

Welcome to **ASB Bright Sparks 2017**

The competition is now open, and the closing date for entries is Monday 2nd October 2017

Everything you need to know to enter the competition can be found right here (link to entry packs). It's as easy as making a short demo video, putting your project and paperwork in a box, and popping down to your nearest Post Shop (or the Skills office if you are in Auckland). Your teacher may be able to help you with this.

Projects should have some electronics or software components, or a combination of these. There are prizes for Software, Engineering, Science, or Environment themed projects, with other special prizes announced at the awards ceremony.

Finalists will be announced in the second week of October. If you are a finalist, you will be invited to our awards ceremony in Auckland on November 7, along with one of your parents or guardians. If you would like help with your project or would like someone from our team to get in

touch, please email brightsparks@skills.org.nz.

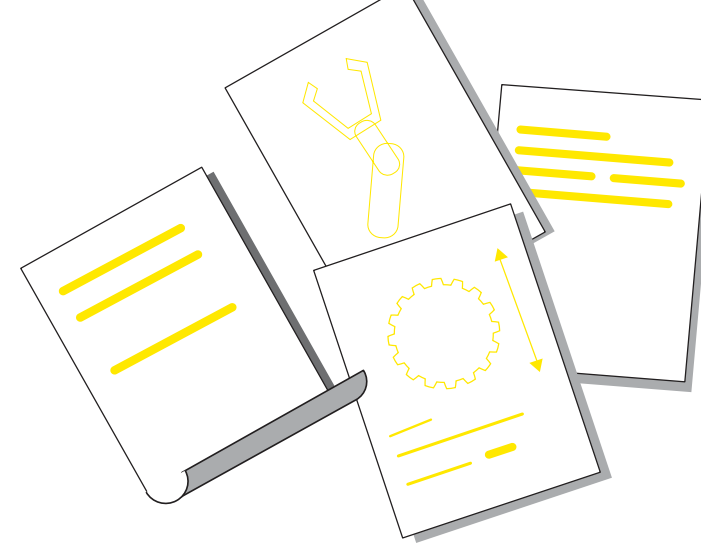
There's more information about ASB Bright Sparks at www.brightsparks.org.nz. Sign up there as a member (it's free), take part in the forum, access our mentoring, free or cheap parts, and kick-start your fantastic future career in NZ's rapidly growing hi-tech sector.

We look forward to seeing your creations!

Kind regards,

Nicola Dashper
ASB Bright Sparks Manager

Tips for Submitting Winning Entries



Writing an engaging entry

To give your entry the best chance of winning, you'll need to include as much information as possible. The judges want to learn how you developed your project, what problem it solves, and understand how to operate your invention. Here are some tips for creating a winning entry:

- **Inspiration is everything.** Where did you get the idea for your project? What problem were you trying to solve, or goal did you want to reach? Is this a problem you, or someone you know, has personally experienced? How does solving this problem make an impact on the wider world?
- **Give up the goods.** Now's not the time to hide your secrets. Explain exactly what your project does, and how it does it.
- **Share your process.** What are the physical components, and how did you source them? How did you make your prototype? What design ideas did you start off with in order to arrive at your final project
- **Show, don't tell.** Use diagrams, photos, drawings, code, and video to demonstrate what the working of your project. Visual aids help us to understand the complexity of your invention.
- **Get coding!** All projects, no matter their application, need to show some connection to the technological world. Many students are creating software to solve problems. The best software projects include key sections of code. Add annotations (notes on your code) to explain the most important lines.
- **Did something go wrong?** Don't be afraid to share where you took a wrong turn or things didn't go exactly as planned. The best inventions and learnings often come from our mistakes.
- **Second time lucky.** If you're re-submitting a project you're since improved, make sure to tell us what new features it has, as well as how and why you've altered it from last year.
- **Don't waffle!** Get straight to the point – describe the problem, what you did to solve it, and why your solution is an improvement over what's currently available. Save the flowery language for creative writing class.
- **Unfinished is cool.** Remember, your project doesn't have to be finished in order to enter. Many unfinished inventions have won prizes in the past. We want to see your thought process and the progress you've made.
- **Lights, camera, action!** For the competition, you need to include a video describing the amazing things you have created. Our judges love to see videos of you outlining your project. Check out some of the cool videos past winners have made at www.brightsparks.org.nz.



