some extra money...

Please contact Mary Jones

jones.mary.l@edumail.vic.gov.au

Your name will be added to the Laboratory Technician Relief list for the Melbourne Region. Laboratory Technicians that are available to work in Regional Victoria are also encouraged to make contact!

## REGIONAL REP

The following regional representative positions are currently vacant:

Regional Liaison Officer (Country regions)

Geelong Region Representative

Mornington Region Representative

If you are interested in filling any of these positions, please forward your interest to LTAV's Regional Liaison Officer Deborah Sun at sun.d@wsc.vic.edu.au

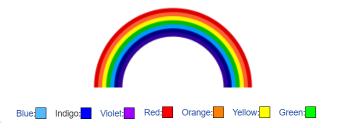
## Let's See the Rainbow

#### Man Lam, Mount Alexander College

Today is the last day of the science week. I would like to show you how to see the silver lining of a cloud and how to appreciate something you may miss in daily life.

Everyone knows what a rainbow looks like and you have already seen a lot of them. You may be able to recall that the seven colours of a rainbow are red, orange, yellow, green, blue, indigo and violet.

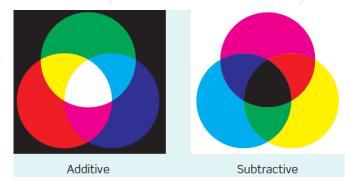
A rainbow is virtually a continuous full spectrum of visual light. The number of colours should be infinity. But why did Isaac Newton say sunlight is composed of only seven colours - not six, nine or a hundred colours? The answer is quite interesting. It was nothing, but seven was a holy number and it matched the number of musical notes. In the Bible, seven appeared many times, e.g. seven days a week. Newton divided the visible spectrum into seven equal parts and then named the colours. Newton admitted that he could distinguish six colours only - not indigo. He asked a friend to do it for him. In fact, the human eye & brain cannot distinguish indigo from blue and violet. That is why in our daily language, we hardly use "indigo" to describe a colour.



The way Newton named the colours was quite different from nowadays. The blue is more of a cyan or light blue and indigo as opposed to blue. Other cultures name the seven colours in different ways. For example, Chinese the named rainbow colours as red, orange, yellow green, seedling green, blue and violet.

While writing up this article, I suddenly solved one of the mysteries that puzzled me for years. The primary colours are red, green and blue. But arts teachers always teach us the primary colours are yellow, red and blue. Of course, we understand why they treat yellow as the primary colour rather than green, because they use subtraction rather than addition.

However, even if you use subtraction for the definition of primary colours, one still needs to have yellow, cyan and magenta as the primary colours - not blue and red. Note that red can be printed out by mixing yellow and magenta inks from an inkjet printer.



By definition, a primary colour is a colour that cannot be created by mixing of other colours. Therefore, red and blue are not primary colours for pigment printing. This misconception has been passed over and from generation to generation. It is so difficult to ask art teachers to tell their students that primary colours are magenta, cyan and yellow for pigment printing. My question was why they call blue and red as the primary colours in the first place. Now, it seems Isaac Newton was the original sinner.

Let's go back to the rainbow. There is another interesting fact about rainbow. Many people do not know that very often a seemingly faded secondary rainbow appears above the primary rainbow.

The colours' order of the secondary rainbow is always in reverse order. Why? Is it possible to have a tertiary rainbow? Perhaps, I'll leave it to you to do a Google search to find out more.

Last but not least, I would like to take this opportunity to rewrite the wise quote as, "there are always not only one, but two rainbows after a storm".

Keep safe. Together we will see the rainbows after this storm



Photo by James Wheeler from Pexels



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## Welcome to My New Lab!

#### Julie Galante, Warragul Regional College

After working in a very old lab at Warragul Regional College we finally moved into the new STEAM centre in April 2019. My work area is huge and I have ample windows that allow a lot of natural sunlight to shine into the laboratory. There is also a huge amount of storage space as well as a well-equipped chemical store room.



I actually find myself sitting with a cup of coffee pondering over the next chemistry prac staring out the window and not wanting to be anywhere else in the school as I love the environment the laboratory has to offer. I do find that a lot more staff of all faculties like to drop by and have a chat as they pass through to the STEAM centre.





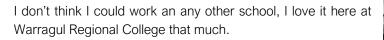






The photos do not do it justice. We are in the new STEAM centre along with 3 general purpose classrooms, and 2 cooking rooms and a big beautiful open area and year level office.









