ng Curious Minds contestable fund 2016 funded projects

National Grants

	Organisation	Funding (excl. GST)	Description
oa	Auckland War Memorial Museum	$56,600	Auckland Museum's Mana Aotūroa Programme reaches out into the community to en inspire young children in bilingual education units across the wider Auckland Region better engagement with and understanding of natural science and technology. The p provides two natural science education programmes delivered in Te Reo Māori by sp Museum educators in conjunction with an Early Childhood Educator. The Insects an and Wonders of the Sea programmes utilise the Museum's unique handling collectio the sessions are supplemented by online resources, access to the Museum's digitise and a technological experience through augmented reality.
Māori e reo to cientific nd	Landcare Research New Zealand Ltd	$85,000	We will reconnect Maori students to indigenous knowledge about fungi, including trad for rongoa and food. Much knowledge has already been lost.Partnering with Ngapuh Ngai Tahu, we will collate traditional knowledge about fungi with material in English. T of knowledge will be translated into te reo to add to curricula for Kura Kaupapa and K delivering enduring benefit to Maori students. Additional to reconnecting students to knowledge, we will motivate students to take science in secondary and tertiary educa inspire a new generation of entrepreneurs to develop natural products using indigeno
t	Institute of Geological & Nuclear Sciences Limited - Trading as GNS Science	$67,500	Experts in science communication and special education are teaming up to unlock th minds of a particularly hard to reach group of young New Zealanders. This project wi hands-on approaches to help youth with learning disabilities learn about Planet Earth Through active experiential learning, science and technology topics will be introduce are meaningful and relevant to these young people. Knowledge gained will help them in informed debate about issues facing our communities, such as environmental prot responsible use of natural resources, and resilience to natural hazards and climate c
National wning ation tion	Mountains to Sea Conservation Trust	$148,400	This project will take a 'no holds barred' approach to connecting community with scie scientists working with schools and community groups to plan and implement ground research into locating and restoring Inanga (whitebait) spawning areas in five regions New Zealand. It provides real bang for buck through the development of comprehens educational resources that will be available for use around Aotearoa. Inanga are a na declining species and locating and restoring their spawning areas is a practical highly to tell the story of freshwater ecology and of simple cost-effective actions that restore waterways.

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g and	Landcare Research New Zealand Ltd	$150,000	Moths are underappreciated but essential and highly responsive parts of our ecosyst Identifying, Strengthening and Restoring Connections will engage the public and rais appreciation of moths as ecological indicators of the health and connectedness of ou This project provides teachers, students and whanau with the skills, tools and conne nationally significant scientific experiment. Employing internationally recognised moth techniques to evaluate the effectiveness of vegetation restoration in restoring ecosys Providing first-hand engagement with scientific thinking, processes and methods will participants to identify, strengthen and restore connections between their culture and
Us	Otago Museum Trust Board	$114,000	Aim: Far from Frozen builds on New Zealand's strong connection to and passion for exploration and conservation to: • Inspire young New Zealanders to follow their passion for science, exploration and • Engage whole families in the science of climate change; and • Demonstrate the importance of Antarctica in driving Earth's systems and their resu New Zealand's climate and sea-level. What: Using unique footage from award winning filmmaker Anthony Powell, we will s climate science and Antarctic research in an inspiring and immersive fashion. Drawin expertise of New Zealand's Antarctic scientists, we will develop portable interactive n demonstrations that depict properties of ice, connect ice to the ocean, provide real ti and show how Antarctica influences New Zealand. These unique outreach offerings showcased through gala-style 'hands-on / fun-science' events targeted at families an These outreach days will include displays and activities using actual Antarctic equip presentations from, and discussions with, leading researchers in the field. How: Otago Museum has partnered with Antarctica NZ, NZ Antarctic Research Institu and leading Antarctic researchers across New Zealand to develop and deliver this pr utilise its national networks of Museums and planetaria to deliver this outreach agen centres, and the Lab-in-a-Box and oculus rift virtual reality platform to deliver to rural
he	Society for Maori Astronomy Research and Traditions	$150,000	The SMART Dome Project aims to address the disparity of the number of Maori enga Science and Technology. As Aotearoa- New Zealand populations demographics shift Maori and other Pacific Islanders it is essential that Maori are able to engage and pa Science, Technology, Engineering and Mathematics (STEM). The SMART Dome pro unique outreach programme to engage and excite Maori youth (18 years and younge program centered around astronomy. Our experience has shown us that young rang astronomy, thus our programme introduces astronomical concepts, space travel, and provide an exciting platform to engage our younger generations.