Making a video

A video helps your project stand out, and gives you a chance to use visuals to explain your process in a cool new way. Here are some tips for creating an awesome video.

- **Start early.** Think about your video from the beginning of your project, and what stages should be part of the film. This will help you to find opportunities to gather footage. For example, it would be difficult to film the 3D-printing of project components if the idea only occurs to you AFTER the printing is complete.
- **Look on the sunny side.** Choose a location with plenty of natural light, whether that's outside at your school, or beside a big window at your house.
- **Demonstrate the problem.** Show real people experiencing the problem firsthand, and how it impacts their lives. We want to see the human story behind your invention.
- **Brief your crew.** Give your film crew good instructions, and create a runsheet of all the different shots you need. You don't want to miss any important scenes!
- **Crash test dummy.** Show someone actually using your invention, and how it is solving the problem or achieving the goal. Let us see all the detail of every step.
- **Ask an expert.** Some students call in scientists, engineers and other experts to talk about the effectiveness of their invention, and how it could be improved.
- **Have fun!** Make your video short, to the point, and entertaining. Let your personality shine through.



Got questions? Need some advice? Hop on to our [inventors forum](#) and become part of a growing network of young kiwi inventors.

Nanogirl

ASB BRIGHTSPARKS

Dr Michelle Dickinson, aka Nanogirl, is a nanotechnologist and senior engineering lecturer at the University of Auckland. She's passionate about everyone having access to learning about science and how things work; she's made this her focus with a lot of her projects. She created alter ego Nanogirl to bring science to kids everywhere. She wanted to make it fun and relevant – showing kids that science isn't just in a classroom at school. She partnered with ASB Bright Sparks, an annual technology competition, to further this mission. It lets her support budding technologists and scientists at the start of their journeys. We sat down with Michelle to ask her a few questions about her career and involvement with ASB Bright Sparks.

Can you tell us a bit about what you do for a living?

I have a few roles that revolve around my passions. As a lecturer in the faculty of engineering at the University of Auckland I run a research laboratory specialising in nanotechnology or building and breaking very small things. I also teach students about core engineering principles as they study towards their engineering degrees. I'm also co-founder of a national education charity called OMGTech! which helps to teach science and technology to New Zealand students and teachers.

How did you get interested in technology and science?

I've always been curious and loved taking things apart to see how they worked when I was young. My curiosity is just as strong and I'm still taking things apart to see how they work. When I was younger I didn't know that what I loved was called technology or science, to me it was just figuring out how things worked around me.

What's your favourite part of your job?

As an educator, I love when I see the light bulb moment in somebody as they learn something new or connect the dots on a problem that they are trying to solve. It's a real privilege to be able to help others to gain further understanding into a field that they are interested in. I also love being in the lab and making new discoveries, especially when they are things that I wasn't expecting.

Why did you get involved with Bright Sparks?

I've been involved with Bright Sparks for four years now. I love how it encourages inventiveness and problem solving, both of which I think are really important and powerful skills to develop.

What tips do you have for this year's entrants?

Be bold and think about how big an impact you can make with your idea. There are lots of people who are willing to help so if you don't know an answer, ask somebody in the field who might know. It's much easier to get advice and collaborate with experts than try to figure it out on your own.

What can we do to encourage and increase diversity in STEM industries?

Firstly I think we need more accessible positive role models who are talking about what they do for a job. The stereotype of an engineer tends to be a man in a hard hat, but engineering is so diverse and has many pathways which involve helping to solve problems for the world, many of which require no outdoor safety clothing at all! Secondly I'd love to see STEM heroes celebrated as much as our sports heroes so that young people can see the amazing opportunities that can be created in a STEM career.