## Lab Tech

#### **LTAV Committee**

#### **Dale Carroll - National Networks Coordinator**

The School/Institution which you currently service:
Geelong College

Years at current workplace:

41

Years as a lab tech:

41

What qualifications/degrees do you have?

Diploma, Gordon TAFE Geelong

Is there a particular discipline of science that you take interest in or have expertise in?

**Biology** 

How did you come to be a lab tech?

Applied for position for interview experience after 1st year Uni.

What did you do before you were a lab tech?

Student

What's your favourite thing about being a lab tech?

Variety of requirements, always something new to work on.

If you could give your younger, brand-new-just-starting-out lab tech self some advice, what would it be?

Take all opportunities available to expand knowledge.

If you weren't a lab tech right now, what would you be doing Possibly a tradie!

What does 'life outside the lab' look like for you? E.g. Family, hobbies, pets!

Cricket and football umpiring, ten pin bowling, in charge of basketball at College.



#### Jodie Pignataro – General Committee

The School/Institution which you currently service: Horsham College

Years at current workplace:

10

Years as a lab tech:

24 years (9yrs off to have kids)

What qualifications/degrees do you have?

None, I only have on the job experience. I upskill with PD whenever possible.

Is there a particular discipline of science that you take interest in or have expertise

I enjoy all types of science but Physics would be my weakest and of course all 3 of my sons like physics, 2 doing it at VCE. At least I can ring them when I have any problems. I also prefer physics teachers supply pictures when requesting equipment, yes I am that terrible!

How did you come to be a lab tech?

Started in Agricultural research in wheat breeding and ended up working with GMO research with barley. We were working out the best way to insert DNA from salmon testes into barley. Why you ask, well we were working on a delivery system and because it was really easy to check if it worked as you could test with a colour change.

What did you do before you were a lab tech?

Went straight from year 12 to Dept, of Agriculture. (Had 9 years off to have kids between Dept of Ag and Horsham College).

What's your favourite thing about being a lab tech?

The diversity of jobs to do. Working with terrific science teachers. At the moment my least favourite thing is dealing with the mice in the labs. Just had yet another one run through under my desk. I believe they are plotting a takeover!

If you could give your younger, brand-new-just-starting-out lab tech self some advice, what would it be?

Learn to say no! Don't take on extra one-off jobs because they will turn into a permanent part of your job. Try to keep up with the cleaning/washing up. Wear good supportive shoes!

If you weren't a lab tech right now, what would you be doing?

Not sure, something in science as I have always been a bit of a nerd. I am a bit of an animal nut so maybe a veterinary nurse.

What does 'life outside the lab' look like for you? E.g. Family, hobbies, pets! I am married and have 3 sons aged 24, 21 and just turned 18. I enjoy reading, cooking, gardening (but I'm not very good) and hiking/gentle rock climbing when my knees decide it's a good day. I live on 15acres about 25km from town. We have 2 cats, (Feral and Mittens), a red heeler, (Sabrina), a snoodle puppy, (Matilda), chooks and sheep. No horses at the moment but I would love to get back into them.



## **Get-to-Know-Me!**

#### **LTAV Members**

#### Dale Green - Assumption College Kilmore

Years at current workplace:

13.5

Years as a lab tech:

Started in 1988 had 6 years off for children. So approx. 26 years.

What qualifications/degrees do you have?

Associate Diploma of Applied Science

Is there a particular discipline of science that you take interest in or have expertise in?

Biology and Chemistry

How did you come to be a lab tech?

I was unemployed. My Uncle asked me if I thought I could be a lab tech in as school I said why not and as you say the rest is history.

What did you do before you were a lab tech?

Was a research assistant at the Howard Florey Institute of Experimental Medicine and Physiology until I resigned.

What's your favourite thing about being a lab tech?

Nothing is always the same. Teachers and Students

If you could give your younger, brand-new-just-starting-out lab tech self some advice, what would it be?

Ask for help if you don't know something. Don't be afraid there is no silly question. I was lucky to have a great mentor in the Chem Teacher at my first school. We are now luck to have the Lab List

If you weren't a lab tech right now, what would you be doing? Travelling & reading.

What does 'life outside the lab' look like for you? E.g. Family, hobbies, pets!

Family, dog shows and travelling.



"Me at work waiting for the students to return. Taken last week."

#### Fera Luciawati - Pakenham Secondary College

Years at current workplace:

1.5 years

Years as a lab tech:

3.5 years

What qualifications/degrees do you have?

