



PARTICIPATING SCHOOLS

Aka Aka School
Alfriston College
Aorere College
Bucklands Beach Intermediate School
Drury School
Elim Christian College
Howick College
Howick Intermediate School
James Cook High School
Macleans College
Manurewa High School
Maraetai Beach School
Mission Heights Junior College
Otahuhu Intermediate School
Papatoetoe High School
Pukekohe High School
Pukekohe Intermediate School
Saint Kentigern College
Sancta Maria College
Somerville Intermediate School
Tyndale Park Christian School



CONVENOR'S REPORT

Science and technology has been alive and exciting this year as we saw from the projects presented by twentyone Intermediate and Secondary Schools across the Manukau and Counties area. It has been an honour for the MIT Manukau City Science and Technology Fair 2011 to be part of this in celebrating and rewarding the work achieved by our young people. The work also reflected the work of schools that are promoting excellence in science and technology.

For many students the fair provided an opportunity to explore authentic areas of interest. They are developing frameworks for research which they can use in vocations later in life. The fair has helped them secure a variety of scholarships and prizes, and serves as a boost for applications for places in restricted areas of study at tertiary institutions.

The committee and judges were highly impressed with the standards of scientific thinking and authentic applications of the investigations undertaken. They were impressed by the high standard of presentation, ingenuity and innovative nature of those investigations. Each exhibit reflected weeks of data collection, experimentation, analysis and presentation work by students who have gone beyond expectations. We are also very proud of our Realise the Dream 2010 representative, Chris Ryan, who was selected to attend the Royal Society of New Zealand six day event in January 2011.

The MIT Manukau City Science and Technology Fair 2011 has been the work of many teams of people. We are delighted with the businesses and organisations that support our students through their sponsorship of the category and special prizes. This partnership has enabled us to maintain the celebration and reward of science and technology for the past seventeen years. We give a special reference to our major sponsor the Manukau Institute of Technology, and to John Bell who has developed our business relationships. We thank them for their continued support and willingness to invest in our youth.

We wish to heartily thank the men and woman who gave their time to judge the projects. They are recognised specialists in their fields and the quality of the outcomes can be attributed to their high professional knowledge.

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 Kiwanas Club of Papatoetoe. We thank Manurewa High School for its continued service as a venue, and to the team at Manurewa High School who set everything up.

Finally, special thanks to the parents, teachers and families of the exhibitors for the support that they have provided the children. The impact of this support is highly visible in the quality and depth of the projects. Seeing the work accumulated in the hall makes the work of everyone worthwhile. It shows us that our youth of today have potential and skills which are infinite, and worthy to represent the science and technology of New Zealand in their future.

Marilyn Roberts
Science Fair Convenor



Realise the Dream

The National School Science & Technology Awards 3-10 December 2011

The Genesis Energy Realise the Dream is a prestigious six-day national event, managed by the Royal Society of New Zealand, which celebrates, rewards, challenges and showcases the work of extraordinary school students from all over New Zealand who have carried out an excellence piece in research, or technological practice. The principal sponsor of this event is Genesis Energy and the support partners are the New Zealand National Commission for UNESCO and DairyNZ.

Students can be nominated for Realise the Dream through several programmes including regional science and technology fairs and up to 20 students are selected to attend.

Realise the Dream starts off in Auckland and finishes in Wellington. Along the way students will visit the Leigh Marine Centre; Liggins Institute; DairyNZ; Genesis Energy; Massey University and UNESCO. The event finishes with an award ceremony in Wellington where some big travel and monetary awards will be presented.

Realise the Dream often acts as a gateway for students to be invited to international science and technology events.





The Royal Society of New Zealand is the independent national academy of science and technology. The Society believes that science and technology education is crucial if New Zealand is to improve its social, environmental and economic future.

To support these goals we are involved in a variety of initiatives.

This is a key initiative of the Royal Society designed to raise the profile of science teaching and learning in our primary schools. The Society will act as a catalyst to encourage, coordinate and promote activities to support effective learning for students.

