



Biology Educators' Association of New Zealand
Te Rōpū Whakaako Koiora o Aotearoa

Term 4 2018 Newsletter

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Now that for most of us our day is a little more flexible with senior students on exam leave I hope that everyone is taking the chance to enjoy the improving weather, catch up on some inspiring reading and enjoy the different type of busyness that occurs during term 4.

BEANZ executive has been keeping busy in the background as a Network of Expertise (NOE) with progress happening in both our website and regional workshops being planned. Thank you to everyone who has responded to the member online survey put out last term; the information is being analysed to ensure we, as an exec, keep in touch with what our members need.

While you will not see a visible change in the website this year, be assured that the background systems being developed and trialled in conjunction with NZASE should mean a much better experience for our members in 2019.

As previously mentioned, regional reps met with Mike Stone and Kate Rice at the end of last term and workshops are being planned throughout the country for either this term or term 1, 2019. Check out the information in this newsletter or get in contact with your regional rep to find out what's happening.

Something else to check out if you haven't already is the BEANZ Scholarship being offered for 2019 research. This is a wonderful opportunity for a current teacher to spend some time conducting research and also being able to give back to other biology educators through sharing their findings. This is another initiative we have been able to offer to members as a NOE, within our overall vision of building sustainability and capability for biology education through BEANZ.



Best wishes for the rest of the term and a relaxing holiday break. See you in the New Year.

Ngā mihi

Sharyn Varcoe

Senior Vice President

Biology Educators' Association of New Zealand (BEANZ)

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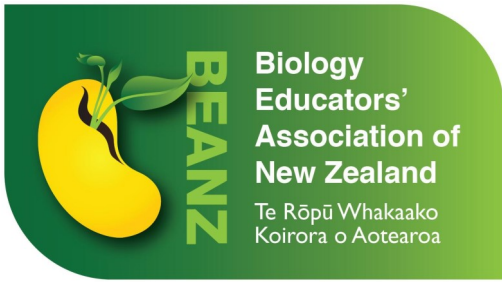
BEANZ workshops

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Biology Educators' Association of New Zealand

BEANZ Research Scholarship 2019

The BEANZ Research Scholarship is available to a practising New Zealand Biology teacher to conduct research into a relevant and current aspect of Biology of national benefit to Year 7 – 13 Biology teachers.

The research findings will be presented in a report and presentation to members at BioLive (2019) or SciCon (2020). Depending on the research topic chosen, the report may provide material that can form the basis for the annual BEANZ workshop.

Possible topics:

- Using a range of local Biology contexts/issues to develop meaningful science programmes for Year 7 – 11 Science.
- Teaching biology-focussed socio-scientific issues such as: responding to biosecurity threats e.g. pest control; gene editing in health care; building a marina; using GMOs.
- How to effectively incorporate digital technology into Biology programmes.
- Improving Biology teaching through culturally responsive teaching practises.
- Or suggest your own topic.

Who may apply?

Any Biology teacher who:

- Is a specialist Science teacher of years 7 - 13 experienced in teaching Biology classes (includes Head of Department and Intermediate teachers).
- Is a registered teacher in a permanent full or part-time position (at least 0.6 FTE), holding a current Teaching Certificate and employed by the Board of Trustees of a New Zealand school.
- Has taught the New Zealand Curriculum in the Science Learning Area for a minimum of 5 years.
- Will disseminate their research findings and is willing to taking a role in BEANZ, either locally and/or nationally, for the following 2 years (2020 – 2021) with support from BEANZ disseminating the findings from the research.
- Is a New Zealand Citizen, or the holder of a New Zealand Residency permit.
- Is a member of BEANZ (either individually or through their school).
- Current BEANZ exec members may not apply.

The scholarship fund

The Scholarship fund is available as a result of BEANZ receiving Networks of Expertise funding to enable the association to support and improve Biology teaching practice. The focus is on building teacher capability at regional and national levels. The scholarship provides up to \$15000 (incl GST) for your school to cover release time taken over a maximum timeframe of one year and up to \$2000 to cover expenses incurred in carrying out the research.

When can the research project start?

The scholarship can be taken up any time from the commencement of Term 1 2019. The report must be completed by 30 November 2019.