MTeach (Secondary) and MSc (Green Chemistry)

Is there a particular discipline of science that you take interest in or have expertise in?

Chemistry

How did you come to be a lab tech?

I wanted to take a break from teaching while at the same time not getting disconnected from the education world.

What did you do before you were a lab tech?

Teaching Chemistry at Monash College, Monash University (tutor), and some secondary schools.

What's your favourite thing about being a lab tech?

I don't have to spend my weekend marking students' work and preparing for lessons. Haha. Joking. It's fun to be able to trial out new practical activities.

If you could give your younger, brand-new-just-starting-out lab tech self some advice, what would it be?

Don't let others underestimate your role because what you're doing is crucial to Science education.

If you weren't a lab tech right now, what would you be doing?

Teaching / tutoring Chemistry at Monash University and Monash College.

What does 'life outside the lab' look like for you? E.g. Family, hobbies, pets!

Spending time with and taking photos of my yellow Labrador who is an Instagram influencer (@joey\_thelabrador).





## **PRINCIPLES and PRACTICE**

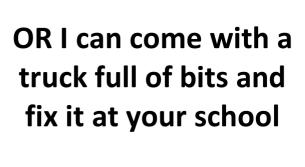
YOU KNOW THAT I REPAIR ALL YOUR GEAR BUT YOU ASK, HOW CAN I GET IT TO YOU?



You can send it



You can bring it





Contact me to find out the details.

Email: harvey@principlespractice.com.au, Phone: 0459 768 392

## The Drying Rack Hack!

#### Paula Caradoc-Davies, Presbyterian Ladies' College

I started work at PLC just over a year ago. They had recently renovated the labs but the drying rack replacements were not very practical. Apart from the fact that they didn't hold large objects very well, they had very little drying space for small things, like micro test-tubes.

I found these plate holders at Ikea and they are perfect for that job. I think I have 5 or 6 "Rinning" (\$3.99 each) now and they make a huge difference. I Love them! I mostly use them for micro test-tubes and the smaller measuring cylinders, but they are great for petri dishes too.

I hope someone finds these useful!

On another topic, while the schools are closed, the lab techs here have been re-deployed to supervise students attending school in the Junior School for 50% of our time. I have been working with the grade 1's and really enjoying that. You certainly get an insight into the difficulties facing the primary teachers and students. The mornings are spent at the junior school and then we come back to the senior school for lunch and to carry on with tasks in our prep areas for the rest of the day. At least I can turn the music up!









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

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#### Chris Simm | Service Manager Conditionaire Manufacturing Pty Ltd

Factory 2/11 Leader Street, Campbellfield, Vic 3061 Ph: 9308 7022 Mob: 0408 383 719

Email: chris.conairmfg@bigpond.com

# A Lab Technician's Guide for Surviving Science Coordinators and Teachers

#### **Damain Hallinan**

Science teachers are highly trained people with well-earned degrees in highly regarded academic disciplines. They will be your direct superiors in a school setting and your role will be to assist them in delivering a comprehensive, safe and interesting curriculum.

#### Beware, you, your students and your school will not survive if you allow this power hierarchy to continue.

Teachers are their own worst enemies and you will need to rescue them from themselves while allowing them the fantasy that they are in control of the department and their classes. This is especially necessary in regards to the budget and order book where you must convince the coordinator that you will save them work by approving and signing off on all orders for them.

Rules for science rooms that teachers earnestly set will be broken first by the loudest proponent of the rule and secondly by the most senior teacher or coordinators. Only your presence in classrooms, which will cause them some embarrassment, can stop this happening.

Teachers will eat their lunch in science rooms and you will find the science coordinators leftover spaghetti in the Laboratory fridge, next to the dissection rats, the day after you ask him/ her to remind teachers not to use the fridge for food.

You will need to make the prep room a personal fiefdom, where you are in total control and teachers fear to enter. Work hard on new staff to ensure they never see you smile till Easter. Make one teacher a special favourite, giving them preference over equipment and late requests. This will cause the teachers to think that if they curry favour with you, they will become the favourite and you will have control. Accept all bribes and gifts without guilt but do not follow through with teachers' special requests. They cannot do anything for fear of being exposed.

#### All science teachers are dangerous if left to their own devices!

Specific situations to be wary of.