Alpha series

Information leaflets designed to support the learning of science, mathematics and technology in the national curriculum

BAYERboost scholarships

For senior secondary school and undergraduate tertiary students to get experience in environmental research or restoration.

BP Challenge

Team events challenging students to design and develop 'solutions' to problems using easily resourced materials

CREST

An international awards scheme designed to encourage Year 6 plus students to be innovative, creative and to problem solve in science, technology and environmental studies through inquiry and investigation. Primary Science CREST now available.

Education Links

List of (hyperlinked) organisations who provide free online resources for teachers of science in New Zealand schools.

Environmental Monitoring and Action Project

Brings schools, local authorities, research institutions and others together to allow students to carry out monitoring of their local region in an environmental education context

Gamma series

"Discussion papers" based on current issues that emerge in the media and become part of public debate.

Helix and Scientriffic Magazines

Fun science and technology magazines for Year 3-Year 8+ students.

Manhire Prize for Creative Science Writing

A creative science writing competition with non-fiction and fiction categories

Primary Science Teacher Fellowships

Open to Primary teachers with an interest in leadership in science

Realise the Dream

A five-day event which celebrates, rewards, challenges and showcases the work of extra-ordinary school students from all over New Zealand who have achieved excellence in research, and technological practice.

Reel Science

Reel Science Film Festival is a competition for New Zealand students in Yr 11 - Yr 13 to make a 2 minute film on anything to do with science. The competition evolved from Big Science Adventures.

RSNZ newsletters and notifications for teachers e.g. Heads Up

Science School Scholarships

The Royal Society of New Zealand administers several science school programmes, which provide an opportunity for secondary students to take part in research projects, participate in forums and visit international science fairs.

Awarded Teacher Fellowships

Providing teachers with new experiences and understanding outside the classroom that will enable them to become more effective educators.

Sharing the Learning

A series of professional development workshops for teachers by past Teacher Fellows.

Student Showcase

Showcasing some of what the Royal Society's Young Achievers.

For further information on these and any of our education programmes visit our website

www.royalsociety.org.nz



PREMIER AWARD WINNER – 2010

Lingliang Zhang – Macleans College

When we hear the word “Scientist” what comes to mind? Often someone with ridiculous dishevelled hair locked away in a basement, working madly. From our extensive experience of watching motion picture classics such as the Simpsons, Spiderman, and Frankenstein, we have learnt that all Scientists are of course socially awkward, bizarre, borderline insane and evil people. Well through my endeavours and explorations of the scientific world, I have learnt this could not be any further from the truth.

Although my experiments consumed much of my time and effort, not to mention blowing up in my face several times and dyeing my hair black again, I am honoured to have made such a tiny contribution to the growing knowledge of science, and I am sure that everyone sitting here today has that potential to create the future that our ancestors could only dream of. Though my time with science has been some of the most frustrating and painstaking in my life, they have also been some of the greatest.

Though I would have never been through these experiences, had it not been for the Science Fairs around the world. I’d like to take this opportunity to thank MIT, Otago University, and all the other sponsors, for their generous support, in building a stronger future for our nation. But we mustn’t forget the organisers of the Science Fair. They truly deserve to be commended, investing countless hours of their time to create opportunities for our youth to realise their dreams. Without them, I surely would not have discovered my passion for science, and would not nearly have made it to where I have today. To them I offer my absolute thanks, you have without a doubt touched the lives of many.

But more than anything else, credence must be given to the students, who on their own accord – have sought to push the frontiers of science, whether it be driven by curiosity, passion, or a desire to succeed, they have achieved remarkable results. It is one thing to sit in class and read about theoretical concepts in a textbook, it is an entirely different thing to witness the mysteries of science first-hand. You have accepted the frustration of failure, and received the amazing feeling of success and awe. You have been through a tiring and patient process, but gained invaluable rewards. The students sitting here today have gone through that process and survived through to the other side, and because of that I have no doubt bright futures lay ahead of them, and I am certain they will leave their footprint on the world.

