

Grp	1. School	2. Category	3. Title of Project	4. Synopsis of Project	5. Names of participants	6. Name of mentors	Award
A1	Anderson Primary School	P3-4	An Eco-Friendly Styrofoam Dissolver	This project aims to find out which fruit essential oil dissolves the most styrofoam.	1. Keane Lim 2. Aiden Lim 3. Lennon Mah 4. Zea Oraida 5. Trisha Toh	Ivan Ng Yong Leng Lee Zheng Wei	Gold (Presentation)
A2	Evergreen Primary School	P3-4	Choosing the right paint	Investigate which brand of house paint is best for keeping a room cool.	1. Jordane Chau Yong Jun 2. Mathivoli Sriakshmi 3. Nur Afrina Firzanah Putri Mohamad Firdaus 4. Nur Shafeena Binte Muhamad Mustafa 5. Kamarajan Kishore	Lim Mei Shan	COC
A3	Evergreen Primary School	P3-4	Recycled paper	Explore ways to make durable recycled paper using newspaper. The aim is to find the best way to make durable recycled paper	1. Nor Aliqa Mikhaila Binte Abdul Haleem 2. Micah Gan Wen Kang 3. Nataneal Yip Cheng Jun 4. Shanese Lim Ming Hui 5. Ashvin S/O Ganesan	Marilyn Lim Nalani Raja	COC
A4	Greendale Primary School	P3-4	Investigation on the energy generated by microbes	This project aims to explore if the energy produced during respiration by microorganisms can be increased by varying the concentration of the sugar solution. If this energy is harnessed, it can help to reduce the use of fossil fuels to meet the world's energy needs.	1. Koshik Basak 2. Zhuang Jinxuan 3. Kingsley Ong (Wang Zhichao) 4. Sean Ulric Buguina Chua	Nur Hafizaa Halim Sah Ng Weiling Samantha Caelyn Whyndee Lim	Bronze
A7	North Spring Primary School	P3-4	Desalination Explorers	Investigate how colour affects the efficiency of water desalination in a home-made solar-powered device	1. Chen Yu Jen 2. Han Yu Che 3. Beh Pei Zhen 4. Egnatius Wong 5. Murali Mourya	Md Imran Faizal Jason Yew Kwok Ming	COC
A8	Northoaks Primary School	P3-4	Effectiveness of a self-designed water-filtering system	The project investigates the effectiveness of a self-designed water-filtering system in turning dirty water into clean water for reuse in our daily cleaning. This will help reduce our daily water usage.	1. Joseph Chong Ze Feng 2. Aiman Shafiy Bin Mohamed Amin 3. Hoe Kai Choon 4. Inoue Ryosuke Leo Chai Gao Jin 5. Yap Jun Yi	Miss Khoo Kar Hoe	Bronze
A9	Northoaks Primary School	P3-4	Investigation on the ways to keep food and beverages cold for a longer duration outdoor	To investigate the degree of heat insulation of different materials. The aim is to find the most effective way of keeping food and beverages cold for a longer duration when outdoor.	1. Kam Hao Re 2. Chee Qian Ru (XU QIANRU) 3. Soon Le Ying Chloe 4. Huang Zi Qian	Ms Michelle Loi Mr Ng Chan Siong	Gold
A10	Peiying Primary School	P3-4	Erosion in Motion	To demonstrate the devastating effects of soil erosion and to educate others about the impact that erosion has on Earth.	1. Yeo Kee Yam Shanice 2. Anvay Deshpande 3. Lim Say Keat 4. Toh Kai En Kelly 5. Adinath Balaji	Jacqueline Ten Lihui Gaayathri K Chandra Mdm Nurhazrida Bte Mohamed Shafri	Silver
A11	Rosyth School	P3-4	How does music affect one's memory?	We are investigating how music (classical/rock/pop/no music) affects one's memory. Participants memorised a pattern of cards while listening to music compared to not listening.	1. Choey Xin Yi, Caitlyn 2. Lim Yi Hui Chloe 3. Elijah Christian Koh Zhi En 4. Sng Qirui 5. Lai Jae	Miss Lau Su Shan Mdm Eileen Seow Guat Leng Mrs Eliza Wong	COC
A12	Rosyth School	P3-4	Best Kitchen Towel in Singapore!!	To find out which brand of kitchen towels such as Fairprice Premium Gold, Fairprice and Scotts can absorb the most amount of oil.	1. Felicia Tan Yi Xuan 2. Tan E-Jun(Chen Yi Jun) 3. Jzavier Lim Zhe Wei 4. Lim En Qi Cayla 5. Choong Yu Yang	Mrs Eliza Wong Miss Lau Su Shan Mdm Eileen Seow Guat Leng	Silver