Applications close on 30 November 2018. Contact your regional representative for access on the BEANZ website or an application form.

2018 BEANZ Workshop Teaching Ethical Thinking

Following the learning at SciCon, the BEANZ Regional Reps have developed a workshop for their fellow Biology teachers. We will explore how we can use ethical thinking tools to explore socio-scientific issues and work collaboratively across the curriculum. We will also look at strategies and tools to improve students' writing for science.

There will be time to work collaboratively on ideas that emerge from this.

- Developing a senior assessment task together
- Or developing the sequence for a senior or a junior unit using the thinking tools
- Or developing some cross-curricular links
- Or spending some time working with the Science Learning Hub ethical thinking tools
- Or developing resources to build scientific literacy in a particular context.

This workshop is part of BEANZ's professional learning support for all Biology educators so there is no cost to attend. However, please be aware that the QAAM'd tasks and secure website access is only available to our BEANZ members.

For further details about when the workshop will run in your region and to register, please contact your local regional representative.

Region	Regional representative contact	Workshop details
Northland	Julie Harrisson JHarrisson@kerikerihigh.ac.nz	
Auckland	Mike Stone m.stone@auckland.ac.nz Chandar Dewan chandard@tangaroa.school.nz Heidi Haringa hrg@northcote.school.nz	Nov 8, 10am-4pm
Central North Island	Kieran Tibble kierant@haurakiplains.school.nz	Tba
Bay of Plenty	Jean Grattan jgrattan@otc.school.nz	Late March 2019 Otumoetai College
Hawkes Bay	Sarah Gunn sgunn@karamu.school.nz	Term 1 2019
Manawatu	Saskia Gilbert saskiagilbert@gmail.com Penny Daddy daddypenny@ngatawa.school.nz	14 November
Wellington	Emma Kean emma.kean@wgc.school.nz	Fri 16 Wgtn E Girls College
Nelson	Sarah Johns sarah.johns@ncg.school.nz	
West Coast	Erica Jar erica.jar@buller.ac.nz	28 th of November at Buller High School
Canterbury	Ian Reeves rvi@papanui.school.nz	Term 1 2019
Otago	Pru Casey pru.casey@gmail.com	9 November, Otago Boys High
Southland	Lee Pirini lee.pirini@southlandgirls.school.nz	Dec 6, SGHS 9 .30 – 3

NZIBO report 2017 – 2018



As the new cohort of 200 Bronze NZIBO participants head into their tutorial program, it is time to reflect on our last 'season'. The NZIBO year runs from July to July, because the International Biology Olympiad is held in the middle of the Northern Hemisphere summer.

This year saw NZIBO explore a unique international research experience in partnership with Operation Wallacea (OPWAL) for our top 5 national Gold Award recipients. This decision was made in the hope that our top scholars would have the opportunity to be rewarded by furthering their own development, participate in an international scientific collaboration and experience new culturally rich experiences -consistent with IBO values. OPWAL delivered in every way! The 2018 team was led by Shawn Cooper (**Avondale College**) and Penelope Daddy (**Nga Tawa School**) from the NZIBO Executive. The talented student travellers were Yang Fan Yun (**Macleans College**), Alex Pentchev (**ASG**), Trulani van der Heyde (**Tawa College**), Alice Cao (**St Paul's Collegiate School**) and Joyce Chan (**Macleans College**).

This flight in to the study sight flew directly over the Great Rift Valley to Mbeya to meet the OPWAL host. The air was surprisingly crisp as the team boarded a charter bus driving through the highlands of Tanzania to the terrestrial research site based at Kisiba School. The schoolgrounds were perched above an ancient crater lake in the Mbeya Region of Tanzania. Virtually unvisited by outsiders, the lush environment of Kisiba provided a world of discovery. The primary goal of the expedition was to characterise the abiotic factors of the lake and explore species of fish living at depth using a remote operated vehicle. As the lake was also used by locals for washing and bathing, the team also examined the macroinvertebrate populations on each side of the lake to get an indication of overall water quality.

With a focus on better understanding the evolutionary processes affecting cichlids, the team were delighted to find that they had likely discovered a new species of cichlid in the local lake and used data about the abiotic factors to hypothesise about an underground source of thermal energy and/or water that was creating a uniquely stable water column from the surface to 38m deep. In addition, the university partners may have discovered new species of fresh water sponge in the nearby thermal hot pools! With any luck, future research teams will verify and characterise our NZ discoveries.

