



# NIWA

Taihoru Nukurangi

Proud sponsors of Regional Science and Technology Fairs

## **NIWA Waikato Regional Science & Technology Fair** 7<sup>th</sup> & 8<sup>th</sup> August 2020

**Hamilton Gardens Pavilion, Cobham Drive, Hamilton East**

Friday 07 August	8.15am–8:45am 9.00am–11.30am 11.30am–3.30pm 3:30pm–6:00pm	Exhibit set up Judging with students present Judging continues Public viewing welcome
Saturday 08 August	9:00am–2:00pm 2:00pm	Public viewing welcome Removal of displays
Tuesday 11 August	7:00pm	Prize giving ceremony at St. Paul's Collegiate School

An event co-ordinated by:

*Kiwanis Club of Westside Hamilton and WSTA*



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## **SPONSORS**

The organising committee wish to acknowledge the following organisations for their valued financial contributions in ensuring the success of the 2020 NIWA Waikato Regional Science & Technology Fair. Thanks must also go the schools and other organisations that have generously allowed the release of staff to form the judging and stewarding teams.

### **PLATINUM**

National Institute of Water and Atmospheric Research (NIWA)

### **GOLD**

Babbage Consultants  
DairyNZ  
Hill Laboratories  
Waikato Regional Council  
WEL Energy Grant

Livestock Improvement Corporation  
The Electrical Training Company  
University of Waikato  
HCC Community Grant

### **SILVER**

Engineering NZ  
SciPad  
Tatua Co-operative Dairy Company Ltd

WINTEC  
WSTA

### **BRONZE**

NZ Institute of Chemistry Waikato  
Kiwaniis Club of Westside Hamilton  
Morphum

Science Awards Trust  
NZ Institute of Agricultural Sciences

### **SPONSORS**

Baking Research Trust  
Dairy Goat Co-Operative NZ Ltd  
Geoscience Society of NZ Waikato  
NZ Microbiological Society  
NZ Society of Soil Science  
NZ Statistical Association & Statistics NZ

Sociological Association of Aotearoa  
NZ Institute of Food Science and  
Technology Waikato  
Department of Conservation  
WEL Energy

## **2020 WAIKATO SCIENCE FAIR COMMITTEE**

### **2020 Waikato Science and Technology Fair Committee – Welcomes You**

This year has been challenging and we still have a long road ahead. The rapid worldwide spread of the Covid-19 virus and New Zealand's proactive response to 'shutdown' for two months, has had a significant impact on us all. We needed to stay patient and allow time for the virus to be eliminated from our society, but this is the scientific process. Science is about observing, theorising, planning, testing, collecting evidence, analysing data, modifying approaches, re-testing, and finding trends before drawing any conclusions. As scientists, it's unacceptable to draw conclusions without the rigorous testing and collection of evidence required to back it up. This is especially true when it comes to human lives. Thus, our Director of Health, was only going to give the all clear if the testing and evidence indisputably pointed to this conclusion. So we, the Committee, are all thankful to Dr Ashley Bloomfield and his team, and we salute their scientific process.

To the teachers, parents and friends who have helped the students with their exhibits, we thank you. We thank you for the time, support, encouragement and patience you have shown over the months of preparation for the fair. You are extraordinary and are to be commended for your efforts.

To our sponsors, thank you for your generous support. We are once again, extremely thankful to our platinum sponsor, NIWA, without whom we would struggle to put on a fair. Special thanks also to our Gold sponsors, Hill Laboratories, University of Waikato, Dairy NZ, The Electrical Training Company, Babbage Consultants, Livestock Improvement Corporation and Waikato Regional Council. We have also received a generous grant from WEL Energy and an HCC Community grant. To all our sponsors, we greatly appreciate your support and we hope to continue our partnership into the future.

Finally, we hope you have an enjoyable fair and we look forward to seeing you again next year.

*Kelvin Hogg*

**Chairperson,**

Waikato Science and Technology Fair Committee

#### **2020 Waikato Science and Technology Fair Committee**

Chairperson: Kelvin Hogg    Secretary: Amanda French    Treasurer: Harriet Reed-Hadley

NIWA representative: Tracey Burton    Judging coordinator: Anne Pouwels

Committee members: Alec McGowan, Fiona Murphy, Julia Liefiting,



Proud sponsors of Regional Science and Technology Fairs

## Main Sponsor Message

A very warm welcome to the 2020 NIWA Waikato Science & Technology Fair.

It's a great pleasure for NIWA to support this outstanding event once again, and we congratulate all the students, parents, teachers and supporters who have worked so hard to ensure its success.

NIWA Science & Technology Fairs are a wonderful opportunity for students to showcase their talent and enthusiasm for science, and to gain recognition for their excellence and innovation. Across the country, thousands of students have been involved in researching, constructing and presenting exhibits. Participation is on its own a powerful learning tool, but above all else they should be fun.

Naturally, NIWA has a vested interest in nurturing a passion for science and technology among young New Zealanders. Enhancing knowledge in NIWA's key areas of scientific focus – the atmosphere, the ocean, and freshwater – is critical to the sustainable growth of New Zealand as a nation. We need fresh enquiring minds to maintain this momentum. A career in science and technology is as rewarding as it is important – and right here is where we hope a spark may be lit.