A13	Rosyth School	P3-4	Do Less-Sugar Drinks Really Have Less Sugar?	Using Diastix Reagent Strips, we measure whether chrysanthemum tea branded with the healthier choice logo really have less sugar.	1. Zhang Zi Heng 2. Ong Xin Yi 3. Emersius Ang Yi Kai 4. Trevor Tan Guan Rui 5. Elyse Cheong Jae-Lyn	Mrs Eliza Wong Miss Lau Su Shan Mdm Eileen Seow Guat Leng	COC

Grp	1. School	2. Category	3. Title of Project	4. Synopsis of Project	5. Names of participants	6. Name of mentors	Award
A14	Si Ling Primary School	P3-4	Bleach or Vinegar	To investigate by using bleach or vinegar to keep the flower stay fresh longer.	1. Cherry Chee Xin Hui 2. Wang Xin Yuan 3. Preston Seah Kee Guan 4. Su Wadi Htet 5. Nadi Moe Oo	Tham-Chin Mei Ling (Christa) Wong Ken Yoong Teo Shi Hui	COC
A15	Woodlands Ring Primary School	P3-4	Making Biodegradable Paint	This project aims to investigate which type of thickening agent is suitable for making biodegradable paint	1. Lee Wen Hao 2. Hong Ee Kent 3. Tanisha Senthil 4. Charmaine Lim Ying Xuan	Freeda Krishnan Suhanah Sapuan Jenny Ong Wai Lian	COC
A16	Yio Chu Kang Primary	P3-4	Biomess to Biomass	The project aims to find out the rate of composting based on the type of fruit peel used and the compost condition.	1. Lim Cheng Khai 2. Ong Yu Tzer 3. Vegesana Anjali 4. Zumbunnen Molly Sheng 5. Julian Ong Yu Yang	Mrs. Geraldine Lim	COC
A17	Hougang Primary School	P3-4	Power of Pollination	To investigate the effects of pollination on the fruiting of plants	1. Palita Mohan 2. Mohamad Raihan 3. Hasini Senthilnathan 4. Sng Min Ning 5. Ezekiel Lim	Mohan Krishnamoorthy Ko Kuan Woei	COC
B1	Endeavour Primary School	P5-6	Investigation on the best organic pesticides for plant growth	To find out the effectiveness of organic pesticides on the removal of pests from tomato plants	1. Tiu Jia Dong 2. Deenah Aliah Binte Razali 3. Yeo Shi Xu 4. Lin Yuqian 5. Ow Yong Kei Onn Faith	Reena Shukla Raihanah Hayashi Jonathan Lo	Bronze
B2	Evergreen Primary School	P5-6	Pop the Sphere!	To find out how an increasing amount of calcium affects the formation of a gel-like substance when added to sodium alginate solution.	1. Illya Astriana Binte Izzhar 2. Saravanakumar Harshal 3. Koo Bi Hao, Javan 4. Kow Jian Lin, Kayleen	NURHIDA BINTE SAPIIE	Gold
B3	Huamin Primary School	P5-6	Investigation on which concentration of worm tea allows tomato plant to grow fastest	To investigate if the concentration of worm tea affects the rate of growth of tomato plants. The aim is to find the concentration of worm tea which allows the tomato plant to grow fastest.	1. Tiong Heng Qi 2. Zave Ya Ze Xuan 3. Ren Xiaoyao 4. Shek Khong Yew Rix	Ong Qian Wei (Mr Ong) Low Si Min Cheryl (Mrs Chang)	Bronze
B4	Marsiling Primary School	P5-6	The Power of Singapore's Currency	To investigate the possibility of making a battery using Singapore's currency and investigating the effects of the number of coins (cells) on the voltage produced	1. Law Yu Hang 2. Shahezad Fardeen Sadiq 3. Pang Jia En 4. Nur Aqilah Liyana Binte Abdullah	Siti Nur Aisyah Mohd Johari Geor	COC
B5	Mee Toh School	P5-6	To investigate ways to filter water with different household materials.	To investigate the difference in the cleanliness of the water before and after filtering. The aim is to find out the best way to purify water.	1. Aaron Tai Wei Meng 2. Belinda Koh Zi Lin 3. Zander Ong 4. Yan Yu Fei Sophie 5. Yang Ziyuan	Gan Kok Sim, Thomas Pang Heng Cheun	COC