NZIBO report continued

Departing Kisiba for the next destination at Nkhata Bay in Malawi, views from the rift valley ridges to the clear blue waters of Lake Malawi below were spectacular. Driving through the countryside of Malawi, farmland, markets, villages, baboons and monkeys along the way provided a feast for the eyes in the approach to the spectacular Mayoka Village in Nkhata Bay, home to the aquatic research site. Here the dive instructor and divemaster were impressed by the skills and confidence of the NZIBO team and after 4 full days of training, examined and signed off PADI Open Water certification. Learning to dive amongst schools of fish allowed the team to appreciate the diversity and abundance of cichlids, primarily the product of sympatric speciation processes in the lake.

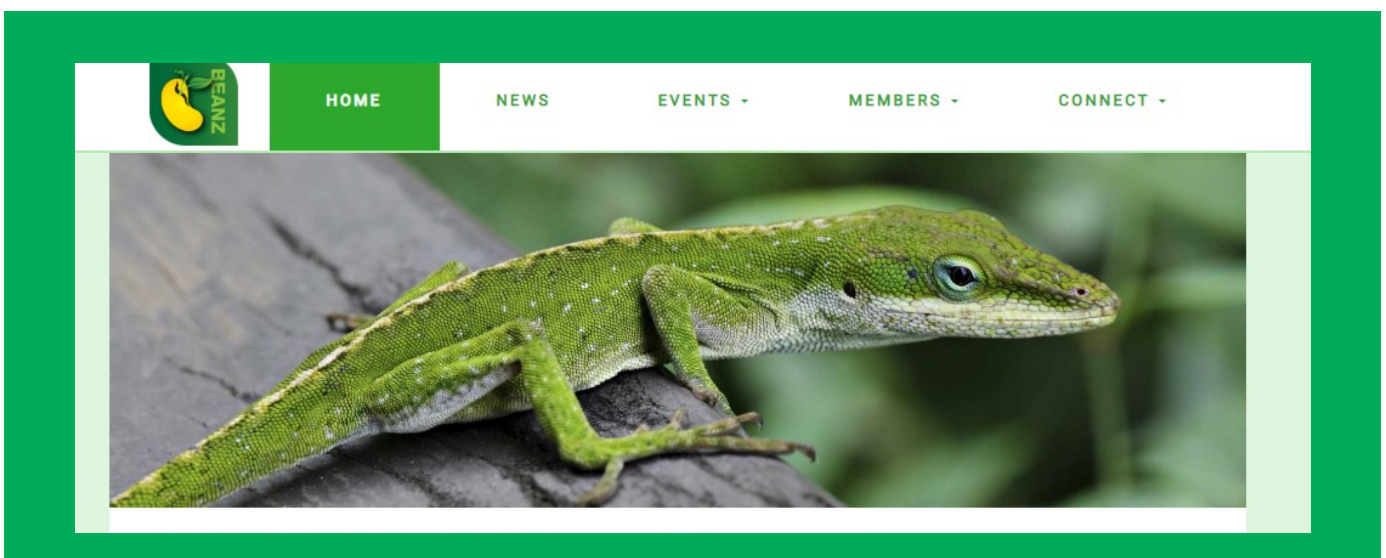
The conclusion of the trip involved a two-night stay in Liwonde National Park just beyond the southern tip of Lake Malawi. Driving through the park the land safari featured kudu, baboons, antelope, and herds of wild elephants in the distance. Yet nothing could prepare the team for the cheetah spotted minutes after taking down a waterbuck.

In summary, serving as OPWAL volunteers on the Great Rift Valley Expedition provided so many rewards for the team. First, participating in real science, learning patience as the pace of data collection in field research was not quite on par with the voluminous fact acquisition that NZIBO demands. Real endeavour and tenacity were required by the students as they learned new skills in their PADI Open Water course. Moreover, the trip stimulated genuine curiosity and wonder as they experienced the living world up close and personal, reminding us what biology is all about. Tanzania and Malawi were rich with culture - walking amidst sustenance farms and seeing small scale fishing operations provided insight into diverse ways of life and the personal and global responsibility we have.