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War ds	Landcare Research New Zealand Ltd	$92,800	Weeds in New Zealand are increasing and now outnumber our native flora. Discover weeds are where is essential for their effective management, and community observ increasingly important to uncover new infestations and species.This new project will Enviro-schools and whanau to discover which weeds occur in four under-collected a the 'Weed capital of the world', Gisborne, Wellington's Kapiti Coast and South Island Coast.School children will learn how to find and identify weeds and biocontrol agents guidebooks and an online weeds key, and how to upload their observations through NZ.
x 2: The g on	University of Otago	$137,821	In 2015 we built Lab-in-a-box and took it on its inaugural tour of the South Island. In 4000 people engaged with Lab-in-a-box, its scientists and educators. Lab-in-a-box p science to the country. In 2016 Lab-in-a-box phase 2 will encourage the country to ta We will visit more remote communities (including Stewart Island) and new audiences engage these communities on the key scientific issues of importance to them as well them involved in a citizen science programme based around water quality.
with a h	Massey University	$132,163	Hello Café is a free national afterschool club, where girls of 10 to 13 year olds meet of weeks to develop engineering solutions for problems faced by communities that n Whether it's preparing flood defences in the Hutt Valley, or designing relief shelters fo stricken communities in Nepal, they will experience, in a relaxed, funky, inspiring, col space, what engineering can do to help people. Each Hello Café will be facilitated by professional women engineers. The Café aims to raise aspirations and widen particip engineering and technology.

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	Organisation	Funding (excl. GST)	Description
d Pop-	University of Canterbury	$20,573	This exciting event will be open to Year 10 students from around Christchurch for a frie competition to design a resilient and sustainable pop-up model house using TinkerCAD cutter. Utilizing real world examples, input from researchers, industry experts and colla Fab Lab and Christchurch Polytechnic Institute of Technology, students will be able to l external forces, designing for resilience and finishing with a test of their very own creati table at the University of Canterbury. This program encourages attendees to design in similar to Kerbal Space Program and Minecraft.
Stage	Otago Peninsula Biodiversity Trust	$29,420	The possum-free Peninsula campaign led by the Otago Peninsula Biodiversity Group is people interested in local environments as control efforts approach suburban Dunedin. will cultivate household curiosity into confident action over biodiversity/biosecurity issue New Zealand. It will provide a framework for community-based research needed by the inform their future control work. The project builds on a pilot study involving animal dete to: 1) involve school children and families in gathering new data from new locations on distributions; 2) collaborate with scientists to develop an interactive data management/ system.
ase Kapua - e to ered	Unitec Institute of Technology	$30,000	Children, now and in the future, will increasingly have to cope with the social and enviro impacts of climate change, yet they remain largely excluded from the dialogue about cli Personal Cloud employs visual arts and music to arouse curious minds to engage with science. Two west Auckland schools, one Māori, one mainstream, will pilot this project, turn, inform the development of an educational app aimed at engaging young people in change science. NIWA, Unitec, AUT, Te Uru Gallery, Prospect Primary School in Glen E Kura Kaupapa Māori o Hoani Waititi collaborate to achieve this.
tion	A Rocha Aotearoa NZ	$11,380	The Karioi Rangers program engages young people in hands-on conservation and envi science through place based experiential learning. Activities are based around Mt Kari with a focus on water, land and sea. The programme encourages students to explore th world and think in terms of inter-relationships and ecological contexts and apply this lea actions for a more sustainable future. The program also engages and connects young p professionals working in the field of environmental science that can lead to explore futu work opportunities in the field of environmental science.
ks - EM	Methodist Mission Southern	$26,030	Science Works connects disadvantaged and at-risk year 9 and 10 students from Dunec innovative businesses in the science and technology sector to provide inspirational, beh scenes experiences of Science, Technology, Engineering and Maths (STEM) based ca their important year 11 NCEA subject decisions. Science Works aims to create 'science revealing exciting STEM-based career pathways that are tailored to each student's exis strengths, and increasing students' engagement with STEM education through a contex at how STEM learning fits with attainable careers in computing, manufacturing, agricult conservation, aviation, electronics, tourism and many more skilled career pathways.