NIWA is the main sponsor of the Waikato, Auckland City, South & East Auckland, North Harbour, Bay of Plenty, Wellington and Canterbury-Westland Science and Technology Fairs. These events form part of our long-term commitment to enhancing engagement with science and technology by young New Zealanders.

Thank you to the organising committee, Kiwanis, judges, schools and other sponsors for your commitment and support in promoting the NIWA Waikato Science & Technology Fair. Without you, this exciting event simply wouldn't happen.

Tracey Burton

NIWA Science Fairs Co-ordinator

For more information on NIWA visit: [www.niwa.co.nz](http://www.niwa.co.nz)



## **KIWANIS CLUB OF WESTSIDE HAMILTON**

Hamilton's Westside Kiwanis Club is proud to continue their involvement with the National Institute of Water and Atmosphere Research (NIWA) Waikato Regional Science Fair.

Kiwanis International was founded in 1915 and has more than 600,000 members in 92 countries throughout the world. Our primary focus is to support children and young people and in a typical year, Kiwanis invests more than 6.2 million hours and US\$100 million in communities around the world.

The Kiwanis Club of Westside Hamilton has supported the Waikato Science Fair for many years.

We believe that given encouragement and the proper facilities to expand their enquiring minds, today's children will be instrumental in making tomorrow's world a better, safer, and more enjoyable place to live.

Science Fairs such as this give these young people the ability and enthusiasm to discover ways of providing clean water, better medicines, more nutritious food, safer methods of transport and better ways to live in harmony with the environment around us.

I would like to congratulate NIWA for the generous and ongoing sponsorship. To the judges who have put in many hours of careful discussion and observation before making their decisions, and the many teachers and parents who have helped, encouraged and given their time and energy, we offer well done and thank you. Also to the many students who have produced such a wide variety of excellent displays, I say congratulations and thank you for the time and effort you have spent.

With all these groups and individuals working together we have produced once again a very successful and entertaining Science Fair.

*Yvonne Joyness*

**President**

Kiwanis Club of Westside Hamilton



## **WAIKATO SCIENCE TEACHERS ASSOCIATION (WSTA)**

Waikato Science Teachers Association (WSTA) The Waikato Science Teachers Association (WSTA) is a group of passionate Science educators from across the greater Waikato region. The WSTA has played a key role in the 2020 NIWA Waikato Regional Science and Technology Fair.

The Science Fair is an opportunity for students to showcase their ability in Science. It challenges students to carry out some 'real world' science - the way scientists think and do Science. The WSTA is proud to be supporting students in our region excel in these endeavours. The WSTA is always impressed with the effort and scientific process that students display at the fair. It is always a delight to see the work our next generation of Scientists produce.

WSTA wish to congratulate all competitors who have completed a Science Fair project in the Covid-19 climate, especially those who have reached the NIWA Waikato Regional Science and Technology Fair.

*Fiona Wolff*  
**Chairperson**

Each year Science Technicians from around the Waikato help on the registration desk.  
Thank you to:

Raewyn Keene – St. Paul's Collegiate School  
Chris Lea – St. Peter's School  
Pam Welch-Cropp – Waikato Diocesan School for Girls  
Michelle Warner – Fraser High School  
Emma Gray – Hamilton Boys' High School  
Lisa Clay – Rototuna High School

## PRIZE LIST

### SUPREME AWARDS

1. Best in Fair: **\$800** cash award and trophy sponsored by NIWA, plus a ticket to the 2020 Kudos Awards dinner.
2. Runner Up: **\$450** cash award and trophy sponsored by NIWA, plus a ticket to the 2020 Kudos Awards dinner.

### 2020 NIWA SHIELD FOR BEST OVERALL SCHOOL

The supreme award, which aims to recognise the combined success of award winning students from within a school.

### NIWA WORK EXPERIENCE SCHOLARSHIP

Additional to fair sponsorship NIWA is proud to offer a two-week NIWA Work Experience Scholarship for a senior student (aged 16 years or over) who has excelled in presenting an environmental project in the fair. This scholarship provides **paid work experience** in January 2021 at NIWA Hamilton. The winning student will be given the unique opportunity to work along-side NIWA scientists working at the forefront of NIWA science.

### MAJOR AWARDS

These awards come with a cash prize:

**\$200** for 1<sup>st</sup> place

**\$100** for 2<sup>nd</sup> place:

- Best Scientific wall display (1<sup>st</sup> and 2<sup>nd</sup>)
- Best Year 7 exhibit (1<sup>st</sup> and 2<sup>nd</sup>)
- Best Year 8 exhibit (1<sup>st</sup> and 2<sup>nd</sup>)
- Best Year 9 exhibit (1<sup>st</sup> and 2<sup>nd</sup>)
- Best Year 10 exhibit (1<sup>st</sup> and 2<sup>nd</sup>)
- Best Year 11-13 exhibit (1<sup>st</sup> and 2<sup>nd</sup>)
- Best Technology exhibit (1<sup>st</sup> and 2<sup>nd</sup>)



## CLASS AWARDS

For classes 1-14:

First Prize: **\$100.00**  
Second Prize: **\$70.00**

Third Prize: **\$40.00**  
Highly commended: **\$20.00**

For classes 15-20:

First Prize: **\$70.00**  
Second Prize: **\$40.00**

Third Prize: **\$30.00**  
Highly commended: **\$20.00**

## SPECIAL AWARDS

1. NIWA Special Award for an outstanding exhibit related to water and/or the atmosphere.
2. NZ Statistical Association Special Award for the excellent application of statistical methods and reasoning.
3. New Zealand Soil Science Society Special Award for an outstanding exhibit that relates to soil science.
4. NZ Baking Industry Research Trust Special Award for the best use of flour or bakery products in a food related project.
5. New Zealand Institute of Agricultural Science (Waikato) Special Award for an excellent exhibit with an agricultural theme.
6. Dairy Goat Co-operative (DGC) Special Award for the best Year 7-8 Food Science & Technology exhibit.
7. New Zealand Institute of Food Science & Technology (NZIFST - (Waikato Branch)) Special Award for best Year 9-13 Food Science & Technology exhibit.
8. Sociological Association of Aotearoa Special Award for the best exhibit incorporating social sciences.
9. New Zealand Microbiological Society Mike Baxter Prize.
10. McGowan Special Award – Judges choice.
11. NZ Institute of Chemistry Best Junior Chemistry Investigation
12. NZ Institute of Chemistry Best Senior Chemistry Investigation

*\* Please note: all Highly Commended and Special awards are awarded at the discretion of the Judges.*

## JUDGING PANEL

The judging panel consists of scientists from local industries and tertiary institutions.

### Chief Judge

Tracey Burton NIWA

### Senior Judges

Liz Carpenter	Living World	Dairy Goat Co-operative NZ Ltd
Michele Prinsep	Material World	University of Waikato
Nick Body	Physical World	Gallagher Group
Fiona Murphy	Earth & Resources	SHGC - Hamilton / WSTA
Peter Burgess	Inventions & Innovations	Gallagher Group
Roger Cox	Senior Sciences	Wintec
Anne Pouwels	Judges' Convenor	WSTA

### Judging Panel

Amos Chua	Tatua Co-Operative Dairy Company
Jason Clague	Hill Laboratories
Juliet Clague	Lincoln Agritech Ltd
Daniel Clements	NIWA
Paul Ewart	Wintec
Patricia Gleason	Wintec
Brandon Goeller	NIWA
Nita Harding	DairyNZ
Chad Harland	LIC - Livestock Improvement Corporation
Thomas Lopdell	LIC - Livestock Improvement Corporation
Lisa Mc Cartain	NIWA
Jordyn May	DGC – Dairy Goat Co-operative
Bjorn Oback	AgResearch
Charlotte Reed	DairyNZ
John Richards	Engineering NZ
Jonathan Scott	University of Waikato
Andrea Soanes	University of Waikato
Nicole Steele	DairyNZ
Pamela Storey	Consultant
Aleki Taumoepeau	NIWA
Juan Tauri	Sociological Association

## **JUDGING PANEL (CONT.)**

Richard Todd  
Louise Tolenaars  
Gwyn Verkerk  
John Waller  
Tessa Warner  
Marcus Wilson  
Rebecca Yeates

Fonterra  
DGC - Dairy Goat Co-operative  
Consultant  
NZ Statistical Association  
Fonterra  
University of Waikato  
Morphum Environmental

## ABBREVIATIONS FOR SCHOOL NAMES

School name	Abbreviation
Berkley Normal Middle School	BMNS
Cambridge Middle School	CMS
Cambridge High School	CHS
Fairfield Intermediate School	FIS
Gordonton School	GS
Hamilton Boys' High School	HBHS
Hamilton Christian School	HCS
Hamilton Girls' High School	HGHS
Hautapu School	HS
Hillcrest High School	HHS
Marian Catholic School	MCS
Matamata Intermediate School	MIS
Morrinsville Intermediate	MI
Morrinsville College	MC
Ngahinapouri School	NS
Ohaupo School	OS
Peachgrove Intermediate School	PIS
Pirongia School	PS
Rototuna Junior High School	RJHS
Sacred Heart Girls' College	SHGC
Southwell School	SS
St. Columba's	SC
St John's College	SJC
St. Paul's Collegiate	SPC
St. Peter's School	SPS
St. Pius X Catholic School	SPX
St. John's College	SJC
Te Awamutu College	TAC
Te Pahu School	TPS
Waikato Diocesan School for Girls	WDSG
Waipa Christian School	WCS
Whareorino School	WS

## EXHIBIT CLASS: 1 – YEAR 7 LIVING WORLD

Sponsored by: TATUA CO-OPERATIVE DAIRY COMPANY LTD



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
0101	Saskia van de Steeg	The Breeding habits of NZ Seahorses	BMNS
0102	Maddie Friis	What's the buzz about bees?	BMNS
0103	Elena McCrossan	Far Fast Fruit	BMNS
0104	Edie Simmons	Cereal Serving Size	CMS
0105	Mila Fife	Picky Tulips	HS
0106	Hayley Morgan	How Clean are Your Hands?	MIS
0107	Rhys Gibberd	Riparian Run-Off	MI
0108	Arwen Millward	Individual Ratsonality	PS
0109	James Manning	Does Music make Plants Grow?	PS
0110	Liam Egan	Big boy beefies	PS
0111	Jacob van Straalen	Early to bed, early to rise...	PS
0112	Lily Clements	Do essential oils really reduce blood sugar levels in type one diabetes?	PS
0113	Gabriella Schuitemaker	To lament or ferment. Bread	SS
0114	Tessa Clearwater	Pausing For Nature	PIS
0115	Maimoona Aiyaz	Kitchen Pantry or Medicine Cabinet?	PIS
0116	Rose Bowden	The hard truth about soap.	PIS
0117	Samuel Xia	If you're happy and you know it... WASH YOUR HANDS	PIS
0118	Lauren Harris	Pop!	PIS