- Do not let the Chemistry teacher use the Nitric acid and cotton wool to make gun cotton. They will blow a hole in your prep room ceiling and convince the cleaner to help cover it up.
- 2. The Biology teacher must not be allowed to accept small animals to euthanise for placing on display. The children become upset when they see little Herbie in a jar.
- 3. Do not volunteer to be the pretend murdered victim for the Year 10 forensic science unit. This will result in the Principal calling the ambulance when they notice you lying in the school ground.
- It is not your role to catch the two brown snakes that crawled up through the holes in the science room floor.
- Do not volunteer to go with the Environmental Science teacher in their canoe to collect water samples as you will end up in the water with a head injury.



Photo by JESHOOTS.COM on Unsplash

- Drosophila fruit flies will always escape and school cleaners will use fly spray to kill them and ruin 3 months of breeding.
- 7. Cleaners will also help by turning off incubators for the weekend.
- 8. Some parents will object to using a horse for dissections but the kids will love it. However, the remains do not fit in school bins.
- 9. Do not ask why there are scalpels stuck in the pin board in B3 as a teacher may tell you they were throwing them around a student leaning against the wall. This will cause an ethical dilemma for you.
- 10. All Physics teachers think they are comedians. You will not find it funny when they invite you to be the last person holding hands in a line of students connected to a low amp, high voltage supply.
- Sodium metal and teachers do not mix. Lie when asked if you have any in the lab.
- 12. Science teachers who become Principals must never be allowed near science students. Do not let them conduct pracs when standing in for an absent teacher. Supervision of rocket launching is definitely to be avoided. Students have great respect for Principals and this can be lost if they are asked to connect the rocket ignition wires to battery terminals after the Principal places the rocket on the launch pad and walks back not noticing it has lent over and is now heading straight for his backside. (no students were injured in the conduct of this lesson but the Principal whom was always a busy and energetic man was now often referred to as having a rocket up his backside).
- And lastly, teachers have no sense of smell and cannot tell if gas is left on and they cannot count so the correct number of match boxes will never be returned.

I hope these warnings and advice is of use to the school lab tech community. I urge you to keep in mind that you will be blamed for everything that goes wrong in the science department until it gets to the court case where the Science coordinator and Principal will discover that they are legally responsible.

Advice provide by Damian Hallinan: Ex Science Co-ordinator and science teacher who is forever grateful for the assistance, rescue from stupidity and friendship of many different excellent lab techs over a long career.

# Building a Chemwatch Register (from scratch!) During Lockdown

#### Cecelia Ford, Blackburn High School

I saw that the last edition of Lablines was filled with spiels of what lab techs did during the coronavirus lockdown. Not surprised – after all, lab techs are an innovative and resourceful bunch. At Blackburn High School (BHS) our main focus was to set up a chemical register on ChemWatch (CW), with the advantage that the SDSs are updated automatically. This idea was inspired by the CW workshop at LABCON 2019. For those interested in doing similar, here is what we learnt...

#### **OUR SCHOOL**

There are 1400 students at Blackburn High School. We have 8 labs with 6 prep rooms between them, spread over the campus including in multi-level buildings. There are 3 main chemical storage areas, as well as class sets of less hazardous chemicals in all prep rooms. We have 3 lab techs working part-time, making 2 FTE. Although some of us have previously worked in related industries, we are all reasonably new to school lab-teching and to BHS. Last year we delivered about 1800 pracs.

Updating our chemical register and SDSs did not get done at the end of last year so we knew this was a priority for 2020. Coronavirus lockdown provided this opportunity, and in retrospect it was such a big job we could never have done if it weren't for lockdown. Kindly, in Term 2 our school principal allowed us each to work one day per week on site, when, among other things, we frantically scribbled down chemical names, quantities and locations so that we could put them into the online database as one of our working-from-home tasks.

BHS uses *GOLD FFX* CW package. After some to and fro, we decided our CW manifest would primarily be by storage location, then by Dangerous Goods (DG) class if needed. For example, some of our folders are called:

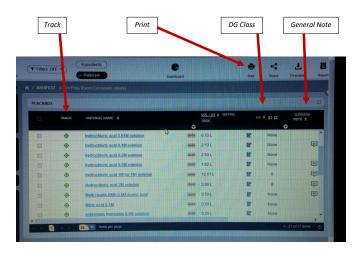
- Chem Store Toxics
- Chem Store Oxidizer Solids
- H9 Prep Room Pigeon Holes.