What tips do you have for girls wanting to study STEM subjects at school or at university?

Do it! That's my only tip. It's amazing, it's empowering and it has the potential to change the world.





Vodafone

'Search and Rescue Network'



Vodafone and New Zealand Police Search and Rescue (SAR) teams have successfully tested a unique network prototype. This tool has the potential to save lives by supporting search and rescue operations in the future. The 'Search and Rescue Network' equipment is used inside a helicopter and creates an area of mobile phone coverage beneath it, giving rescuers the ability to communicate with cell phones on the ground below. This is especially important in rural parts of New Zealand where mobile phone coverage is non-existent and hikers get lost in the bush. The prototype was recently tested in the Hunua Ranges – a 15,000 square kilometre area with no mobile phone coverage near South Auckland. This area is popular with trampers, campers

and holiday makers. Further tests will be carried out in order to make the prototype into a fully functional tool, and add things like GPS. In its current form, the Search and Rescue Network detects a cell phone 'ping' – a signal mobile phones emit when they're trying to connect. Once the ping is detected by the equipment in the helicopter, it shows up on a computer screen, giving the Search and Rescue teams a smaller search area to locate a missing person. When the helicopter is heard overhead, the person on the ground can also use the network to make a 111 emergency call which is answered by the crew in the helicopter. The idea came after American tourists Rachel and Carolyn Lloyd were rescued in the Tararua Ranges in May 2016. The mother

and daughter had been missing for days but were spotted by a helicopter because they'd spelled out 'HELP' in rocks on the ground. Vodafone Technology Director, Tony Baird said, "After watching the Lloyd's story we figured there must be a way Vodafone innovation could help SAR teams locate missing people faster. With this innovation, it's like we're creating a searchlight across the bush using a mobile signal. We're really keen to keep working with SAR to get this technology to a stage where it could be used in real life search and rescue operations". The 'Search and Rescue Network' is the latest in several 'zero coverage' innovations from Vodafone designed to support kiwi emergency services teams operating in remote and isolated areas.

WINNERS ANNOUNCED

Thank you

to everyone who entered the S.S Bright Sparks Island Escape competition! We received many creative, scientific, and extremely innovative entries. So who made it off the island to safety and received a 3D pen for their bravery and determination?

The winning ASB Bright Sparks survivors are:

1. Avena An
2. Lily Kamsteeg
3. Jade Hunter
4. Nirhjah Selvarajah
5. Danny Kivi

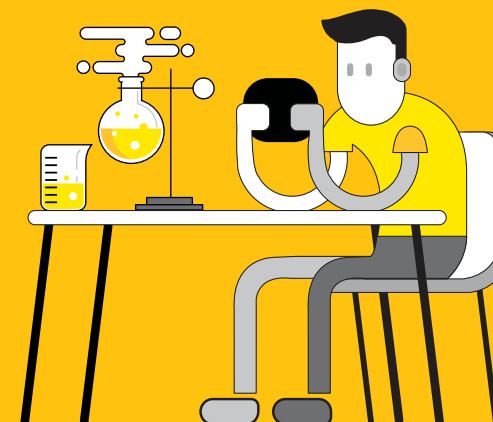
Congratulations to our winners! And great job to everyone who entered. Keep up the good work and keep escaping those pesky islands. We will be in touch with the winners to arrange the prizes, so keep an eye on your inbox.



ASB BRIGHTSPARKS

If you would like to continue receiving “The Bright Spark Bulletin” please email brightsparks@skills.org.nz and let us know*! We can sign you up to our mailing list straight away.

*By emailing us, you are consenting to letting us use your email address solely to send you the ASB Bright Spark eBook “The Bright Spark Bulletin”. You will not be added to any other mailing lists and your details will remain confidential.



Thanks to our sponsors for the 2017 ASB Bright Sparks competition!

ASB

