



PARTICIPATING SCHOOLS

Alfriston College
Aorere College
Bucklands Beach Intermediate School
Drury School
Elim Christian College
Howick College
Howick Intermediate School
Manurewa High School
Maraetai Beach School
Mission Heights Junior College
Otahuhu Intermediate School
Paerata School
Pakuranga College
Papatoetoe High School
Pukekohe High School
Pukekohe Intermediate School
Rosehill Intermediate School
Saint Kentigern College
Somerville Intermediate School
Tyndale Park Christian School
Waiuku College



Sponsor's Message

NIWA is proud to become the new major sponsor of the Manukau Science & Technology Fair and wishes to congratulate the students, parents, teachers and supporters who have worked so hard to ensure the success of the 2013 NIWA Manukau Science & Technology Fair. NIWA has a core interest in promoting science careers for young New Zealanders and we look forward to helping to promote this interest in the Manukau area.

NIWA is also the major sponsor of the Waikato, Auckland City, Wellington and Bay of Plenty – Science & Technology Fairs. This sponsorship is part of our long-term commitment to enhancing science and technology for young New Zealanders.

Science & Technology Fairs provide a great chance for students to actively participate in science projects. The enthusiasm is clear to see and the Fairs give an opportunity for students to gain recognition for excellence and innovation. Across the country thousands of students have been involved in researching, constructing, and presenting exhibits. Participation in Science & Technology Fairs is on its own a powerful learning tool. It should also be fun.

Naturally NIWA hopes that many of the students exhibiting at this year's fair will go on to careers in science. The future achievements of our young scientists and technologists will lead the way to growing New Zealand's prosperity and in maintaining, restoring and caring for our remarkable environment.

Thank you to the organising committee, judges, schools and all other sponsors for their commitment and support in promoting the NIWA Waikato Science & Technology Fair. Without your contributions and dedication this exciting science event for the students would not happen.

Dr Julie Hall
NIWA Education Manager



CONVENOR'S REPORT

Welcome to principals, business partnerships, judges, families, teachers, committee members, organisers of the fair and participants of the NIWA Manukau Region Science and Technology Fair. We celebrate the excellence and innovation in projects, whose young people are leaders in their field at this prize giving tonight.

The NIWA Manukau Region Science and Technology Fair provided an opportunity for our emerging scientists to develop and practice their scientific thinking and processes of scientific investigation. It rewards our top students with recognition among their peers and an authentic prize.

There were 156 projects from High Schools, Colleges and Intermediate schools from across the Manukau region. There were 40 judges from specialist scientific backgrounds. The standard of the projects was very high, as has been in previous years.

The committee thank the commitment of NIWA our new major sponsor. The National Institute of Water and Atmospheric Research or NIWA is a Crown Research Institute of New Zealand.

The NIWA Manukau Region Science and Technology Fair 2013 has been the work of many teams of people. We are delighted with the businesses and organizations that supported our students through their sponsorship of the category and special prizes, some over a long period of years. We also welcome the new sponsors who have joined our team. Partnerships such as these have enabled us to maintain the positive status of science and technology for the past nineteen years.

We heartily thank the men and woman who are recognised specialists in their fields and judged the projects. The quality of the outcomes has been attributed to the high professional knowledge that the judges possess.

We thank also the other teams have given their time and expertise to make this fair successful: the committee members who have worked tirelessly throughout the year, those who helped with behind the scenes, and the Kiwanis Club of Papatoetoe. We also thank Mission Heights Junior College for their support and venue this year.

Finally a special thanks to the parents, teachers and families of the exhibitors for the support that they have given their children. The impact of this support is highly visible in the quality and depth of the projects.

The judges interviewing the 183 students in the hall on Sunday was indicative of the passion for science from schools, businesses, institutions, researchers and young people in our Manukau region. There were authentic links between students and the real scientific world. This was a true sign that science is alive and kicking, and will serve our future of New Zealand in exciting ways.