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ery to – ne k stery	Massey University	$25,953	There is a mystery in National Park Township: its wastewater treatment wetland looks g provides excellent phosphorus removal when established theories and experience say The curious minded will ask: Why is that so? Can this be reproduced elsewhere? Mass Aquanet Consulting and Ruapehu District Council will collaborate with local primary and schools to undertake field research and monitoring at National Park in order to exempli case study of high relevance to rural communities, the amazing journey from scientific engineering.
Otago y	Otago Central Rail Trial Trust	$24,000	New Zealand's recently established network of new cycle trails (http://nzcycletrail.com/ outdoor classroom where visitors, communities and school children can learn and be in science. Riders on these trails have time to contemplate concepts with little other distra take advantage of this 'receptive' state to convey scientific stories in an integrated fashi trail journey. The Otago Interplanetary Cycle Trail will pilot this strategy by creating a 10 one scale model of our Solar System on the Otago Central Rail Trail. Through the use interpretive signage, science context collateral and professional outreach, we aim to ins users, school groups, and neighbouring rural communities to grasp and use science as understanding what surrounds them.
lāori Vet	Massey University	$30,000	Many Iwi operate important animal based farming and other enterprises, but few Maori students enter veterinary or other professional careers in animal health. Our aim is to e students at an earlier stage of their education, with a focus on year 7 to 10 students. W providing hands-on experiences in the application of science and technology in a unive setting, so that students can see first-hand the connection between animal sciences, te careers. Most importantly, we wish to create an experience where they see themselves performing and leading in scientific and technical roles.
anga udent	Unitec Institute of Technology	$30,000	Kaitiakitanga is a guardianship and conservation approach to managing the environme Maori world view. The Kaipara Harbour, New Zealand's largest estuarine ecosystem, is significant environmental pressure. Te Uri O Hau, a hapu from the northern Kaipara re kaitiaki (guardians) of the Kaipara. Using a NIWA-developed toolkit, Nga Waihotanga I measure and monitor environmental changes in their estuaries. Te Uri O Hau will delive monitoring instruction to high school students from the rural Kaipara district. Their plan will link western science (the toolkit) and traditional knowledge (kaitiakitanga) in an eng relevant way.