0119	Cassia Pace	Eyes + Light = Colour!	PIS
0120	Ziqi Cao	The Power of Handwash	PIS
0121	Saul Drewer	What is the mental impact of covid-19?	PIS
0122	Nathaniel Rastrick	Germs Galore	SC
0123	Aiden Hermiz and Ashton Galbraith	Balloon Breath	SC
0124	Ishika Mehta and Leiana Silvestre	Calm That Dog	SC
0125	Shannon Sitchon	Sanitizer Wars	SC
0126	Lachlan Smith	Are You Paying Attention	SC
0127	Carter Steans	Growing Grass	SC

## EXHIBIT CLASS: 2 – YEAR 8 LIVING WORLD

Sponsored by: DAIRYNZ



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
0201	Mya Aitken	Power of Preservatives	BMNS
0202	Shania Bhata	Antibacterial Bomb	BMNS
0203	Avee Belhamine	DNA in degrees	BMNS
0204	Amy Wright and Charlene Theron	You Are My Sunshine	CMS
0205	Ceana Burton	No More Weeds	CMS
0206	Spencer Shortt-Smith	The Funky Science of Growing Your Own Yeast	CMS
0207	Natalie Thomas	The Bacteria In-Spectrum	CMS
0208	Amanda Greenbaum	Taste the Rainbow	HS
0209	Kendyl Barr	Germination	HS
0210	Irish Lee	Modern Farming	MCS
0211	Johan Arakadavil and Amith George	Digestive Races	MCS
0212	Ryan Ingram	Spray Away	OHP
0213	Jordyn Bell and Jakob Byers	Which possum bait works the best?	MI
0214	Oliver Herbert	H2Ohhh no its all gone!!	PS
0215	Aidan Hodgson	Destructors Deadly Disciple	PS
0216	Reuben Turnbull	Get growing grass	PS
0217	Nathan Whiteman	Is Moss the Boss?	PS
0218	Ryan Leslie	Be Gone Pests, Hello "Bird Song"	RJHS

0219	Zara Brassington	Waiting Out a Pandemic	PIS
0220	Zaria Uluakiola	Sleeping and Learning?	PIS
0221	Krishna Patel	Ban the Tan	PIS
0222	Tasya Brough	Musical Youth	PIS
0223	Kirby Lacson	Hand Sanitizer Or Hand Soap	PIS
0224	Sumaiya Azfar	Beauty and the Yeast	PIS
0225	Hanson Yang	Rethink Your Drink	PIS
0226	Catherine Benton	How your face could kill you?	PIS
0227	Eoin Kelly	Germination of Capsicum Seeds	HS
0228	Charlotte Thomas-Carter & Samantha Baird	Music to my Leaves	HS
0229	Chloe Peters	Get Your Heart Pumping	SC
0230	Summer Baldago	Hearing Lips and Seeing Voices	SC
0231	Torben Smith	Grow Grass Grow	SC
0232	Isabelle Differ	Dogs Got the Blues	SC



Profitability. Sustainability. Competitiveness.

DairyNZ invests dairy farmers' money into a wide range of programmes, guided by a dairy industry strategy which outlines the commitments and goals we want to achieve as a sector.

DairyNZ's work includes research and development to create on-farm tools, leading on-farm adoption of good practice farming, promoting careers in dairying and advocating for farmers with central and regional government.

The Waikato Science and Technology Fair is one of seven regional fairs that DairyNZ is sponsoring in 2020. DairyNZ is committed to recognising the talents of young scientists.



## EXHIBIT CLASS: 3 – YEAR 7 MATERIAL WORLD

Sponsored by: **NZIC – WAIKATO BRANCH**



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
0301	Norah Schmale & Emily Germaine	Just Wear a Mask	BMNS
0302	Yeonjoon Kim	Mouldy Bread	MCS
0303	Oliver Caldwell and Luke Twaddle	Firey Fabric	MCS
0304	Nieve Alchin	Gluten Globs	OHP
0305	Ekam Kaur Minhas	Ditch That Plastic	OHP
0306	Taleah Kite	5, 4, 3, 2, 1	OHP
0307	Eliza Johnson	Is plastic really fantastic?	PS
0308	Lani Jarrett	Nature's Colours	SS
0309	Caroline Glander	Natural Dyeing	SS
0310	Sam Arthur	Mask Mania	SS
0311	Tatva Patel	Why So Tense?	PIS
0312	Erin Silcock	Spice & Ice	HS



Babbage Consultants was established in 1937 by the great grandson of Charles Babbage, the inventor of the Difference Machine, an early computer and its design was one of the great scientific engineering feats of the 19th century in the world.