Right now, we are on a fragile vessel called Earth, sailing together through space at 108 million kilometres per hour, a microcosm of individuals, all competing for the same finite and scarce resources. The time of prosperity and growth is over, as we are entering a period of recovery and control. It has come a time, where we can no longer afford to be ignorant any longer, our only option for survival – is science. If we are to have any hope, there is no other choice. And so I end my speech with a final word to the students: I hope you all become very successful scientists, or we will all be very very screwed.

Thank You

Lingliang Zhang – Year 13 Macleans College 2011



Prize Giving Programme

Wednesday, 24 August 2011

Masters of Ceremonies

*Carin Newbould, External Relations Manager,
Manukau Institute of Technology
George Stephens, Senior Fire Risk Officer, Manager
Strategic Partnerships, NZ Fire Service*

Welcome

Auckland Council representative

*Yvette Hellyer, Business Development Manager - South
Auckland Tourism, Events & Economic Development Ltd*

Convenor's Address

Marilyn Roberts

Guest Speaker

*Lingliang Zhang, Macleans College
Premier Award Winner 2010*

Presentation of Category Prizes

1. Years 7 & 8 – Living World

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

2. Years 7 & 8 – Physical & Material World

*Neil Allan, Past President
On behalf of the Kiwanis Club of Waiau Pa-Clarks Beach*

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

*Joan Ransom, Past President
On behalf the Kiwanis Club of Manukau*

4. Years 7 & 8 Intermediate Consumer Science

*Pauline Gallagher & Dean Tohill
On behalf of the Kiwanis Clubs of Drury/Shamrock*

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

*Jacqui Davidson, Administration Manager
On behalf of the K P Sweeping Ltd*

6. Years 9 & 10 Living World

*Trevor Biddle, Club President
On behalf of the Kiwanis Club of Papatoetoe*

7. Years 9 & 10 Physical World

*Dick Whitelaw, Consultant
On behalf of NZ Steel Ltd*



8. Years 9 & 10 Material World	<i>Robyn Mekkelholt</i> On behalf of Gunac South Auckland/GME Ltd
9. Years 9 & 10 – Environmental Science/Planet Earth & Beyond	<i>Aaron Jones, Manager</i> On behalf of BNZ Manukau
10. Years 9 - 13 Secondary Consumer Science	<i>Ewan Beck, Past District Governor</i> On behalf of the Kiwanis Club of Papakura
11. Years 11, 12, & 13 Senior Science	<i>Yvette Hellyer, Business Development Manager - South</i> On behalf of Auckland Tourism, Events & Economic Development Ltd
Guest Speaker	<i>Matthew Richardson, a former award winner and recent graduate of the Manukau Institute of Technology</i>

Special Prizes

Prize for Best Year 7 Innovation Invention or Investigation	<i>Emma Beale</i> <i>Schools & Community Liaison Manager, MIT</i> On behalf of Manukau Institute of Technology
Prize for Best Year 8 Innovation Invention or Investigation	<i>Emma Beale</i> On behalf of Manukau Institute of Technology
Prize for Best Year 9 Innovation Invention or Investigation	<i>Emma Beale</i> On behalf of Manukau Institute of Technology
Prize for Best Year 10 Innovation Invention or Investigation	<i>Emma Beale</i> On behalf of Manukau Institute of Technology
Prize for best year 11 Innovation Invention or Investigation	<i>Emma Beale</i> On behalf of Manukau Institute of Technology
Prize for Best Year 12 Innovation Invention or Investigation	<i>Emma Beale</i> On behalf of Manukau Institute of Technology
Prize for Best Year 13 Innovation Invention or Investigation	<i>Emma Beale</i> On behalf of Manukau Institute of Technology
School Encouragement Award	<i>Dr Stuart Middleton and Emma Beale</i> On behalf of Manukau Institute of Technology