MRoberts

Marilyn Roberts
Science Fair Convenor



GENESIS ENERGY REALISE THE DREAM

8 – 14 DECEMBER 2013

Realise the Dream is a prestigious national event which rewards and celebrates 20 secondary school students who have undertaken an excellent piece of science research, technology or an electronics/robotic/computer science project.

Students are required to be nominated by their regional science and technology Chief Judge and then the nomination is sent to the Realise the Dream selection panel whereby all nominations undergo a rigorous judging process.

Students who are selected for Realise the Dream are rewarded with an all expenses paid week-long trip to attend the event. Realise the Dream starts in Auckland on 8 December and then travels down through the North Island finishing in Wellington where an awards function will take place at Government House. There are some huge prizes that are announced at the awards evening which include cash scholarships and international travel.

The trip will involve visiting science institutions where they will be hosted by organizations such as the Liggins Institute, Fisher & Paykel Healthcare; Dairy NZ, AgResearch, Massey University and NIWA. The students will also be involved in various team building challenges and social events.

The Royal Society is indeed grateful of the support of Genesis Energy (the principal sponsor) and DairyNZ and the New Zealand Commission for UNESCO who also sponsor the event. The Royal Society would also like to thank the many science organizations who host the students and prepare workshops for them during the week.

More information about Realise the Dream can be found at www.realisethedream.org.nz





PREMIER AWARD WINNER – 2012

Lewis Powell – Pukekohe High School

I first gained an interest in science in Year 11. I had just moved schools to Pukekohe High School, one of the memories I have of my first proper day in my a-stream Year 11 science class was looking through the work we would be covering in that first topic and thinking wow I have no idea what any of this stuff means. All the other students in the class had been slowly introduced to some of the terms and aspects we would be using in Year 11 and they, well it felt like they knew a lot more than I did, and here I am wondering what was doing. But I didn't give up then and there I stuck with it and it started opening my eyes to what I had been missing out on. I started to understand what we were doing in class and I actually started to enjoy science and I found when I put my mind to it I was actually quite good at it.

Year 12 came around very fast and I carried on with my science education taking physics, chemistry and agricultural science, still enjoying learning new interesting things every day. That is one thing I loved about science, most days were different and you were always learning new and cool things, like the day my Year 13 class set the new record at my school for the longest nylon string produced out of a beaker. Year 13 was my favourite year at school, being given a little more responsibility and developing more of a mentoring relationship with my teachers rather than just sitting in the classroom being taught. This really helped my learning as I felt free to ask questions if I was stuck with anything.

My science fair project was my favourite part of science at school, we were told we could write a report on anything we wanted so I chose mine on my interests outside of school, which were agriculture, this being very convenient seeing as I live on a farm. I planned it with my parents and the local vet, many hours work went in, and having that support from all my science teachers made it easier for me because I wasn't scared to ask them questions if I was stuck and help me out with structuring reports. It really helps to use the resources given to you and not be afraid to ask questions that helped me a lot. Having my work acknowledged would have to be one of the best feelings I have had, I can't describe how I felt but knowing that all the effort I put in was being acknowledged was an awesome feeling! The science fair gave me the confidence to pursue science in my tertiary education.

I am currently studying a diploma in marine studies with intentions to study a third year and gain a degree in biological sciences at the Bay of Plenty Polytechnic. So far this year I have completed papers in Coastal Botany, Marine Invertebrates, Coastal science and ecology, fisheries management and marine mammals birds and fish. I have also been working towards my dive master scuba diving qualification, which I am currently busy working on, and the reason why I am unable to attend tonight. I am really enjoying my time here down in Tauranga, this course has the right balance of science and practical work which has suited me very well. The science fair gave me the confidence to pursue a science based education and I am loving my time studying it, I would like to thank everyone involved in the science fair for putting this wonderful night together and thank you again for helping me build my confidence and also helping me choose a path way to follow.