Babbage's head office is located in Auckland and provides engineering and design services across multiple engineering disciplines, which also includes a large Architecture division.

Babbage is a New Zealand owned business and is the leading project management consultancy of large capital projects in the Dairy industry with the PM Division office based in Hamilton. Babbage has successfully managed the majority of the large projects for the dairy industry throughout Australasia.

This division has received several top national awards for excellence in project delivery and safety management of dairy capital projects and based upon excellent performance clients have retained us for repeat business when they have further major projects.

## EXHIBIT CLASS: 4 – YEAR 8 MATERIAL WORLD

Sponsored by: SciPAD



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
0401	Helena Ho & Hazel Young	Black Magic	BMNS
0402	Zoe ter Beek	Washing Power	BMNS
0403	Evelyn Eden	Cornstarch Curiosity	BMNS
0404	Samantha Gardiner & Riley Reid	Don't Have an Eraser? What can you use instead?	BMNS
0405	Dilni Ranmadugala	Cleaning oil Spills	BMNS
0406	Lucy Glover and Ava Kirk	Baking Disaster or Baking Master	CMS
0407	Jordyn Butler and Greta Casey	Splashing Out	CMS
0408	Logan Ismay	Don't Lose Your Cool	CMS
0409	Lizzy Foy	Exploring Decomposition	CMS
0410	Lauren Riddle	Microbeads	CMS
0411	Cameron Spence and Ethan Bailey	Green Eggs and Not Ham	HS
0412	Leah Anderson	Elephant Toothpaste	HS
0413	Kaylin Fong and Elisa Pisciarelli	Covid Cover	MCS
0414	Natalia Johnson	Flammable Fabric	MCS
0415	Jaxon Buik	Bubble 'n Fizz	OHP
0416	Naomi Martin	Gelatin Bond	OHP
0417	Shania Holmes & Jaime McLennan	Sugar Rush	OHP
0418	Jessica Ward & Sapphire Ward - Lean	Wrap it Up	OHP

0419	Xanthe Wooten	"I ' Pomace' I'll Stop Oxidising!"	OHP
0420	Libby Hyanes	Metal Mayhem	PS
0421	Jacob Sheridan	Are you bearing it?	PS
0422	Amelia Tyer	Crumbling Concrete	PS
0423	Mac Innis	The Rusty Truth	PS
0424	Harlynn Samuels-Brown	Evaporation Race	PIS
0425	Emma Bowyer	Poster Protection	PIS
0426	Ishaan Patel	Ohm Sweet Ohm	PIS
0427	Ashwin Bhorkar	To eat or not to eat, that is the question....	PIS
0428	Rachel Kim	Do different sugars affect the flavour in whipped coffee?	PIS
0429	Andrew Kim	Covid-19 and masks: What is the best mask against Covid-19?	PIS
0430	Usman Kamran	Which fruit tenderizes meat the most?	PIS
0431	Nathan Peake	How Good Is Your Soap	HS
0432	Prisha Ram	DIY Water Filter	SC
0433	Emily Gomez de los Reyes	Fresh For Longer	SC

## EXHIBIT CLASS: 5 – YEAR 7 PHYSICAL WORLD

Sponsored by: **BABBAGE CONSULTANTS**



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
0501	Madeleine Ward	Float Your Boat	BMNS
0502	Ethan Harvey	An Uphill Climb	CMS
0503	Emma Wheeler	The Bridge To Nowhere	CMS
0504	Maia Gaiger and Mia Montrose	Static Tissues	CMS
0505	Ezra Odgers	It's bottle rocket science	NS
0506	McLeay Robinson	Dont crack under pressure	SPS
0507	Amina Mohamed	Time To Split Up!	PIS
0508	Nathan Rivers	Ready, Set, Fly!	PIS
0509	Trent Walker	Battery Length	PIS
0510	Obaidullah Zaman	Electromagnetic to Kinetic	PIS
0511	Robbie Long	Things that go beep in the night.	PIS

## EXHIBIT CLASS: 6 – YEAR 8 PHYSICAL WORLD

Sponsored by: WINTEC



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
0601	Ariel Wu	The Mystery of Harmonics	BMNS
0602	Sava Motofelea & Parascheva Motofelea	Green or Mean?	BMNS
0603	Olivia Wang	Zappity Zap Zap	BMNS
0604	Taniya Vave	Newton's Cradle	CMS
0605	Philip Johnson	Spectrophotometry and Variable LED Light	CMS
0606	Sam Rutter	Coasting Along	CMS
0607	Devon Ormsby	Magnets	CMS
0608	Oliver Rickit & Sahara Stanton	BioBoost	HS
0609	Xander Taylor	How Strong are Lego Bricks	HS
0610	Benedict Doohan and Lachlan Carrasco	Ro-Bee	MCS
0611	Liam Hollinshead	Sky High!	OHP
0612	Russell Harrison	Altering Ice Ego	PS
0613	Oliver Fleming	Attractive Energy	SS
0614	Hunter Jones	Sound to colour	SS
0615	Hinerangi Koroheke	Popping Points	PS
0616	Honeylet Kabiling	Hydro Glow	SC

## EXHIBIT CLASS: 7 – YEAR 7 & 8 PLANET EARTH AND BEYOND

SPONSORED BY: UNIVERSITY OF WAIKATO



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
0701	Cate Young	What is a Moon Halo?	BMNS
0702	Orko Ahmed and Seth Oranje	Shake Down	CMS
0703	Hannah Goodwin	Feeling the Pressure	CMS
0704	Mia Cooper	Acid Rain	SS
0705	Brendan He	Achoo: Should We Blame The Weather For Hay Fever?	PIS



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

Many of today's top scientists and engineers began their careers with a science fair project. An ability to think outside the box and a determination not to give up has formed the basis for some of the world's most remarkable scientific discoveries and are values at the forefront of the Waikato way of thinking.