#### **BENEFITS**

The biggest benefits are in efficiency and we are already reaping rewards:

- Finding chemicals is so much easier. Previously I had to ask the
  more senior lab techs where the chemical might be stored (often
  several possibilities), then physically go and look for it. Now I can
  search from my office (even from home if I want!). It is saving time
  and physical effort.
- We can check if we have the chemical, where to find it and, importantly, where to put it back. No more relying on memory, and it makes it much easier for the next person to find.

- Before doing the chemical order for Term 3's pracs, I could quickly check if we had sufficient quantities of all the chemicals, thereby streamlining our ordering.
- We have set up a Waste 2020 folder in CW, and as the chemicals go into the waste collection we put their SDSs in this folder. Thus we have the SDSs for the chemicals while they are on site, but once they have been collected we can easily delete the folder. No more back-peddling through the manifest to find and delete the now-irrelevant SDSs.
- In our materials list, CW extracts and displays each chemical's DG class. This means we can see at a glance if the chemical is stored in the correct location.



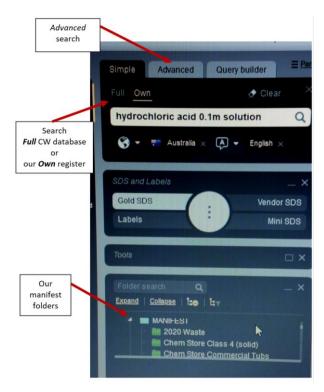
- The SDSs are updated automatically and we receive email notification of what has been done. This will save us at least a week's work at the end of each year.
- In the process, we disposed of some very old or poorly labelled chemicals, and consolidated the retained stock bottles into the three main storage areas.
- As a by-product of building the register we have become very familiar with the school's prep rooms and equipment storage locations. As a former engineer, I know there is no substitute for walking the site and becoming intimately familiar with equipment. Thus, an added and unexpected advantage is that we are all more familiar with where equipment is stored, and this in itself is an improvement in efficiency.

#### LIMITATIONS

Here are the limitations we encountered and how we overcame them:

 We couldn't find an *Undo* button! Think twice before changing anything!

- Although the search function has been greatly improved, it still struggles with the ph-f dilemma in sulphur compounds, and occasionally with punctuation. Don't forget the comma in acetic acid, glacial. This was very frustrating at times.
- CW automatically lists the chemicals in alphabetical order by first
  word of title, but this is not necessarily by chemical name eg
  Homebrand White Vinegar is listed under H. We found that
  searching for the chemical in "Own" will bring up the title of the
  SDS, and with the help of the "Track" function we can access the
  information we need.
- Using the "Track" function will locate the chemical, but will not take
  you to the entry. For example, if you need to know how much of a
  chemical you have, first open the SDS to find the SDS title (see
  limitation re alphabetical order above), then track and find the
  chemical in its folder to see how much there is.
- We could not work out how to copy and paste a chemical from one folder to another. This may be a user-error rather than a CW limitation. We resolved this by noting the chemical's CW number, then doing an "Advanced" search for the CW number in the "Full" CW database. We then dragged and dropped from the CW database into our second folder.



- We used the "General Note" function to record class sets of a chemical, as opposed to stock. What we didn't realise at first is that the notes stay with the chemical when it is registered into several rooms. Thus initially I was over-writing what my colleagues had recorded in other rooms. I can see that this feature might be useful in some applications, but we resolved the issue by writing the room number next to its applicable notes.
- I used the CW "Print" function to batch print all the SDSs. It compiled them into one large document which I printed two-sided. This became a problem when I tried to file the hard-copies alphabetically by chemical name, especially when SDSs had an odd number of pages, such that the next one started on the back page of the previous one. A few remedial photocopies of first-pages

- were needed, and a very clear, logical head to get it sorted correctly.
- One of the handy features of CW is that it produces GHS labels for chemicals. However, on the rare occasion that we need to create a custom label, it will have to be saved in a completely separate place. I find multiple filing systems cumbersome.

#### **FUN FACTS**

Finally, some fun facts:

- We have 742 entries in our register. (Do we really need so many chemicals? Maybe this is a project for next year.)
- The longest SDS we found was Natures Organics Earth Choice Dishwash Concentrate at 40 pages.
- The most recent SDS we found was issued on 26 June 2020 for Thymol. (The honour of finding the most recent SDS came with bragging rights!)
- Hairspray and shaving cream are DG class 2 flammable gas. As
  we don't have Class 2 storage facilities, and as a quick search in
  Risk Assess did not find any recent pracs using them, we decided
  we would buy them on an as-needs basis.
- Although not classified as a DG, Sunsilk Shampoo has a hazard statement Combustible liquid. In case of fire, use water. That's a relief when you're in the shower.