Next years' Gold NZIBO Award winning team members will travel to Hungary to compete for NZ in the International event. Students are now studying hard, completing assignments, tutorials and readings as they head towards their next round of NZIBO assessment in February 2019. Thank you for your support of the students. Our busy team of volunteers keep in touch with them daily and weekly, encouraging excellence. If you would like to join this enthusiastic group of Biology teachers across NZ, do get in touch with us! You can find us on Facebook and also via our website www.nzibo.org.nz



Angela - Murapara, Heather - Palmerston North, Shawn - Auckland, Nick, Alison - Hamilton, Richard - Tauranga, Michelle - Hauraki Plains, Penny - Wanganui, Pru, Liam - Dunedin.



Biology Educators' Association of New Zealand

Te Rōpū Whakaako Koiora o Aotearoa

Regional Representatives 2018-2019

Region	Name	Email Contact
Northland	Julie Harrisson	JHarrisson@kerikeri.ac.nz
Auckland	Mike Stone Chandar Dewan Heidi Haringa	m.stone@auckland.ac.nz chandard@tangaroa.school.nz hrg@northcote.school.nz
Waikato	<i>(your name here?!)</i>	
Bay of Plenty	Jean Grattan	jgrattan@otc.school.nz
Central North Island	Kieran Tibble	ktibble@st-peters.school.nz
Gisborne	<i>(your name here?!)</i>	
Hawkes Bay	Sarah Gunn	sgunn@karamu.school.nz
Taranaki	<i>(your name here?!)</i>	
Manawatu-Wanganui	Saskia Gilbert Penny Daddy	saskiagilbert@gmail.com daddypenny@ngatawa.school.nz
Wellington Region Kapiti & Horowhenua	Emma Kean	emma.kean@wgc.school.nz
Nelson Marlborough	Sarah Johns	sarah.johns@ncg.school.nz
West Coast	Erica Jar	erica.jar@buller.ac.nz
Canterbury	Ian Reeves	rvi@papanui.school.nz
Otago	Pru Casey	pru.casey@gmail.com
Southland	Lee Pirini	lee.pirini@southlandgirls.school.nz

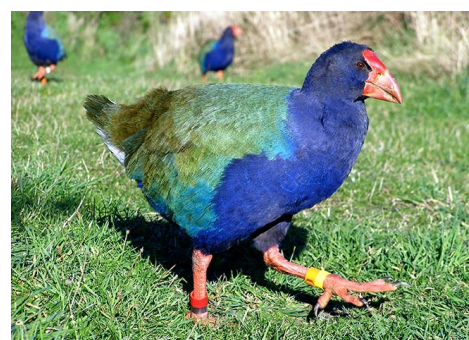
Are you interested in giving back to our Biology community? Consider becoming a BEANZ regional representative for Gisborne or Taranaki, or join a team in one of the other regions. Contact us for more info.

QAAM task 'Where have all the takahē gone?'

Partnering with BEANZ, ZEALANDIA and senior biology teacher Sue Lum have developed 'Where have all the Takahē gone' Achievement Standard AS 91158 (Bio 2.6). The goal of ZEALANDIA and the Takahē Recovery Programme is to raise awareness of and advocacy for takahē by the promotion of this comprehensive resource and the rich learning that is gained from it. The task has completed the NZQA QAAM process and is approved for assessment purposes. It is now live on the BEANZ website for secure access by teachers who are members of the network.

The resource contains:

- the assessment task and marking schedules
- student exemplars
- a number of worksheets and scaffolding activities for both students and teachers
- a PowerPoint presentation introducing students to the takahē and unpacking the standard
- a number of appendices including up to date data on the takahē and an extensive reference source list



Libby Caygill

Secretary

I have worked as a Developmental Biologist in labs in the USA and UK. After a 13 year career in research, gaining experience teaching at a tertiary level, I chose to make secondary teaching my focus. I am passionate about increasing public understanding of science and have a lot of fun making Genetics and Molecular Biology accessible to my students. I am currently teaching at Cashmere High School in Christchurch.