The University of Waikato's Schools of Science & Engineering offers the next step in your journey. Our internationally recognised programmes in Biological Sciences, Chemistry, Earth Sciences, Engineering, Environmental Sciences and Physics will give you the skills to open doors anywhere in the world.

## EXHIBIT CLASS: 8 – YEAR 9-10 LIVING WORLD

Sponsored by: **WAIKATO REGIONAL COUNCIL**



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
0801	Mikalea Davidson	Brushing With Bacteria?	CHS
0802	Aaron Randall and Summer Korkie	Grass	TAC
0803	Georgie-Rose Boyd	Heat to the Beat	SPS



Our aim at Waikato Regional Council is to make the mighty Waikato the best it can be. A healthy and sustainable environment. An economy that punches above its weight. Communities that are as resilient as they are vibrant.

Our work is as diverse as our region. We have a mix of operational and strategic functions, which includes working with iwi, individuals and community groups to improve the region's water quality, as well as biodiversity. We do other things too, including public transport, navigation safety, environmental monitoring and enforcement, planning and funding.

We can't succeed on our own. Working with others is at the heart of how we do things, and it's these partnerships that are key to forging an exciting future for the Waikato.

The council is proud to support young scientists with a genuine interest in our environment, who are using out-of-the-box-thinking to develop solutions to real problems.



## EXHIBIT CLASS: 9 – YEAR 9-10 MATERIAL WORLD

Sponsored by: SciPAD



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
0901	Olivia Varley	Can colour change?	HCS
0902	Joshua Thompson and Isaac Jeffery	Hydrogen: Fuel of the future	HCS
0903	Trelise Forster	Tooth Decay	HCS

## EXHIBIT CLASS: 10 – YEAR 9-10 PHYSICAL WORLD

Sponsored by: KIWANIS CLUB OF WESTSIDE HAMILTON

# Kiwanis

[www.kiwanis.org](http://www.kiwanis.org)

	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
1001	Alexander Kashpir	Melting light	HCS
1002	Liam Woods and Jeremy Li	Power Up	HCS
1003	Daniel Harvey	Aerodynamics of rocket cones	HCS
1004	Katie Li	Treble the Tone	SPS
1005	Mitchell Robinson	Dust Explosion	SPS

## EXHIBIT CLASS: 11 – YEAR 9-10 PLANET EARTH AND BEYOND

Sponsored by: **KIWANIS CLUB OF WESTSIDE HAMILTON**

# Kiwanis

[www.kiwanis.org](http://www.kiwanis.org)

	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
1101	Abigale Pope and Sarah-Kate Pearson	Learn our Solar System	MC

## EXHIBIT CLASS: 12 – YEAR 11-13 SENIOR SCIENCES

Sponsored by: **HILL LABORATORIES**



**Hill Laboratories**  
**TRIED, TESTED AND TRUSTED**

	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
1201	Matthew Lever	Hydrogen - fuel to save the world?	MC
1202	Damien Ward and Lincoln Hannah	Car goes vroom!!!	MC
1203	Lachlan Coleman	Liquefaction	SPC
1204	Emily Parker	Sweet, Sweet Nectar	SPS
1205	Lance Jones	On the Nano Scale	SPS
1206	Umika Sadanie	Enzyme Recovery	SPS
1207	Michelle Jeng	Can't resist to paint	WDSG



**Hill Laboratories**  
**TRIED, TESTED AND TRUSTED**

Hill Laboratories is New Zealand's largest 100% privately owned and operated analytical testing laboratory with three major testing areas: agriculture, environmental and food & bio analytical. Tried, tested and trusted for over 30 years, our focus has remained unchanged: providing New Zealanders with the best analytical testing service on offer.

Founded in 1984 by Dr Roger and Anne Hill, the company remains family owned today. With over 400 staff working across its laboratories in Hamilton, Christchurch, Auckland, Blenheim and Wellington, it is a significant employer of science graduates from New Zealand tertiary institutions.