I have loved my journey so far and I can't wait for it to continue.

Lewis Powell



Prize Giving Programme

Wednesday, 28 August 2013

Masters of Ceremonies

*Carin Newbould
George Stephens*

Welcome

Carol Duffield, Somerville Intermediate School

Convenor's Address

*Carol Duffield on behalf of Marilyn Roberts, Convenor
NIWA Manukau Region Science & Technology Fair*

Report from 2012 Premier Award winner Lewis Powell

Read by Sandy Wild, Pukekohe High School

Guest Speaker

*Susan Ly of Manurewa High School,
2013 Otago University Hands on Science attendee*

Presentation of Category Prizes

1. Years 7 & 8 Living World

*Wellingford Wai Shing, Managing Director
On behalf of Wai Shing Ltd*

2. Years 7 & 8 – Physical & Material World

*Megan Allan
On behalf of the Kiwanis Club of Waiau Pa-Clarks Beach*

3. Years 7 & 8 - Environmental Science/Planet Earth and Beyond

*John Bell, President
On behalf the Kiwanis Club of Papatoetoe*

4. Years 7 & 8 Intermediate Consumer Science

*Dean Tohill, President
On behalf of the Shamrock Kiwanis Club*

5. Years 7,8,9 & 10 Technology/Innovations

*Neil Pemberton
On behalf of the K P Group Ltd*

6. Years 9 & 10 Living World

*Robyn Mekkelholt
On behalf of Gunac/GME Ltd*

7. Years 9 & 10 Physical & Material World

*Bruce Cooper, Principal Mechanical Engineer
On behalf of NZ Steel Ltd*



**8. Years 9 & 10 – Environmental
Science/Planet Earth & Beyond**

Aaron Jones, Manager
On behalf of BNZ Manukau

**9. Years 9 - 13
Secondary Consumer Science**

Ewan Beck, Past President
On behalf of the Kiwanis Club Papakura

**10. Years 11,12, & 13
Senior Science**

Michael Bruce,
Assistant Auckland Regional Manager
On behalf of NIWA

Musical item presented by Somerville Intermediate School

Presentation of Special Prizes

**Prize for Best Year 7 Innovation
Invention or Investigation**

Michael Bruce
On behalf of NIWA

**Prize for Best Year 8 Innovation
Invention or Investigation**

Michael Bruce
On behalf of NIWA

**Prize for Best Year 9 Innovation
Invention or Investigation**

Michael Bruce
On behalf of NIWA

**Prize for Best Year 10 Innovation
Invention or Investigation**

Michael Bruce
On behalf of NIWA

**Prize for Best Year 12 Innovation
Invention or Investigation**

Michael Bruce
On behalf of NIWA

**Prize for Best Year 13 Innovation
Invention or Investigation**

Michael Bruce
On behalf of NIWA

DairyNZ Awards

Susan Stokes, Industry Education Facilitator
On behalf of DairyNZ

IET Innovation Awards

Yan Liu
On behalf of the Institution of Engineering and
Technology



Best Project by a Maori Student	<i>Chris Lautua</i> On behalf of Manukau Institute of Technology
Best Project by a Pasifika Student	<i>Chris Lautua</i> On behalf of Manukau Institute of Technology
Best Use of Statistics Awards	<i>Carol Duffield</i> On behalf of the NZ Statistical Association
Earth Science Award	<i>Carol Duffield</i> On behalf of the Australasian Institute of Mining & Metallurgy (New Zealand Branch)
Best Use of Flour Awards	<i>Carol Duffield</i> On behalf of the Baking Industry Research Trust
Best Soil Related Project Award	<i>Carol Duffield</i> On behalf of the NZ Society for Soil Science
Environment Award	<i>Michael Bruce</i> On behalf of NIWA
Award for Best Application of Electronics	<i>Michael Bruce</i> On behalf of NIWA
New Zealand Heritage Award	<i>Michael Bruce</i> On behalf of NIWA
University of Otago Award	<i>Xenia Bilton</i> On behalf of the University of Otago
Eric Clague Kiwanis Award	<i>Megan Allan, Lt Gov, Division 10, NZ South Pacific District of Kiwanis International</i> On behalf of Kiwanis Clubs of Counties Manukau