Student Encouragement Award	<i>Aaron van der Klip, Divisional Youth Manager</i> on behalf of The Order of St John, Manukau Area Committee
Best Use of Statistics Awards	<i>Gary Troup</i> On behalf of the NZ Statistical Association
Earth Science Award	<i>Gary Troup</i> On behalf of the Australasian Institute of Mining & Metallurgy (New Zealand Branch)
Best Use of Flour Awards	<i>Marilyn Roberts</i> On behalf of the Baking Industry Research Trust
Best Soil Related Project Award	<i>Marilyn Roberts</i> On behalf of the NZ Society for Soil Science
University of Otago Award	<i>Marilyn Roberts</i> On behalf of the University of Otago
Environment Award	<i>Yvette Hellyer</i> On behalf of Auckland Tourism, Events & Economic Development Ltd
Best Project by a Maori Student	<i>Dr Stuart Middleton</i> On behalf of Manukau Institute of Technology
Best Project by a Pacific Student	<i>Dr Stuart Middleton</i> On behalf of Manukau Institute of Technology
Award for Best Application of Electronics	<i>Emma Beale</i> On behalf of Manukau Institute of Technology
New Zealand Heritage Award	<i>Emma Beale</i> On behalf of Manukau Institute of Technology
Eric Clague Kiwanis Award	<i>Bob Reay, Governor, 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>Dr Stuart Middleton, Director External Relations</i> On behalf of Manukau Institute of Technology
Concluding Remarks	<i>Dr Stuart Middleton</i> On behalf of Manukau Institute of Technology



Category Awards

Category 1 - Years 7 & 8 Living World
Sponsor: Wai Shing Ltd

FIRST PLACE
Ashley Potter
It was this big... but how old was it?
Saint Kentigern College

SECOND PLACE
Elizabeth Domigan
Aotearoa's Tree Treasures
Somerville Intermediate School

THIRD = PLACE
Karen Lee
Child Safety Number 1 Concern
Somerville Intermediate School

Jenna Paterson
Cut Apples
Somerville Intermediate School

HIGHLY COMMENDED
Prina Mistry
Flowers Forever
Mission Heights Junior College

Fatima Al-Hakak
Mind Your Own Beeswax
Somerville Intermediate School

Category 2 - Years 7 & 8 Physical
and Material World
Sponsor: Kiwanis Club of Waiau Pa-Clarks
Beach

FIRST PLACE
Milan Panchia
On Quaking Ground
Bucklands Beach Intermediate School

SECOND PLACE
Hannah Williams
Liquid Sold
Bucklands Beach Intermediate School

THIRD PLACE
Pramita Singh
Karen Zheng
Say Cheese
Somerville Intermediate School

HIGHLY COMMENDED
Sam Hart
Orange vs Orange
Drury School





Category Awards

Category 3 – Years 7 & 8
Environmental Science/Planet Earth &
Beyond
Sponsored by the Kiwanis Club of Manukau

FIRST PLACE
Swashna Lal
Asha Shashikumar
A Waste, or Worth It?
Mission Heights Junior College

SECOND PLACE
Harriet Hitchings
Elizabeth Holder
Street Lights
Bucklands Beach Intermediate School

THIRD PLACE
Shahil Lal
Wicked Wind Power
Mission Heights Junior College

HIGHLY COMMENDED
Sharon Li
Emma Fromont
Streets to Creeks
Bucklands Beach Intermediate School

Sarah Kim
Bubbling Bricks
Howick Intermediate School

Chelsea Riddell
Tsunami Buster
Saint Kentigern College

Category 4 – Years 7 & 8
Intermediate Consumer Science
Sponsored by the Kiwanis Club of Drury &
Shamrock

FIRST PLACE
Niraant Trilokekar
Wii like to Move it, Move it!
Howick Intermediate School

SECOND PLACE
Maisie Leach
Wii vs Board: Is Monopoly a Game of Chance?
Somerville Intermediate School