#### **REVIEW AND PREVIEW**

We have used the register almost every day since school resumed.

The challenge now is to ensure we complete the register – we are almost there. We also need to be disciplined in ensuring that at the time of delivery each chemical has its SDS in the register. All this effort is meaningless if we don't keep the register up to date (we anticipate this will be an end-of-year task), but the ground work is done and the motivation high.

CW support through the "Live Help Chat" function was very useful. We look forward to working further with the CW team to improve our knowledge of this powerful database.



Thank you to my colleagues for their co-operation in building the register and for working through the issues as they arose. We are looking forward to capitalizing on the efficiencies this register has enabled.

## Welcome to the Wonderful World of Waste and the School Laboratory

#### Michael Pola, Envirostore Chemical Consulting

Part X

#### mike@envirostore.com.au

This is number ten in the wonderful world of waste series and this one will look at what actually happens to your chemical waste once it is collected. It's a question that is still often asked of us when are on site at your school. The simple answer is that it depends on what it is (naturally). Generally, the choice of disposal method is predicated by the dangerous goods class of the waste.

The easiest class to dispose of and luckily the most common and widespread is the class 3 items - the flammable liquids. Virtually all flammable liquids are disposed of via a process called Energy Recovery. This means that the waste is burnt to recover its energy and is thus used as a fuel, alternate or otherwise. The application is applied to flammable liquids and non-flammable organic liquids such as hydrocarbon-based oils and vegetable oils, aqueous paints, pesticides and herbicides and the like.

Once we get your waste back to Envirostore HQ here in sunny Campbellfield, it is consolidated from your original containers or the handy 10 litre carboys we suggest you use, into a larger volume container such as a 200L or 1000 litre intermediate bulk container or IBC. This is a portable square plastic tank encased in a metal cage and able to be lifted by a forklift. You may have seen IBCs around the place in use as water containers in factories or on farms. Their portability is their best feature. We routinely have about three or four on the go at any time, not only for flammable liquids but also for the aqueous liquids more on those later. The IBC of flammable and organic liquids is filled from small containers and, when full, is stored in the class 3 area of HQ until we are ready to send it out to a specialised facility. This specialised facility further mixes the contents of the IBCs it receives into much larger volumes after testing for a number of important parameters. Number one is calorific value or CV. Other analyses include a metals scan, polychlorinated biphenyls, water content and reactivity tests. The finished blend with a known CV is transported in a bulk shipping container of approximately 22,000 litres to a cement kiln in either Tasmania or Queensland. Cement manufacture requires very high temperatures i.e. in excess of 2000 degrees Celsius, so is a high energy user. Normal fuels include coal and gas. If either of these can be replaced with alternate fuels in the form of waste flammable liquids, then we have a desirable environmental outcome. The reason for blending alternate fuels to a known CV is to maintain the energy input of your fuel. Coal and gas have known calorific values and no blending is normally required and kilns need to be run at a certain maintainable temperature to efficiently operate.

Potential problems we face during consolidation of waste flammable liquids include adding chlorinated solvents to the mix. Chlorinated solvents must not exceed 3-4% of the mix as their CV is not that high and the chlorine present when burnt becomes a corrosive gas which must be trapped and scrubbed at the kiln exhaust. Other chemical trouble makers include isocyanates which are used as catalysts when producing polyurethane foams and resins (thankfully rarely if ever encountered at schools) and coils of sodium wire used as a water remover from some solvents and stored within the bottle (benzene is a common one but also never seen these days in schools).

The other problem is the disposal of the emptied containers. If you are using the 10L carboys to consolidate your class 3 items, then these are reused. Glass bottles and smaller plastic containers need to be disposed of hence the cheaper per unit volume for the carboys as compared with the smaller containers. As can be seen, energy recovery is a highly desirable treatment for flammable and organic liquids.

What of the other waste types and dangerous goods classes, you ask? The class 8 corrosive liquids, acids and alkalis, are probably the next biggest waste

type encountered and luckily these can be used against each other via that wonderful chemical treatment of neutralisation. Any unopened bottles of mineral acids can potentially be reused or recycled (there is a difference more later) but diluted acids or acidic liquids are easily treated with alkaline liquids, producing salts in solution with pH values close to seven. Envirostore doesn't only cater for the chemical disposal requirements of schools but does operate in the big bad world of chemical waste from commercial and research laboratories and industry. Some of the laboratory chemicals we encounter from these facilities would make your hair curl, if not fall out, and these need to be treated as well. Neutralisation is used for the corrosives here as well and is very effective. Monitoring includes balancing the acids with alkalis via pH measurements as you go and keeping any water reactive chemicals out of the system. Neutralising your acidic and alkaline water in the school lab is an effective way of keeping your volumes down but that doesn't mean you can flush neutralised solutions down the sewer.