Kenneth Loh

Exam Coordinator

Hi guys, I'm a full time Bio/ Science teacher at Ormiston Senior College in Auckland. I've been in charge of developing the Senior Biology curriculum since the realignment years in 2012/2013. Having always been a fan of the assessment resources that BEANZ has developed over the years, I decided to join the writing team in 2016/2017, and I eventually got roped in to the co-coordinator role moving forward into 2018. I've always enjoyed being involved with assessment resource and development, and I hope to contribute and give back to the Biology community, in this way.



Biology Educators' Association of New Zealand Te Rōpū Whakaako Koiora o Aotearoa

Executive 2018-2019

Position	Name	Email
President (NZASE Representative)	Nicky Wallace	nwallace@rbhs.school.nz
Senior Vice President	Sharyn Varcoe	va@riccarton.school.nz
Junior Vice President (Regional Rep Liaison)	Chantal Hillier	chantal.hillier@gmail.com
Treasurer	Peter Sutton	peters@pcmedia.co.nz
Secretary (minutes)	Libby Caygill	cae@cashmere.school.nz
Website Coordinator	Ben Himme	benjaminhimme@gmail.com
Exam Coordinator	Kenneth Loh	kloh@ormiston.school.nz
Newsletter	Holly Wilson	hwilson@otc.school.nz
Curriculum Development	Helen Mora	mor@linwoodcollege.school.nz
Curriculum Development	Ian Reeves	rvi@papanui.school.nz
Tertiary Representative	Hamish Spencer	hamish.spencer@otago.ac.nz
Primary Representative		

Positions outside of executive:

Position	Name
Contracted facilitator	Mike Stone Kate Rice
Ministry Liaison / Curriculum advisor	Terry Fenn

Who cares? By Kim Beaton

“Miss – no one cares!”

Not the response we hope for when beginning a lesson, however, it did get me thinking. Why should they care? How can we help young people to engage in Science issues that will affect them and their world?

As a colleague pointed out, to become engaged in socio-scientific concerns, students first need to be aware of the issues around them. Next, they require opportunity. Regular occasions to delve into the wild and messy concerns of the scientific community. Sound Science pedagogy can enable students to develop an opinion and grow the skills to back this with evidence and logical argument. There is a push from the New Zealand Curriculum (NZC) and the Ministry of Education for future focused environments and pedagogies. Schools, communities and other stakeholders are interested in how effective this can be on science learning and student motivation.

Teachers are being challenged to nurture young people’s interest in the world around them. Often it feels like a big ask. A focus on socio-scientific issues may require adaption of teaching and assessment practices. For example, teaching knowledge and skills needs to be balanced with providing opportunities for students to work with complex situations, so that they can learn to identify what is important in a particular context (Gluckman, 2011). To engage and enthuse students in the context of a busy secondary school involves more than just great planning by enthusiastic teachers. It requires collaboration, innovation and vision. Only in partnership between teachers, students and communities is it possible to pool resources, energy and expertise to maximise learning.

The issue of the week

What’s the issue?



Our very first “issue of the week” 13.02.2017

Picture from: <http://www.radionz.co.nz/news/national/324303/clean-up-begins-after-mass-whalestranding>

*Why was ‘Whale stranding’ your top issue? [Student]
“Because they are living animals in need.”*

This simple resource was launched at the beginning of term one, 2017, when the Nation focused on a mass whale stranding, and our junior Science classes continued to focus on how to light a Bunsen burner... despite the heat! Now, do not get me wrong, lab experiments are spot on for active learning and motivation, building skills alongside a love of science. My point is, at times, we forget, or run out of time, to look beyond ‘the program’ and continue doing what we have always done. Our Science Department theme is ‘Citizenship! Learning for now and for the future.’ Regular integration of an issue of the week into our Science program is our way to acknowledge that our world is changing, what our students expect and the way they engage with learning is also changing. By popping our heads up, looking around for local and global socio-scientific issues, we are taking a macro view of science learning. If we can make this a regular occurrence, then we may better meet the citizenship goal of NZC.

Perhaps simplicity led to its success. Each week we take an issue of local or national importance and put together a resource to present to students in a consistent and user-friendly way. Students see a picture, such as the one above and are simply asked, “What’s the issue?” This provides opportunity for each student to discuss with his or her peers, to bring their own ideas, experiences, culture and viewpoints to the table. The goal is not to ‘guess’ what the issue is, in fact the more abstract the picture, the greater the wonder. Students can be who they are, form and defend opinions and share their own experience and ideas without fear of failure or ridicule. Learners are not just searching for one correct answer; rather they are delving into an authentic dilemma for discussion. This provides the hook.