THIRD PLACE
Crystal Lin
WARNING: Flaming Flannels
Somerville Intermediate School





Category Awards

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

FIRST PLACE
Dylan Turner
Muddy Carpet
Maraetai Beach School

SECOND PLACE
Ryan Killeen
Cracked?
Howick College

THIRD PLACE
Jeremy Thompson
The Treel Wheel
Somerville Intermediate School

HIGHLY COMMENDED
Daniel Blakeborough
The Sound of Power
Manurewa High School

Bryce Wessels
Board-em Buster
Somerville Intermediate School

Category 6 – Years 9 & 10
Living World
Sponsored by The Kiwanis Club of Papatoetoe

FIRST PLACE
Cara Dreyer
Colour My Words
Mission Heights Junior College

SECOND PLACE
Elaine Ryan
Red pHlowers, Blue pHlowers
Howick College

THIRD PLACE
Georgia Moore
The Supreme Solidifier
Alfriston College

HIGHLY COMMENDED
Devon McGrath
Daniel Hsieh
A Weighty Problem
Saint Kentigern College

Eden Hawkins
Sarah McQueen
Just let me sleep!
Saint Kentigern College

Anmol Sandhu
Analysing Acid Rain
Mission Heights Junior College





Category Awards

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

FIRST PLACE
Victoria Pickett
Travelling at the Speed of Light
Howick College

SECOND PLACE
Stephanie Tickle
The Friction Dilemma
Pukekohe High School

THIRD PLACE
Ethan Daya
Splintered
Elim Christian College

HIGHLY COMMENDED
Matthew Warner
Charged and Dangerous
Elim Christian College

Jack Boulton
Boiling Efficiency
Pukekohe High School

Category 8 – Years 9 & 10
Material World
Sponsored by Gunac South Auckland GME Ltd

FIRST PLACE
Joshua Cloke
Bleedin' Buffers!
Elim Christian College

SECOND PLACE
Brooke Potter
Bubble Brain
Alfriston College

THIRD PLACE
Jessica Stewart
Satty Fatty
Elim Christian College

HIGHLY COMMENDED
Joy Britten
Colourful Chemistry
Elim Christian College

Lydia Firmin-Cavanagh
Dairy Fairy
Manurewa High School

Monyinna Sath
Perfect Pavlova
Mission Heights Junior College





Category Awards

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

FIRST PLACE
Joshua Snell
Eco-Splosions - A Blast Into The Future
Elim Christian College

SECOND PLACE
Aaron Keesing
Another Power Saver
Elim Christian College

THIRD PLACE
Caroline Thompson
In Over Our Heads?
Elim Christian College

HIGHLY COMMENDED
Lindsay van Ryn
Is The Grass Greener?
Elim Christian College

Jack Eager
Towers of Terror
Howick College

Category 10 – Years 9 -13
Secondary Consumer Science
Sponsored by the Kiwanis Club of Papakura

FIRST PLACE
Donna Chong
How Clean is Clean Enough?
Pukekohe High School

SECOND PLACE
Ashleigh McLeod
How Effective is your Soap?
Pukekohe High School

THIRD PLACE
Gomathi Rajasekaran
To be Eco or Conventional
Manurewa High School

HIGHLY COMMENDED
Michaela Pietersen
Fancy Some Fries
Elim Christian College

Keerthana Rajasekaran
The Tacky Test
Manurewa High School

Daisy Zhu
Quicker Clicker
Mission Heights Junior College





Category Awards

Category 11 – Years 11,12 & 13

Senior Science

Sponsored by Auckland Tourism, Events & Economic Development Ltd

FIRST PLACE

Amy van de Weg

To B or Not to B?

Manurewa High School

SECOND PLACE

Robert Shin

The Zero Gravity Effect

Macleans College

THIRD PLACE

Chris Ryan

Bean Quenched

Howick College

HIGHLY COMMENDED

Shahad Youhanna

How Funky is your Goldfish?