Remember, neutralisation will produce inorganic salts in solution such as nitrates and nitrites for example and these are not always welcome in the sewer. We will have at least one IBC always on the go for neutralising corrosive wastes and when full it is taken to another specialised facility who will use treatments such as aeration, flocculation and sedimentation to treat the waste to a point that makes it suitable to be sent to the sewer. The volumes of treated waste here are a tad greater than your few litres in the lab but the testing they are required to do is varied and widespread and has to be done by an independent laboratory before discharge to the sewer is allowed. The sewer has to look after all the domestic sewerage Melbourne generates and we don't need any chemical contamination from industrial sources making life difficult for the microorganisms that make our sewers operate. One common factor is that all this consolidation and mixing is the present of a chemist who has to decide what can and can't be mixed together. It's not always straightforward and a lot does depend on the chemical knowledge and experience of the chemist. Very important people in the waste business, the chemist!

Next article we will look at the other classes, how they are treated and what the options are for the more exciting chemicals and associated chemical wastes. Any comments on this or previous articles can be addressed to the author or to Samantha Gunning the Lablines editor. Any topics that anyone would like mentioned also just sing out.

### "Don't worry, we've seen worse!"







The envirostore.com.au website 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 online for a disposal quote. Michael Pola's LABCON and STAV presentations from 2019 are also available.

Don't forget, we can supply compliant containers for consolidating your liquid chemical wastes, and we pack all the chemicals for disposal ourselves and we will take everything. We are happy to have a look at your lab, prep room and store and offer suggestions on compliance and good lab practices – this is a free service for our customers.

We also supply economical and effective spill kits and free chemical advice.

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## Spotted in the List



X

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'.

From: Jenny Moore, St Paul's AGS

To: ltav list serve list@ltav.org.au>

Sent: Wed 19/08/2020 11:01 AM

Subject: [LTAVlist] Science Week window display

Hello Everyone,

Hope you are all keeping safe and well.

Just wanted to share with you the window that my fellow Techie Catherine whipped up before we were shut down again in Regional Victoria when we thought Science Week would happen at school!

We are very lucky to have a big display window, but as we are not very creative people we struggle to fill it.

Look after yourselves.





From: Karen Cox, Gleneagles Secondary College

Sent: Thursday, 11 June 2020 10:38 AM
To: ltav list serve <\list@ltav.org.au>
Subject: Is this a bad day or what

- My alarm didn't go off.....new phone
- I didn't like the new crumpet bread I bought for breakfast....not enough crumpet
- Forgot the code and couldn't turn the gas on for the upcoming demo...forgot the hash (key)
- I set up the demo in the wrong room
- The Principal was sitting in my chair when I went into my office...but it was all good
- I forgot to lock BOTH toilet doors behind me when I went and got surprised....
- Thought I'd downloaded work stuff to my USB but I'd downloaded to the PC at home

What else will this day bring? So I'm having a good laugh at it all coz what else do you do?

From: Patrick Hull, Tranalgon College Sent: Thursday, 11 June 2020 10:53 AM To: ltav list serve <<u>list@ltav.org.au</u>> Subject: RE: Is this a bad day or what

If it's any consolation.....

Daughter proceeded to pour water into laptop... Dried out, put in cloth bag surrounded by silica gel... still no shower or breakfast.

Running late, hungry , probably smelly left only five minutes late, got half way to work and wife calls to say her car is making a funny noise (last time she blew up the engine) turned back finally caught up with wife turned out to be the fan for the heater!

Finally got to work late hungry and a tad aromatic!