B6	North Vista Primary School	P5-6	Effect of various treatment on length of time strawberries remain mould-free	Strawberries are temperate fruits which can be quite pricey in Singapore. Even when left in the refrigerator, strawberries can get mouldy. Our aim is to find out which treatment on strawberries before keeping them in the refrigerator will allow them to stay mould-free the longest. We tested hot water, vinegar, lemon juice and vegetable cleaner.	1. Muhammad Daniel Ashraf Bin Isa (Leader) 2. Chloe Lim Shin Yee 3. Muhammad Fawwaz Afiq Bin Muhammad Faizol 4. Landon Tan Liang Hom	Nurshidah Binte Mokhtar Rohman Nor B Suib Parameswari Gajendran	COC
B7	Northoaks Primary School	P5-6	Investigation on the ways to prolong the freshness while keeping the original taste of cut fruits	To investigate the ways to prolong the freshness while keeping the original taste of cut fruits. The aim is to find the most effective way of keeping the cut fruits fresh and at the same time, minimise the introduction of other taste to the fruits.	1. Tan Yu Rou 2. Law Zhuo Heng 3. Kayne Wong Jia Jie 4. Ong Zun Hong 5. Reygan Low Cheng En	Mrs Susie Lee	COC

Grp	1. School	2. Category	3. Title of Project	4. Synopsis of Project	5. Names of participants	6. Name of mentors	Award
B8	Peiyang Primary School	P5-6	Renewable energy!	In this project, we will explore ways of harnessing renewable energy more efficiently.	1.Aatishrajan 2.Denise Wan Xi Min DENISE WAN XI MIN 3 Kota Khushal .KOTA KHUSHAL 4.Lai Jing Yi 5.Pang Zhen Zhe Reegan	Yong Lih Tze Sim Yaen Avery Rhoda	Silver
B9	Qihua Primary School	P5-6	Edible Cutlery	Find out how to make safe and edible cutlery	1.Nurul Firzanah Binte Mohammad Faizal 2.Nur Syahindah Binte Tarjudin 3.Wong Xin Le 4.Lau Yu Bin Zion	Parhana Sawari Hilwa Mohamed Hilyah Bakhit	Silver
B10	Seng Kang Primary School	P5-6	Rising Technology Vs Paper	Technology is rising but is it affecting human memory? We are investigating how memory is affected when humans are exposed to digital or authentic materials in memorizing similar content.	1. Vidhi Goel 2. Sirigineedi Haasini Priya 3. Matias Richard Zhan Ye 4. Fion Tan Yu Wei 5. Alexis Tay Yu Xi	Wang Hup Ann Tan Jia Hui Chang Lan Li	COC
B11	Woodlands Ring Primary School	P5-6	Making bioplastics out of milk and vinegar	This project aims to find out whether the amount of white vinegar would affect the strength and the amount of water absorbed by the bioplastic.	1. Alfiah Fizana Binte Muhammad Firdaus 2. Dylis Poh Xuan Wei 3. Nia Irysa Binte Abdul Halim 4. Amira Qistina Binte Norisham 5. Muhammad Rifqii Bin Abdur Rauf	Freeda Krishnan Suhanah Sapuan Jenny Ong Wai Lian	Bronze
B12	Yio Chu Kang Primary School	P5-6	Plants as water filters	To find out the importance of plants in helping in the filtration of dirty or rain water to give us cleaner water.	1. Ching Rong Que 2. Daniel Joseph 3. Erina Firdous Mohamed Rabeek 4. Tiruveedula Manasvini 5. Xavier Tan Jun Eng	Wee Shi Min Melissa	COC
B13	Yishun Primary School	P5-6	Investigating the relationship between bacteria in water and plant growth	To investigate the relationship between amount of bacteria water and its effects on plant growth.	1.Moira Parico 2.Brian Tan 3.Lee Shi Xuan 4.Priya Darshini 5.Yap Jia Hui	Miss Celina Soh Lixia DR Udiana Bte Jamalludin	COC
B14	Hougang Primary School	P5-6	Hot Day! Cooling House!	To investigate the effect of different building materials on the temperature	1. Reyes 2. Bharath 3. Tiffany Koh 4. Sharie 5. Ma Yi Ran	Soh Lee Yoong Aw Kuan Yuan Alan	Gold (Presentation)
C1	Endeavour Primary School	P5-6	Investigation on the optimum pH for plant growth	To investigate the optimum pH for growing plants	1. Yong Chen Kai 2. Tan Chong Ning 3. Andi Dahrin Bin Mohamed Sani 4. Stephanie Poh Xin Hui 5. Lin Zi Qin	Muhammad Aidilsofyan Rejini Boss Jonathan Lo	COC