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ir ensor	Institute of Geological & Nuclear Sciences Limited - Trading as GNS Science	$29,500	Air quality is an important determinant of human health and can have particularly strong children. This project aims to measure air quality inside schools throughout the Hutt Val encourages increased engagement of primary and intermediate-age children with atmo science and sensor technologies. This will be done by equipping schools with small air and providing students with the information required to understand data generated and small research studies. Students will gain greater understanding of air quality and see h changes to daily activities can make a large difference in improving air quality.
te Two	Kokiri Marae Keriana Olsen Trust	$26,000	Tuatinitini Oranga o te Awa – Weaving together the strands to ensure the well-being of deliver an innovative multi-faceted project that focuses on achieving long term sustaina management of the awa. This project will weave together the issues of the restoration c banks, lack of knowledge of the history of the awa and lack of community involvement a develop practical and sustainable solutions. Our approach will be one that puts people of thinking and action that will ultimately achieve wider social, health, cultural and econo for the Wainuiomata Community. We will be using a kaupapa maori methodology, key p be based around a Kaupapa Maori Framework.
nce	Ashleigh Fox	$23,430	This project builds on the success of the 2015 pilot Family Science Workshops, by usin delivery framework to introduce new science topics into our programme. These worksh incorporate fun and engaging activities to introduce a science topic, using a simple han for students and their parents. We target primary school students who have been identi teachers as having low engagement with science. After the workshop they are presente certificate of participation, and take home what they have made. Participants are also in our new on-line community for further science engagement opportunities.
An covery	Institute of Geological & Nuclear Sciences Limited - Trading as GNS Science	$30,000	The applicant, in partnership with Collingwood Area School Te Kura O Aorere in Colling Golden Bay High School in Takaka, will provide a unique opportunity for a group of 20-2 students to be part of the potential discovery of new dinosaur footprints. This will be don organising a three-day field event close to the original site where dinosaur footprints we and documented in 2009. Students will disseminate their findings to the community via dedicated website or their own school websites, and other media engagement. They wi encouraged to create increased awareness about the protection and conservation of fo their local environment. The project provides opportunities for the students from rural ar discover science career pathways prior to completing high school and to build partnersh scientists, stakeholders and the local community.

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s: ergy	Landcare Research New Zealand Ltd	$30,000	Our project aims to introduce students to the microscopic world of house dust and in pa dust mites (HDM). Some people are allergic to house dust, and it can cause sneezing, eyes, nasal stuffiness, runny nose, respiratory problems, eczema and asthma. “Dust Bu teach students about house dust, what is in it, how to quantify what is in their homes us cleaners and a standardised sampling protocol. Students will be involved in laboratory techniques used to identify mites and other allergens, e.g. fungal mould spores.
ts	Te Taumata O Ngati Whakaue Iho Ake Trust	$30,000	The Matakokiri science kits are a natural progression from our successful Matakokiri W the Iwi education strategy. Our Matakokiri science kits will provide quality science activ connect to our stories, our landscapes and our history the kits will be bilingual so all our access our Matakokiri science kits.
od from se	University of Otago	$26,106	Children from lower decile schools have fewer opportunities for hands-on science activi pupils from high decile schools and also experience poorer oral health. This project will interest in animals and fossils to engage pupils from low decile Dunedin primary school on activity: making impressions of animal teeth. Accompanying videos will explain the s fossil formation, dental impression taking, tooth shape and function, and the importance after your teeth for good oral and general health. This programme will stimulate children variety of sciences and lead to better oral health.
e k the lost: g n s of	Massey University	$29,778	Matauranga taupuhi kaiao (traditional ecological knowledge) holds great significance fo because it often meant the difference between a full or empty stomach. Scientists will te kaitiaki of Ngati Whatua o Kaipara how to use matauranga taupuhi kaiao to their advan designing fisheries assessment protocols, and thereby facilitate the efficient, independe for kaimoana assets within a western agency framework. Our project will focus on toher at risk of localised extinction – and will demonstrate how technologies at the forefront o discovery could be used to estimate population sizes of toheroa and further improve mo protocols.
oo rs – ion for and f our	Wellington Zoo Trust	$22,500	Wellington Zoo Bush Builders – Igniting passion for the scientific investigation and explo living world. Wellington Zoo Bush Builders is a Wellington Zoo initiative that connects ch parents and their communities with animals and nature in order to develop environment scientific understanding of our living world. Wellington Zoo Bush Builders engages child interactive learning sessions to launch their journey of scientific learning, giving an over picture’ of our global ecology, biodiversity, life and nature and acknowledging that every connected including people. Wellington Zoo Bush Builders incites curiosity about scient encourages children to ask questions and investigate responses, and work together to action.