Presentation of the Premier Award

Premier Award for Best Exhibit of the Fair	<i>Michael Bruce</i> On behalf of NIWA
Concluding Address	<i>Michael Bruce, Assistant Auckland Regional Manager</i> On behalf of NIWA



Category Awards

Category 1 - Years 7 & 8 Living World
Sponsored by Wai Shing Ltd

FIRST PLACE

Ishani Mathur

Give It A Try, Change That GI
Somerville Intermediate School

SECOND PLACE

Eleanor Cato

Sustainable Soil
Pukekohe Intermediate School

THIRD PLACE

Olivia Kieser

Sweet Energy
Somerville Intermediate School

HIGHLY COMMENDED

Benjamin Beach

Can Energy Drinks Make You Smarter?
Somerville Intermediate School

Hannah Curwood

V or not 2 V
Somerville Intermediate School

Ben Franich

Explorine Chlorine
Saint Kentigern College

Jeremy Stubbins

Sugar Rush & 54 Finger Pricks
Saint Kentigern College

Category 2 - Years 7 & 8 Physical
and Material World

Sponsored by the Kiwanis Club of Waiau Pa-
Clarks Beach

FIRST PLACE

Paige Badish

How Much Pressure Can I Hold?
Saint Kentigern College

SECOND PLACE

Lachlan Michell

Why Would Wood Rot?
Elim Christian College

THIRD PLACE

Adam Young

Powerful "Powerless" Amplifiers
Somerville Intermediate School

HIGHLY COMMENDED

Jake Caine

*Are Energy Efficient Light Bulbs as Efficient
as Manufacturer's Claim?*
Pukekohe Intermediate School

Joanna Coleman-Chaiman

Making Salt Water Drinkable
Pukekohe Intermediate School

Kate Fryer

Great Globes Of Gluten
Pukekohe Intermediate School



Kiwanis Club of Waiau Pa-Clarks Beach



Category Awards

Category 3 – Years 7 & 8
Environmental Science/Planet Earth &
Beyond

Sponsored by the Kiwanis Club of Papatoetoe

FIRST PLACE

Matthew Rohloff

DIY Water Purification

Drury School

SECOND PLACE

Abi Low

I Spy

Somerville Intermediate School

THIRD PLACE

Georgia Skelton

Rubbish Bag Breakdown

Somerville Intermediate School

Category 4 – Years 7 & 8

Intermediate Consumer Science

Sponsored by the Kiwanis Clubs of Drury & Shamrock

FIRST PLACE

Victor Chua

Justin Tan

The Biggest Loser: Chip Edition

Mission Heights Junior College

SECOND PLACE

Amelia Blockley

Is it Hot or Watt?

Saint Kentigern College

THIRD PLACE

Alex Taylor

A Sticky Situation

Somerville Intermediate School

HIGHLY COMMENDED

Zac Attwood

UV Sun Protection

Saint Kentigern College

Zara Iqbal

How Much Milk Do I Have?

Somerville Intermediate School

Aidan Picot

House Insulation

Pukekohe Intermediate School



Kiwanis Club of Papatoetoe



Kiwanis Clubs of Drury & Shamrock

Category Awards

Category 5 – Years 7 - 10
Technology Innovations
Sponsored by KP Group Ltd

FIRST PLACE

Cailey Dayu
Courtney Powell
Krishin Rama

Alert

Mission Heights Junior College

SECOND PLACE

Kaitlin Whiteman

Wheelchair Accessible Shelf

Pukekohe Intermediate School

THIRD PLACE

Josie Steele

Automatic Pill Dispenser

Waiuku College

HIGHLY COMMENDED

Caleb Jackson

What is the Best Way to do My Paper Run?