C2	Greendale Primary School	P5-6	Effects of acids on oral health	Cranberry and apple juice & other similar citrus sourced liquids are packed with Vitamin C as well as teeth-damaging acids. Our investigation aims to find out the effects that beverages of different pH levels have on teeth enamel. Our findings can help consumers to make informed choices of the beverages to avoid as part of their oral health care habits.	1. Aditya Bhatnagar 2. Caitlin Chew Cian Ling 3. Li Junxiang 4. Pearl Puri 5. Alina Khan	Mdm Chew MeiQian Mrs Priscilla Loh Miss Caelyn Whyndee Lim	Bronze

Grp	1. School	2. Category	3. Title of Project	4. Synopsis of Project	5. Names of participants	6. Name of mentors	Award
C3	Marsiling Primary School	P5-6	Assessing and testing the suitability of common household solution for use as hydraulic fluids	Mineral oils and water are commonly used as hydraulic fluids in industrial and common machinery. Their suitability for use will depend on their hydraulic power which is in turn affected by their viscosity index and the frictional force between the test fluid and the hydraulic chamber.	1. Peng Xinning 2. Yun Chenlu 3. Wang Taoxu 4. Lim Jin Xin	Mr Jeremy Chan Mr Ang Yew Leong	COC
C4	Mee Toh School	P5-6	To investigate the use of a hydraulic press on crushing different materials for the purpose of recycling.	To investigate if a hydraulic press can compress different household items to be used for recycling. The purpose here is to make a portable hydraulic press to crush materials for convenience.	1. Low Chee Hyun 2. Enya Lim Kai En 3. Alexis Wong Wan Qi 4. Meredith Ng Min 5. Anders Tham Koi Tarn	Gan Kok Sim, Thomas Pang Heng Cheun	Bronze
C5	North Spring Primary School	P5-6	Repurposing Styrofoam	Repurposing Styrofoam through melting using organic solvents	1. Sivadas Avantika 2. Nainasetty Prem 3. Darren Lai Jin Hong 4. Dinesh Matthew Derina Relyn 5. Muhammad Daniel Irfan Bin Haji Zainudin	Ms Tan Shirleen Miss Goh Chao Ngin Miss Shameem Ahamed Ali Khan	Silver
C6	North Vista Primary School	P5-6	Effects of Wifi on Germination of Seeds	Mobile radiation can be found in many places as the result of the Wifi network, be it in school or at home. Our project aims to investigate the effects of mobile radiation on the growth of cress seeds.	1. Jayden Sia (Leader) 2. Muhammad Haziq Hazim Bin Johari 3. Alonso Ling 4. Darren Huang 5. Tan Zhao Yu	Nurshidah Binte Mokhtar Rohman Nor B Suib Parameswari Gajendran	Bronze
C7	Peiyong Primary School	P5-6	HEAT AREA	The project is about the effect of temperature and surface area on the rate of reaction.	1. Lau Ke Li Evanessa 2. Lim Xie Kang 3. Lim Fang Yu 4. Tricia Ong Jing Wen 5. Lu Junhong	Mr Mohammed Faizal Bin Isa Mdm Loy Su Ann	COC
C8	Qihua Primary School	P5-6	A toothpaste adventure!	Find out which toothpaste is the best in keeping germs away	1. Aw Tian Lun 2. Haziqah Aqilah Binte Muhammad Hairul 3. Nur Amali Ainun Jariah Binte Nekmat 4. Nur Dian Halisahh Binte Ismadi	Hilwa Mohamed Hilyah Mohd Bakhit Parhana Sawari	COC
C9	Qihua Primary School	P5-6	From old to new	Find out the best way to make recycled paper	1. Muhammad Aryan Bin Roslan M 2. Yew Pin Wei Dorah YEW PIN WEI DORAH 3. Ian Harith Bin Mohamad Hisham	Hilyah Mohd Bakhit Parhana Hilwa Mohamed	COC
C10	Woodlands Ring Primary	P5-6	Agar Bioplastics with Fish scales	This project aims to investigate if varying the shapes of the fish scales would affect the strength of the agar bioplastics.	1. Emilee Gan Hui Xuan 2. Lin Ziyang 3. Chng Wei Quan 4. Dora Lin Xin Er 5. Tan Yee San Eason	Freeda Krishnan Suhana Sapuan Jenny Ong Wai Lian	Gold
C11	Yio Chu Kang Primary School	P5-6	Eggshell as chalk	This project investigates the effectiveness of chicken egg shell as a substitute for commercial chalk. We will also find out if flour and starch affect the effectiveness of eggshell as a substitute for chalk.	1. Charles Marcellino 2. Adam Goh Hongrui 3. Yeo Tee Boon Brandon 4. Herrera Jillianne Villegas 5. Kumaresan Jeyasarathi	Yean Sok Kheng Louis Loo	Gold