The trick is then to bring the issue to life. We search out short (2-10 minute) YouTube clips that capture imagination and raise questions or concerns. As it doubles as a literacy tool, we also incorporate a brief reading, a new word to focus on and then a discussion or writing activity; not too long or overly complex, but one that hits the goals of the exercise.

The issue of the week requires collaboration and buy-in from both Science teachers and students who come up with suggestions each week. There is not just one way to teach or learn using this resource. Some set it as homework; some take 5 minutes, while other classes engage for an hour or more. The goals are set each term during department meetings to address a need in our own student population. We recognise that these needs evolve and adapt, and we are honouring the Māori concept of ako, a teaching and learning relationship, where the educator learns from the student and where educators' practices are informed by the latest research and are both deliberate and reflective (from TKI).

The language of science learning is changing toward individualised, yet social platforms and activities.

As one student put it:

"Because new technology is cool and I want to learn all the science behind it (in detail)."

Students create personal spaces such as facebook pages, webpages and twitter accounts. These advances toward autonomy, social interaction, and collaboration can be seen as a positive movement, but they raise challenging questions. Do current pedagogies meet the needs of current and future science students? As Hand et al. (2016) point out;

"Considering that many students already perceive a substantial gap between their everyday life and school science, failure to evolve only widens the gap" (p.224). Future focus is about supporting learners to recognise that they have a stake in the future, and a role and responsibility as citizens to take action to help shape that future (Education Review Office, 2012)."

As mentioned, the objective of 'the issue of the week' is itself flexible. For term one, it was very simple, for students to complete this sentence: "I think ... because..." Rather than be frustrated that our senior science students seem unable to form, express and back an opinion, we decided to help them to learn how to do this in the lower stakes of junior science.

'Issue of the week' Baby elephants in need. Term one, week 7, 2017: picture from <https://www.thedodo.com/orphaned-elephant-poaching-2289083435.html>

Why was 'Baby elephants in need' your top issue? [Students] "More and more elephants are getting killed every day for their tusks." "Elephants are not being treated fairly and should get a second chance." " Because baby elephants all deserved to be cared for and looked after."



First, we modelled different viewpoints on controversial issues. For example, the ivory trade provided a perfect context to explore the experiences of life as an elephant poacher – where the hunters get hunted. In Kenya, Wildlife officers shoot to kill when hunting ivory poachers. We provided evidence about both the legal and illegal ivory trade, highlighting the complexities around convincing locals that elephants need protecting. Wildlife crime is deadly serious, however in Africa, local people need to be able to stay safe, make a living and feed their families. We posed the question to our students 'who cares?' We also provided them with an opportunity to sponsor a baby elephant, orphaned due to the ivory trade. This illustrated that we are able to take action and make a difference, but only if we are aware of such issues and how we feel about them. Through student centred pedagogy, regular exploration and discussion, young people can develop, refine, define or adjust their opinion. The idea took off.

Term two had a focus on innovation. This fitted in with a local competition 'The young innovators award', which many of our students were entering. Given that 'issues' can start to take on a negative spin, we selected uplifting and hopeful contexts. We brought Science and technology to life by highlighting amazing inventions. For example, to combat environmental concerns, a Japanese company can convert plastic to oil.



'Issue of the week' From waste to treasure. Term two, week 1, 2017:

Picture from <http://www.stuff.co.nz/environment/76143205/new-zealand-needs-to-tax-plastic-bags>

Why was 'From waste to treasure' your top issue? [Student] "I found this idea very new and advanced. I had no clue humans would be capable enough to produce this product."

Questioning was our main literacy focus in term two. We modelled and built skills on writing different types of questions.

Question asking rather than question answering makes for a

dynamic and future focused classroom environment.