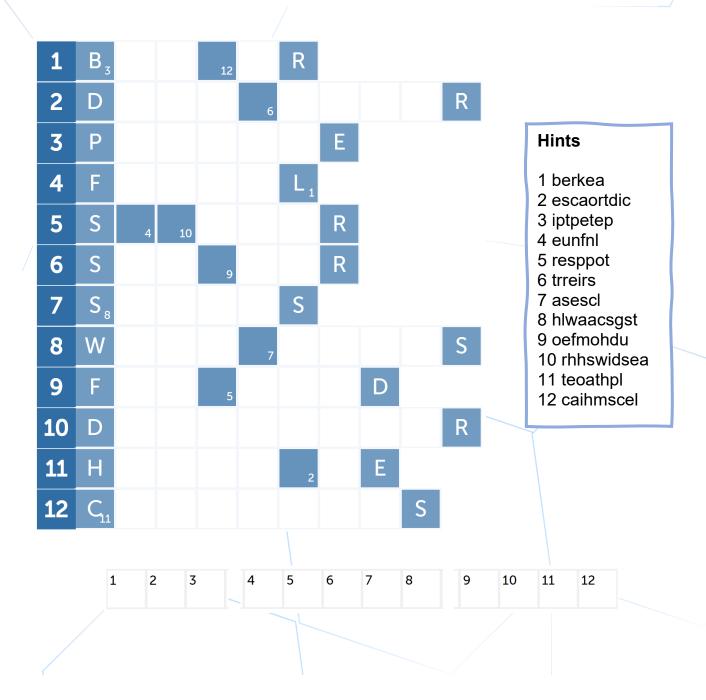
Decided to spend the rest of day huddled in corner with a bag over my head rocking gently backwards and forwards making pathetic whimpering noises, but sadly cannot fit that into my schedule.

## **Brain Break**



#### WORD SCRAMBLE: FOUND IN THE LAB

Unscramble the hint words and reveal a secret (but very important!) message using the coloured blocks and corresponding numbers below.



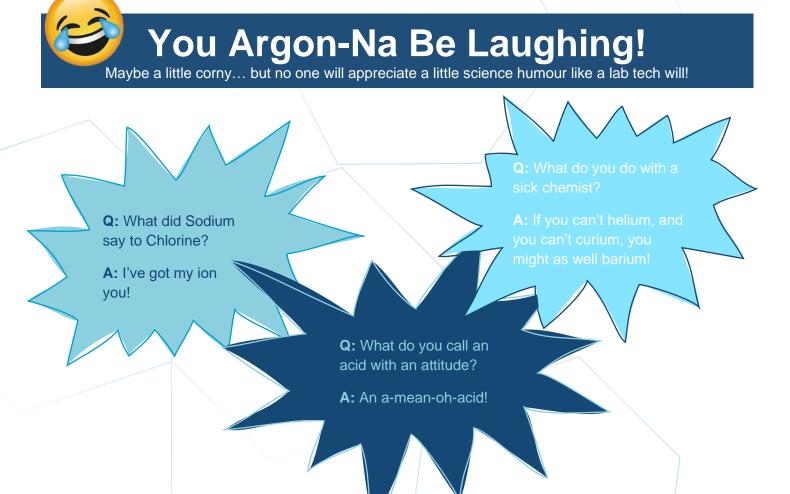
## **Fact or Fiction**



The human stomach can dissolve razor blades.	
☐ Fact OR ☐ Fiction	5. 'Q' is the only letter that does not appear on the periodic table.
2. Plankton, seaweed and other water photosynthesisers produce over half of the	□ Fact OR □ Fiction
world's oxygen.	6. Cold water freezes faster than hot water.
☐ Fact OR ☐ Fiction	□ Fact OR □ Fiction
3. A cloud can weigh over a million pounds	7. Bats are simply mammas with wings.
☐ Fact OR ☐ Fiction	□ Fact OR □ Fiction
4. There are more stars in our galaxy than trees	8. More women are colourblind than men.
on Earth.	☐ Fact OR ☐ Fiction
☐ Fact OR ☐ Fiction	

1. True. Those stomach acids are strong! 2. True 3. True 4. False – Other way 'round! 5. False. Both Q and J. 6. False. It is the opposite! 7. True 8. False – the contrary.

#### **ANSWERS**





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The following laboratory reference manuals are available from LTAV:

BIOLOGY REFERENCE MANUAL, 2013: \$35.00 for digital [USB] and black & 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:** \$35.00 for digital [USB] and black & 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 by Geoff Gleadall (Dip.App.Sci.):

\$35.00 for digital [USB] and black & white hard copy combination. A comprehensive guide for the beginning and experienced Laboratory Technician in all aspects of the chemistry laboratory.

LABORATORY MANAGEMENT DATABASES by Geoff Gleadall Dip.App.Sci. [Digital - USB], Version 2, 2009: \$35.00

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