Alfriston College

Harkirt Singh

Colour me Butterfly

Alfriston College

Kishan Mistry

Bee-haviour

Alfriston College

Shalini Sanjeshni

Plants need lons too

Manurewa High School

**Auckland
Tourism, Events
and Economic
Development Ltd**

An Auckland Council Organisation



Special Prizes

Prize for Best Year 7 Innovation, Invention or Investigation

Sponsored by Manukau Institute of Technology

Prize for Best Year 8 Innovation, Invention or Investigation

Sponsored by Manukau Institute of Technology

Prize for Best Year 9 Innovation, Invention or Investigation

Sponsored by Manukau Institute of Technology

Prize for Best Year 10 Innovation, Invention or Investigation

Sponsored by Manukau Institute of Technology

Prize for Best Year 11 Innovation, Invention or Investigation

Sponsored by Manukau Institute of Technology

Prize for Best Year 12 Innovation, Invention or Investigation

Sponsored by Manukau Institute of Technology

Prize for Best Year 13 Innovation, Invention or Investigation

Sponsored by Manukau Institute of Technology

School Encouragement Award

Sponsored by Manukau Institute of Technology

The Environment Award

Sponsored by Auckland Tourism, Events & Economic Development Ltd

Best Project by a Maori Student

Sponsored by Manukau Institute of Technology

Best Project by a Pacifica Student

Sponsored by Manukau Institute of Technology

Award for the Best Application of Electronics

Sponsored by Manukau Institute of Technology

The New Zealand Heritage Award

Sponsored by Manukau Institute of Technology

University of Otago – Hands on Science Award

Sponsored by University of Otago

The Eric Clague Kiwanis Award

Sponsored by Kiwanis Clubs of Counties Manukau

Premier Travel Award for Best Exhibit of the Fair

Sponsored by Manukau Institute of Technology



Te Whare Wānanga o Ōtago





Additional Awards

Student Encouragement Award

Sponsored by
The Order of St John, Manukau Area Committee

Chanel Tuato
Jayden Walters
Breakfast Advice
James Cook High School



THE ORDER OF ST JOHN

Best Use of Statistics Award

Sponsored by
The New Zealand Statistical Association

First Place
Jack Dyche
Thermodynamicity in Lettuce
Pukekohe High School



Second Place
Stephanie Tickle
The Friction Dilemma
Pukekohe High School

Earth Science Award

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

Shalini Sanjeshni
Plants need ions too
Manurewa High School



Best Soil Related Project

Sponsored by the
New Zealand Society for Soil Science

Kendall Airey
Liquefaction or Liquefiction
Drury School



Best Project Using Flour

Sponsored by the Baking Industry Research Trust

First Place
Jenny Lin
Keeping Cookies Crunchy
Manurewa High School



BAKING INDUSTRY
RESEARCH TRUST

Second Place
Anna Farrell
A Sticky Situation
Somerville Intermediate School



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

Benson Chen

Carol Duffield

Chris Milham

Judges

Sally Barclay

Xenia Bilton

Andrew Chalmers

Jenny Chamberlain

Fabian Champion

Marie Choureemootoo

John Cook

John Duncan

Daniel Furkert

Lucy Harper

Sharon Graham

David Haines

Bob Howard

Christine Howard

Kamrul Jalil

Chris Lam

Yan Liu

Bree Mitchell

Stuart Palmer

Bob Reay

Eleanor Reay

Matthew Richardson

Ian Robertson

Sandy Wild

Tapa Willson

Science Fair Committee

Convenor

Marilyn Roberts

Secretary

Liz Palmer

Treasurer/Sponsorship Convenor

John Bell

Judging Convenor

Marilyn Roberts

Webmaster

Chris Milham

Prize giving

Liz Palmer & Beryl McKinnell

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

Special thanks to the Manurewa High School for hosting the MIT Manukau Science Fair Competition this year and to Manurewa High School Science Technician, Heather Wilson, for her invaluable contribution; and to those schools that grant leave to their science teachers and technicians to assist with the running of the Science Fair.

Website: www.sciencefairmanukau.org.nz