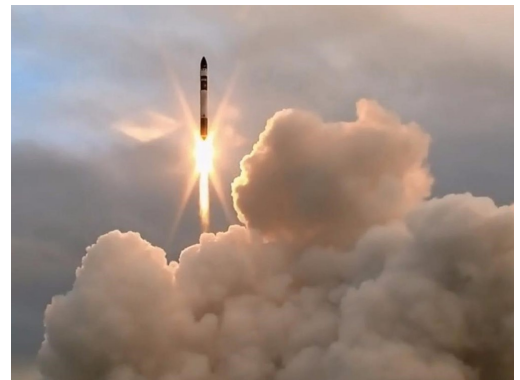
In term, three we focused on building student writing skills, in particular, the ability to successfully describe, explain and discuss ideas. During term four, we will focus on developing the five Science capabilities, especially the ability to interpret representations such as graphs, charts and diagrams. The issue of the week will continue along the same format for the rest of this year, at least. The feedback from the Science teachers involved and over 150 students on their experience of 'the issue of the week' has been positive.

Emotive or surprising issues prove to be the most popular and successful. We tend to remember what we learn with passion, disgust or even outrage. It is exciting when students, who at first were unable or unwilling to form and express an idea, develop into fervent advocates for one point of view or another.

'Issue of the week' 'Mahia Magic' Week 5, term 2: picture from <https://www.rocketlabusa.com/>

Why was Mahia Magic your top issue? [Student] "Because I am very interested in astronomy"

Major local/global events now get the focus and scrutiny they deserve. Perhaps our own experiences and expectations confined us to labelling parts of a microscope - while in Gisborne Kiwi innovation and ingenuity led to the launch of the first commercial rocket – ever. Perhaps we, the educators at the coal-face, can, and should, adjust the stage.



NZC has a strong focus on citizenship science. Learning about science is important for all students, not just those aiming for science careers. Science education's goal is to develop students who "can participate as critical, informed and responsible citizens in a society in which science plays a significant role". Science students yearn for active learning, fun and engaging activities that help them to make sense of their world (Beaton, 2017). While science knowledge continues to develop, Barker (2010) believes the nature of science strand in NZC already has the required skills and capabilities to prepare students for lifelong science learning, set in its framework. However, Gluckman (2011) cautions that the appearance of new words in official curriculum documents has had very little effect on the way science is taught in schools.

"The issue of the week', is a chance for young people to use creative, critical, and metacognitive processes to make sense of information, experiences, and ideas. These processes are then applied to developing understanding, making decisions, shaping actions, or constructing knowledge. This simple resource can contribute to the citizenship goal by nurturing student interest in the world around them.

"We learn a lot online but don't know how much is true. Also, some common "facts" can be myths, and I'd rather not go ignorant during my life."

- student feedback on the issue of the week.

Both Honan et al. (2009) and Beane (1997) encourage students to have a genuine say in the classroom. To “think and act collectively against the grain of existing social arrangements towards a more equitable social world” (Honan et al 2009, p.78). Schools can aim to enable students to become active and involved citizens who are aware of scientific and social issues that affect them and their world.

Science for now and the future

Exploring complex contextual problems in science can be supported through the issue of the week. This dynamic 21st century pedagogical approach enables students to build knowledge, co-construct learning and form opinions based on evidence. Individual views and culture are valued, learner’s ideas are informed, challenged and extended as we strive to help them to develop positive attitudes toward Science.

Science for now and the future

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‘Issue of the week’ Wolves save rivers. Week 4, term 3.

Picture from <https://newsela.com/read/wolf-reputation/id/17964/>



Our most popular ‘issue’ so far according to student feedback forms over 1/3 of students who responded selected this as their ‘top’ issue.

Why was Wolves save rivers your top issue? [Students] “It is interesting and can change your look on wolves.” “Because I found it really interesting how the wolves actually saved the river.” “Because I found it interesting how one animal can have such a big effect on the ecosystem.” “ This is my top issue because I liked learning how much animals keep the environment flourishing. I also like learning about conversation and I liked seeing how much the wolves impact the environment.”

Clay (2015) believes that rather than persuading young people to accept what science has had to offer in the past, we can develop classroom science to suit current and future needs. When students are encouraged to present different ideas, to contradict and criticise each other’s methods just like professional scientists, science becomes a dynamic process of discovery. Clay (2015) also asserts that ‘question asking’ may be more effective than just ‘question answering’.