**EXHIBIT CLASS: 13 – YEAR 7 – 8 JUNIOR INVENTIONS AND  
TECHNICAL INNOVATIONS**

Sponsored by: **ENGINEERING NZ**



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
1301	Ashton Vanin	Bendies	HS
1302	Fred McKenzie	Socket Lock it!	MCS
1303	Ava Holloway Smith	Let's Get Physical	OHP
1304	Jumana Fouda	Dealing with Diabetes	PIS

**EXHIBIT CLASS: 14 – YEAR 9 – 13 SENIOR INVENTIONS AND TECHNICAL  
INNOVATIONS**

Sponsored by: **ENGINEERING NZ**



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
1401	Lachlan Coleman	Roll Guage	SPC

## EXHIBIT CLASS: 15 – YEAR 7 & 8 SCIENTIFIC WALL CHART

Sponsored by: MORPHUM ENVIRONMENTAL LTD



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
1501	Annika Fang	Rock Climbing Wheel of Life	BMNS
1502	Avee Belhamine	How does Olympic Ski Training effect Olympic Skiers Mental Health?	BMNS
1503	Rachael Le Miere	The Science Behind Olympic 3 Day Eventing	BMNS
1504	Hadassah Te Wehi	The Science Of Long Distance Running	CMS
1505	Joy Liao	The Science behind tennis	SS



The The Electrical Training Company, or Etco, is a wholly owned subsidiary of Master Electricians (previously ECANZ) established to provide employment and training for the electrical industry in New Zealand.

Our two main areas of activity are the employment and placement of electrical apprentices via our group apprenticeship scheme and the provision of training courses for apprentices and tradespeople.

Since our establishment in 1991, our commitment to producing the best has helped thousands of Etco apprentices and students achieve outstanding results and successes in industry competitions, national examinations and the industry itself.

Training of apprentices is a combination of on-the-job training through placements with electrical companies and contractors and off-the-job training. This involves study at home, attending our night classes and block courses at one of our Hamilton training centre.

Apprentices receive extensive instruction, supervision and support throughout all stages of their training which involves a series of assignments, assessments and examinations. For more information – [www.etco.co.nz](http://www.etco.co.nz)



## EXHIBIT CLASS: 16 – YEAR 9-13 SENIOR SCIENTIFIC WALLCHART

Sponsored by: THE ELECTRICAL TRAINING COMPANY



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
1601	Caleb Leslie	Science Behind the Olympics	SJC
1602	Michelle Jeng	Ice Hockey	WDSG
1603	Diny Zhou	Figure Skating Physics	WDSG
1604	Joie Lin	The Olympic Torch	WDSG
1605	Lauren King	Sports Doping	WDSG
1606	Keisha Joe	Pecten Maximus	WDSG

## EXHIBIT CLASS: 17 –SCIENTIFIC VIDEO

Sponsored by: WSTA



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
1701	Amy Cheng	The Science Behind Speed Skating	BMNS
1702	Raphael Wu and Liam Shorten	The Science behind Shoes in the Olympics	BMNS

## EXHIBIT CLASS: 18 – YEAR 7 – 8 OBSERVATIONAL DRAWINGS

Sponsored by: WSTA



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
1801	Ariel Wu	Austrofusus Glans	BMNS
1802	Saskia van de Steeg	Scylla Serrata	BMNS
1803	Annabelle Waters	Potamopyrgus Estuarinus	BMNS
1804	Annie Yu	Phenatoma rosea	BMNS
1805	Lauren Pryor	Cominella Maculosa	BMNS
1806	Raphael Wu	Powelliphanta Lignaria Lusca	BMNS
1807	Danielle D'Ath	Struthiolaria papulosa	CMS
1808	Belle Pascual	Cymbiola nobilis	CMS
1809	Skyla Klos	Struthiolaria papulosa	CMS
1810	Hannah Goodwin	Struthiolaria papulosa	CMS
1811	Vivien Pettit	Alcithoe swainsoni	CMS
1812	Shantelle Duxfield	Chlamys zelandiae	CMS
1813	Aria Purdie	Thais orbita	CMS
1814	Jayden Brandt	Alcithoe arabie	CMS
1815	Kendyl Barr	Shell - Observational Drawing	HS
1816	Daisy Gower	Shell	GS
1817	Summer Cordes	Shell	GS
1818	Madison Hall	Shell	GS
1819	Hayley Verryt	Shell	GS
1820	Evie Parkin	Shell	GS
1821	Meg Enersen	Shell	GS

1822	Lily Johnson	Shell	GS
1823	Kaylee rose Paki	Shell	GS
1824	Cassidy Tukaki-Smith	Shell	GS
1825	Piper McNabb	Shell	GS
1826	Cruz Sathereley	Shell	GS
1827	Lucas Vickers	Shell	GS
1828	Seth Troth	Shell	GS
1829	David Grayson	Lambis lambis shell	GS
1830	Tiare Ennion	Struthiollaria Paulosa shell	GS
1831	Ava O'Hearn	Mastridae shell	GS
1832	Jora Singh-Sekhon	Conidae Conus shell	GS
1833	Angus Cheshire	Cypraea Chinensis shell	GS
1834	Eva Wilkinson-Gee	Dosinia anus shell	GS
1835	Holly Grayburn	Struthiolaria Papulosa shell	GS
1836	Roy Zhu	Pecten novaezelandiae	SS
1837	Joe Lang	Argopecten irradians	SPS
1838	Tara Naiker	Maoricolpus roseus	SPS
1839	Sophiya Andrews	Lightening Welk	SPS
1840	Luella Campbell	Stuthiolaria papulosa	SPS
1841	Millie Wright	Stiracolpus pagoda	SPS