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Bound d for	The University of Auckland	$30,000	Spaceward Bound New Zealand for Youth is a novel, hands-on, field-based, 5-day Astr trip for 40 secondary school students. Designed to enhance the Earth and Space Scien curriculum, it will highlight New Zealand's unique geologic features and associated flora and explore questions related to life's origins and existence in extreme environments, h and potentially elsewhere. The programme will introduce technology used for space ex rarely accessible to secondary school students, and the rigorous methods used for scie observation and discovery. Science learning experiences will be delivered using a Māta approach.
ens - n nt	Waikato Institute of Technology	$30,000	Wintec will partner with a rural Waikato community to create an Internet of Things (IoT) Garden that is monitored and maintained by local residents. Local school students and members will learn to apply IoT sensors measuring a range of factors, including soil mo temperature, relative humidity, UV levels, rainfall, air pressure, wind speed and wind dir will work alongside Wintec researchers to discover how to access this data remotely, ar apply this information to precision-agriculture. This project will grow students' and comm members' experience in applying IoT to real-world problems – and create a sustainable for the community to enjoy.
ng de	National Institute of Water and Atmospheric Research Ltd	$30,000	A joint project between Rongotai College (Kilbirnie, Wellington) and NIWA will enable st understand the impact of their daily activities and direct environment on atmospheric ca levels through self-designed, supervised experimentation. Students will plan and condu measurements of carbon dioxide at selected locations in urban Wellington, analyse the interpret them by upscaling to national and global levels. As a consequence, students w the consequences of their activities and environment on atmosphere greenhouse gases problems of global atmospheric change and possible solutions will be discussed based students' experiences and data.
ars	Christchurch Polytechnic Institute of Technology	$30,000	Interest in Mars has never been so high and New Zealand has potential innovative opp aerospace and engineering. Thousands of children struggle to achieve in mathematics, 40% fewer Maori, Pasifika (OECD) and 10% fewer students in remote settings. They ha interest in this key enabler of scientific literacy, leading to insufficient numbers of studer engineering and sciences. The approach to mathematics education must change. The M Mars project offers a STEM integrated project based learning experience, at the Yr 10-1 level, which will encourage students to continue with mathematics, sciences and physic
– eople th	Landcare Research New Zealand Ltd	$30,000	This project engages with Maori youth in environmental issues in their rohe and inspires them to exercise kaitiakitanga. Under a Te Ao Maori framework it reinforces connection and people to place and supports a greater understanding of how 'western science' con achieving environmental outcomes and long term sustainability of the land and natural

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t	Catalyst Charitable Trust	$8,495	The ‘Fast Forward’ Sci-tech Fest is an innovative project engaging 205 Year 9-10 Quee students and 2,125 primary students in science and technology. Run by the Catalyst Ch local primary and secondary schools, the public and the University of Otago event will i 12 week development process, culminating in a week long sci-tech festival in Septembe will investigate their topic of choice, focussed around “Future Queenstown”. They will pr findings as a TED style talk, interactive poster or short film/animation during the festival seven participating primary schools and then the general public.
utt	Hutt City Council	$30,000	Hands On Hutt Science is a project that transforms the classroom into a laboratory with as working scientists. Through both an in school and after school programme it is able t enthusiasm and excitement about science and technology that paves the way for stude engagement and success. The focus on practical experiences while at primary and inte school alongside the opportunity to meet working scientists can open eyes to the impor relevance of science and technology and potential career pathways.
o ki	Tirairaka Limited	$20,775	A three-day marae-based Te Hiku noho taiao for Year 7-13 students will highlight persp taiao and science to encourage rangatahi interest and involvement in science and techn school, stimulate thinking about their contribution as leaders/kaitiaki and promote scien paths. Activities will include a mix of workshops, research fieldwork and opportunities to apply scientific methods to taiao knowledge. Using strong links with local schools to hel Tangonge wetland as a living laboratory through which to build Te Hiku science/researc the project will contribute to the broad goal of re-engaging iwi with Treaty-settlement lan
ience ogy ended	Matapuna Trust	$30,000	Matapuna Training Centre's "Everyday Science and Technology Projects" aim to introdu youth to science and technology though participation in fun and engaging educational p allow them to see how science and technology relates to, and impacts on, their everyda wellbeing of the local environment and their wider community. The funding will allow the of water quality testing and recycling to continue and be expanded and the teaching an resources to be developed for a new area - bee keeping and the role bees/insects play of the environment.
– or kids	University of Waikato	$30,000	This project offers 7-11 year old students in up to 8 low decile (decile 5 or less) and/or K or full or partial immersion primary schools in the Hamilton region, the opportunity to att school workshops where they learn about robotics and basic coding. The 1.5 hour work in 5 week modules involving 2 schools per week. The programme will offer up to 4 mod weeks between June and the end of November 2016, enabling the involvement of appr schools. It is expected up to 20 students will be involved in each module within each sc the project will reach approximately 160 students and their teachers and parents.