The learner centered paradigm has a focus on learners and learning rather than on teachers and teaching. This results in classes that are more equitable and emphasises critical thinking, active learning and real world assignments. As Gilbert (2013) points out, we need more opportunities for schools, the science community and the wider community to work together to develop the kind of science education we agree is needed for New Zealand’s future.

The report by Gluckman (2011) challenges our science teachers to develop students’ thinking, questioning and actions so they can become informed citizens in a changing world. Recognition of the changing role of science in society, led to the introduction of five science capabilities where students learn to; gather and interpret data, use evidence, critique evidence, interpret representations, and engage with science. These capabilities enable teachers and students to develop a real understanding of the nature of science, as well as to cultivate the key competencies encouraged in NZC. This article shares our story on how we are making this happen.

Science students yearn for active learning, fun and engaging activities that help them to make connections with the world around them. Yes, it takes time and energy to put these ideas together each week. No, there is no magic bullet in education. The issue of the week will not solve all of our classroom concerns - they are still teenagers – motivated by many needs and influences.

However, we hold on to the highlights. For me this was when one student after another spontaneously yelled out “I care miss” in response to the young lady at the start of this article who had claimed that no-one cared. This show of support was then topped off by a young man who declared “she is trying to teach us about **life!**”

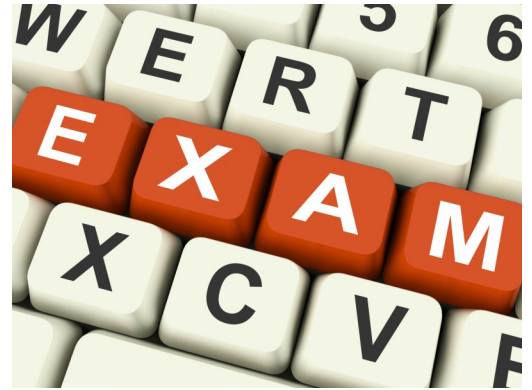
In an emotive, authentic and dynamic present, suddenly the light goes on. Young people do care!

BEANZ Exams 2018 Feedback

You may have noticed a change in formatting of the BEANZ examinations. We would love your feedback. Please fill in a one minute survey

<https://goo.gl/forms/AssFhP2paVyzcHbe2>

We appreciate your efforts.



I.T Tip TED-ED Lessons

There are an abundance of great ideas and videos on Ted – ed. Check these out:

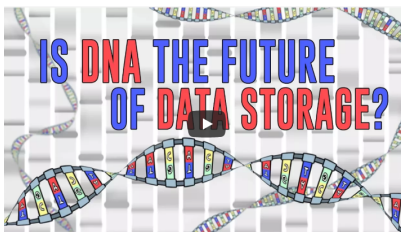
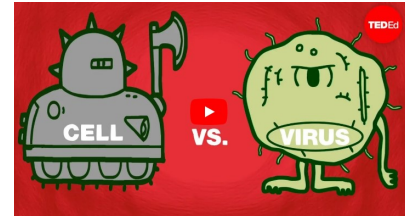
What is echolocation?

Are bats really blind? Not exactly. Besides their eyes, bats use a special process called echolocation to navigate their environment. SciToons explains how bats "see" the world around them as they look for prey in the dark.



Cell vs. virus: A battle for health

All living things are made of cells. In the human body, these highly efficient units are protected by layer upon layer of defense against icky invaders like the cold virus. Shannon Stiles takes a journey into the cell, introducing the microscopic arsenal of weapons and warriors that play a role in the battle for your health.



Is DNA the future of data storage?

In the event of a nuclear fallout, every piece of digital and written information could all be lost. Luckily, there is a way that all of human history could be recorded and safely stored beyond the civilization's end. And the key ingredient is inside all of us: our DNA.

With seniors on study leave, it is a great time to be planning interesting and effective ways for students to learn Science and Biology. Remember, to view the website's members section for great resources and quality assured assessment materials.

Take time out for yourself as well, enjoy the sunshine and the beauty New Zealand has to offer.

From all of us here at BEANZ, have a fantastic Christmas and holiday season. We look forward to continuing our love for teaching, learning and Biology with you in 2019.

**Biology Educators' Association of New Zealand
Te Rōpū Whakaako Koiora o Aotearoa**

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