## EXHIBIT CLASS: 19 – YEAR 9 – 13 OBSERVATIONAL DRAWINGS

Sponsored by: LIVESTOCK IMPROVEMENT CORPORATION (LIC)



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
1901	Manaia Elliot	Trochus maculatus	SPS
1902	Gemma Hewson	Dinocardium robustum	SPS
1903	Gemma Hewson	Dinocardium robustum	SPS
1904	Olivia Lewis	Strombus alatus	SPS
1905	JEssica Goldsmith	Lobutas gigas	SPS
1906	Anna Parsons	Conus spurius	SPS
1907	Sophie O'Connor	Lobatus gigas	SPS
1908	Esme MacGillivray	Buccinulum linea	SPS
1909	Alice Liu	Lobatus gigas	SPS
1910	Ellyse Ingram	Strombus raninus	SPS
1911	Ella Hines	Eulica scripta	SPS
1912	Grace Teh	Horse conch shell	SPS
1913	Eve Tapara	Fasciolaria Tulipa	TAC
1914	Emma Riggs	Lambis Truncata	TAC
1915	Casey Dixon	Spirula Spirula	TAC
1916	Flynn Haden	Paguroidea Decopoda	TAC
1917	Joie Lyn	Haliotis Iris	WDSG
1918	Diny Zhou	Lobatus Gallus	WDSG
1919	Serenita Wijaya	Agropecten Irradians	WDSG
1920	Amelia Le Comte	Phyllacanthus imperialis	WDSG



LIC (Livestock Improvement) is one of the largest integrated herd improvement organisations in the world. A dairy farmer owned co-operative, LIC has been providing services to farmers since 1909.

Its services range from herd testing and milk analysis, to artificial breeding, animal health, farm advisory, herd recording, DNA analysis, farm automation, improving herd reproduction and automated pasture measurement.

LIC's head office is located in Hamilton but it has offices and representatives across New Zealand and in the United Kingdom, Ireland, and Australia, with agents in South America, United States and South Africa.

## EXHIBIT CLASS: 20 - SCIENTIFIC PHOTOGRAPHY

Sponsored by: WINTEC



	<b>Name</b>	<b>Exhibit title</b>	<b>School</b>
2001	Laura Cook	Harmony in Hamilton	BMNS
2002	Saskia van de Steeg	Te Waihou Walkway - The Blue Springs	BMNS
2003	Rachael Le Miere	Te Miro Bridge	BMNS
2004	Rachael Le Miere	Gudex Stone Obelisk	BMNS
2005	Kiera Lloyd	Wheel of Harmony	BMNS
2006	James Pambid	Taitua Arboretum	BMNS
2007	Devon Ormsby	Lake Te Koutu	CMS
2008	Amy Wright	Pukemako	CMS
2009	Logan Ismay	Paakiri Beach	CMS
2010	Cate Crutchley	Victoria Bridge	CMS
2011	Amanda Greenbaum	Engineering in Harmony	HS
2012	Caleb Leslie	Larnach Castle	SJC
2013	Benjamin Allen	Photo	SPC
2014	Grace Cox	Victoria Street Bridge	SPS
2015	Tim Qian	Spider web	SPS
2016	McLeay Robinson	The Cambridge Branch	SPS
2017	Lucy O'Donohoe	Fish Ladder	SPS
2018	Frankie Swap	State Highway 27, Matamata	SPS
2019	Phillipa Grace Brown	Glasshouse	SPS
2020	Hannah Paine	Marshland	SPS
2021	Madi Judkins	Engineers in action	SPS
2022	Charlotte Tidmarsh	Pipes	SPS

2023	Dan Ritchie	Allan Turner Walkway Swingbridge	SPS
2024	Grace Teh	Waikato River Bridge	SPS
2025	Katherine Eddy	Man-made waterfall	SPS
2026	Sana Tsurutu	Sound Shell	TAC
2027	Sophie Yarndley	Yarndley's Bush	TAC
2028	Ellie - May Riddell	Awakino Tunnel	TAC
2029	Martha Newland	Traditional Wooden Fence	TAC
2030	Annika TeAnga	Spider Web	WDSG
2031	Ella Cho	The Link	WDSG
2032	Lucy Moran	Boardwalk	WDSG
2033	Samantha Taylor	Garden Seat	WDSG



## **PRIZE GIVING DETAILS**

Prize winners will be notified by your school on Monday (10<sup>th</sup> August) and a list will also be available online at [www.waikatosciencefair.org.nz](http://www.waikatosciencefair.org.nz). The **NIWA Waikato Science & Technology Fair** official prize giving ceremony will be held:

**Tuesday 11<sup>th</sup> August 2020**

at

**St. Paul's Collegiate School  
77 Hukanui Road  
Chartwell  
Hamilton**

**Start time: 7:00 p.m.**

**Please arrive by 6:50 p.m. to allow for a prompt start.**

## 2020 RESULTS

Results for the 2020 fair will be available following the prize giving ceremony on the NIWA Waikato Science and Technology Fair website:

[www.waikatosciencefair.org.nz](http://www.waikatosciencefair.org.nz)



On behalf of the NIWA Waikato Science and Technology Fair organising committee we hope you have enjoyed your fair experience and look forward to seeing many of you again next year.