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b ch	The Mind Lab Limited	$26,087	This project will inspire the young thinkers, makers and doers of the future to begin on a innovation and creativity through science and technology. After school/weekend worksh run at The Mind Lab by Unitec Gisborne to support rangatahi in the thoughtful integratio focussed skills and knowledge. The workshops will be in coding, electronics, Arduino, w app development, 3D printing/design. Workshops will be hands on and active, participa away tangible products, solutions and knowledge to apply in their context. The outcom workshops will enable the next generation of Tairāwhiti to think positively about the futu role in it.
girls' al g	University of Canterbury	$23,459	Wouldn't it be great if girls and women were contributing to the computational world as and men? Potentially, a STEM career choice by girls could result in a wider range of th development and applications for solving life issues and would give them enhanced life project promotes the participation of girls in science, technology and engineering (STEM developing computational thinking using robotics. The target group includes Maori and because females are currently massively under-represented in STEM higher education related careers.
ate - g, n	NZ International Science Festival	$7,773	Project Activate is about encouraging children in the Pacific Island community to look at a topic that is impacting their community - healthy lifestyles. This project aims to inspire Island children, families and community through hands on and interactive science activi what we eat and how we move impacts us and what impact small changes can make to healthy lifestyle. The outcome is twofold: experiencing science in an interactive way thr relevant to everyday life, and a community that lives healthier lives and making healthie result.
chools	Technology in Schools Education Trust	$30,000	Technology in Schools Education Trust is a "not for profit" charitable trust established to technology based education. The trust has developed the "Robots in Schools" program a curriculum to support - • STEM learning related primary school curriculum • Engaging and learning about technology in the real world It does this through using contextual learning techniques using Robots, which the childr build and program to perform a range of STEM related objectives The trust aims to roll out in-school and out-of-class programmes totalling 5000 child lea across the Hawkes Bay region in 2016.

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urial uth uth	Auckland University of Technology	$25,000	The main aim of the proposed project is creating a broader understanding of science, te engineering and mathematics (STEM) by South Auckland youth and link STEM to entre using excellent facilities and resources of the AUT's South Campus. We propose to con called STEMpreneurial interactive workshops with hand-on activities to connect STEM entrepreneurship. It will also involve joint science and technology projects with South A industries that will continue long after the workshops finished. The main outcome is pre Auckland youth to think about themselves as job makers rather than job takers in the fu
pace &	Wellington Museums Trust Inc. T/A Space Place at Carter Observatory	$8,094	Space Place, with MetService, are excited to launch a balloon into near space with a gr decile secondary school students from schools around the Wellington region. High Altitu are used daily to get accurate weather, in an effort by Google to provide internet for all, many possible uses in the future technology landscape of New Zealand. Students will le technology involved then assemble and launch the system into near space. The studen with an understanding of the results and share the project (and photos!) with their class