Elim Christian College

Reece Jones

A Pet Safe Rat Trap

Drury School

Aimee Mackenzie

Jessica Bennett

Garfield Guard

Howick College

Jonah Leota

Shivneel Singh

Rock A Bye Baby

Howick Intermediate School

Category 6 – Years 9 & 10

Living World

Sponsored by Gunac South Auckland GME Ltd

FIRST PLACE

Jessa Ilano

The Stacker Games

Mission Heights Junior College

SECOND PLACE

Nishalia Maharaj

Wake Up Fatties!

Mission Heights Junior College

THIRD PLACE

Joshua Martin

Aquaponics

Waiuku College

HIGHLY COMMENDED

Shayana Swamy

Tania Singh

The Kick in Caffeine & Taurine

Mission Heights Junior College



Category Awards

Category 7 – Years 9 & 10
Physical & Material World
Sponsored by NZ Steel Ltd

FIRST PLACE
Dylan Townsend
Coffee Beans Go Green
Mission Heights Junior College

SECOND PLACE
Eurmika Penafior
Banana Peel Vinegar from Cavendish Banana Skin
Pukekohe High School

THIRD PLACE
Timothy Dreadon
Window Woes
Manurewa High School

HIGHLY COMMENDED
Ryan Clasper
Insulation
Pukekohe High School

Willow de Jonge
Flammable Fabrics
Pukekohe High School

Callum Mason
The Tension Invention
Alfriston College

Samuel Vivian
Free Kick
Tyndale Park Christian School

Category 8 – Years 9 & 10
Environmental Science/Planet
Earth & Beyond
Sponsored by BNZ Manukau Banking Centre

FIRST PLACE
Alice Cloke
Water Wars
Howick College

SECOND PLACE
Asha Shashikumar
Stormwater Scrutiny
Mission Heights Junior College





Category Awards

Category 9 – Years 9 -13
Secondary Consumer Science
Sponsored by Kiwanis Club of Papakura

FIRST PLACE
Vetri Krishnamoorthy
Pizza Packaging Problems
Manurewa High School

HIGHLY COMMENDED
Adam Scott
Battle of Bottles
Manurewa High School

Category 10 – Years 11,12 &13
Senior Science
Sponsored by NIWA

FIRST PLACE
Chris Ryan
Kawakawa Demonstrates Anti-inflammatory Activity
Howick College

SECOND PLACE
Alice Ao
Blooming Eutrophication
Alfriston College

THIRD PLACE
Tatiana Tataurangi-Ruru
Who's that Hooting at You?
Alfriston College

HIGHLY COMMENDED
Solinn Toul
Tension Tolerance
Manurewa High School



Kiwanis Club of Papakura



Proud sponsors of Regional Science and Technology Fairs



Additional Awards

DairyNZ Awards

Sponsored by DairyNZ

FIRST PLACE

Solinna Toul

Tension Tolerance

Manurewa High School

SECOND PLACE

Alice Ao

Blooming Eutrophication

Alfriston College



The IET Innovation Awards

Sponsored by the Institution of Engineering & Technology

FIRST PLACE

Cailey Dayu

Courtney Powell

Krishin Rama

Alert

Mission Heights Junior College

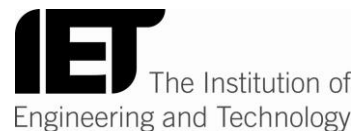
SECOND PLACE

Jonah Leota

Shivneel Singh

Rock A Bye Baby

Howick Intermediate School



Best Project by a Maori Student

Sponsored by Manukau Institute of Technology

Tatiana Tataurangi-Ruru

Who's that Hooting at You?

Alfriston College



Best Project by a Pasifika Student

Sponsored by Manukau Institute of Technology

Jonah Leota

Shivneel Singh

Rock A Bye Baby

Howick Intermediate School



Best Use of Statistics Award

Sponsored by
The New Zealand Statistical Association

FIRST PLACE

Jessa Ilano

The Stacker Games

Mission Heights Junior College



SECOND PLACE

Stephanie Tickle

Perfecting Propellers

Pukekohe High School

Earth Science Award

Sponsored by the Australasian Institute of Mining
& Metallurgy (New Zealand Branch)

Alice Ao

Blooming Eutrophication

Alfriston College



Best Project Using Flour

Sponsored by the Baking Industry Research Trust

Kate Fryer

Great Globbs Of Gluten

Pukekohe Intermediate School



Best Soil Related Project

Sponsored by the
New Zealand Society for Soil Science

Eleanor Cato

Sustainable Soil

Pukekohe Intermediate School





Special Prizes

Prize for Best Year 7 Innovation, Invention or Investigation

Sponsored by NIWA

Prize for Best Year 8 Innovation, Invention or Investigation

Sponsored by NIWA

Prize for Best Year 9 Innovation, Invention or Investigation

Sponsored by NIWA

Prize for Best Year 10 Innovation, Invention or Investigation

Sponsored by NIWA

Prize for Best Year 12 Innovation, Invention or Investigation

Sponsored by NIWA

Prize for Best Year 13 Innovation, Invention or Investigation

Sponsored by NIWA

The Environment Award

Sponsored by NIWA



Award for the Best Application of Electronics

Sponsored by NIWA

Proud sponsors of Regional Science and Technology Fairs

The New Zealand Heritage Award

Sponsored by NIWA



University of Otago – Hands on Science Award

Sponsored by University of Otago

Te Whare Wānanga o Ōtāgo

The Eric Clague Kiwanis Award

Sponsored by Kiwanis Clubs of Counties Manukau



Premier Award for Best Exhibit of the Fair

Sponsored by NIWA



Proud sponsors of Regional Science and Technology Fairs



With Special Thanks to

The team of judges are recognised specialists in their fields. They have been drawn out of a wide spectrum of professional areas: schools, universities, technology institutes and engineering.

Chief Judge

Marilyn Roberts

Assistant Chief Judges

Carol Duffield

Christine Howard

Chris Milham

Judges

Alaister Caine

Alex Cashen

Andrew Chalmers

Bill Barwood DairyNZ

Bob Howard

Bob Reay

Catherine Hunter

Charles Tsui

Deepa Jain

Denny Govender

Emily Bennet

Evan Fong

Fabian Champion

Flora Suh

Guy Coulson NIWA

Jessica Ross

John Cook

John Duncan

Jordan Barnett

Joshua Andrews

Kamrul Jalil

Marie Chouremootoo

Natalia Samourow

Nick Wong

Oliver Wilson

Peijing Li

Rose Zhang

Roshean Fitzgerald DairyNZ

Sophia Ataya

Sharon Graham

Sherma Matta

Stanley Chang

Stuart Palmer

Vincent Chow

Xenia Bilton

Yan Fong

Yan Lui

Science Fair Committee

Convenor

Secretary

Treasurer/Sponsorship Convenor

Judging Convenor

Webmaster

Prize giving co-ordinator

Marilyn Roberts

Liz Palmer

John Bell

Marilyn Roberts

Chris Milham, Ben Doughney

Beryl McKinnell

And the many other science teachers who have attended committee meetings throughout the year.

A special thanks to Mission Heights Junior College for hosting the NIWA Manukau Region Science and Technology Fair; to the support of Manurewa High School; to Chris Milham who developed the new software for the fair administration; Kiwanis, to John and Lee Bell for their many and devoted years of service to the Fair, and to the large numbers of teachers who were involved in the planning and organisation of the Fair.

Website: www.sciencefairmanukau.org.nz