C12	Yishun Primary School	P5-6	Investigating anti-bacterial properties of homemade plant-based disinfectants	An investigation of anti-bacterial properties of homemade plant-based disinfectants	1. Ng Xin Ying Fallon 2. Khin Myat sandy 3. Goh Shi Pin Vera 4. Wang Jieyi 5. Giselle Khong Rou Xuan	DR Udiana Bte Jamalludin Miss Celina Soh Lixia Mdm Goh Zi wei	Silver

Grp	1. School	2. Category	3. Title of Project	4. Synopsis of Project	5. Names of participants	6. Name of mentors	Award
D1	Anderson Secondary School	S1-2	Cleaning oil spills with plant-based materials	Oil spills often have devastating consequences on wildlife. Our group aims to compare the effectiveness of different materials (wheat straw, cotton and coconut husk) in absorbing oil spilled on water.	1. Richelle Tong Kai Xuan 2. Nurul Amirah Nasyitah Binte Adnan 3. Choo Jun Meng Aden 4. Chan Ting Ting Christine 5. Cheung Feng En Dawn	Lai Rher Wei Lim Guo Xian Andrew	Gold (Presentation)
D2	Christ Church Secondary School	S1-2	Flexi-Wrist Stretcher	It uses flex sensors to aid the elderly stretch. When they either stretch or bend, an LED light will be lit, indicating whether the elderly have reached a certain extent of bending or stretching. Evaluation of the flex sensor indicator can help confirm that the users are reaching their milestones in joint extension.	1. Leena Nor Rani Rozario 2. Adeline Maria Jacob 3. Leng Jian Yuan 4. Joshua Andrew Chong Shenkai	Ms Lynn Tang Low Yi Lun	COP
D3	Compassvale Secondary School	S1-2	Investigating Efficacy of Home-based Extraction Methods for Common Herbs as Antimicrobial Agents	This study aims to investigate the efficacy of several herbs which can be found commonly in Singapore's homes as an antimicrobial agent. By looking into the efficacy of herbs, this study hopes to promote the use of natural products as antimicrobial agents, thereby reducing the reliance on chemicals which may pollute the environment.	1. Eldon Chng 2. Eugene Koh Wen Siang 3. Brian Davidson Fok Zhendao B 4. Shannen Lim Ying Ying	Mr Christopher Chong Mdm Clarissa Lim Yiling	COC
D4	Evergreen Secondary School	S1-2	Fruit Peel Candle	In this project we aim to find out if the different type of fruit peel, size and thickness affects the duration of the burning flame	1. Yeo Zheng Kai 2. Low Wen Xi Celeste 3. Lee Zhen Yew 4. Tricia Poh Si En	Ms Yin Xiaohui Lee Kim Fatt	COC
D5	Nan Chiau High School	S1-2	Effects of different sound frequencies on ampicillin sensitivity of <i>Escherichia coli</i>	Noise pollution is prevalent in cities and industrial areas around the world. This project is the amalgamation of Arduino computer programming and life sciences research. Arduino is used to programme different sound frequencies to investigate the possible effects of sound frequency on bacterial growth.	1. Ng Jun Kang 2. Or Kai Qing Kathie 3. Claudia Cheong Rui Xuan 4. Yvette Liew Wan Shin	Foo Su Lyn Aizuddin Hassan Shamsuddin	Bronze
D6	Northbrooks Secondary School	S1-2	The Egg-hatten Project	The project investigates which pre-selected household materials can withstand shock at various heights and protect the dear eggs wrapped in them. Beware of incoming egg-splattering destruction!	1. Pothu Tejas 2. Aryan Deshpande 3. Shin Thant Te Aung 4. Jeremy Tan Kong Keat 5. Reuben Lim Han Zhan	Quah Wai Kuan	Bronze
D7	Pei Hwa Secondary School	S1-2	Determining the sucrose-stevia ratio in milk tea which corresponds to optimal taste.	The plant-extracted sweetener, stevia, is valued for its health benefits. We aim to find the optimum ratio between sugar and stevia, such that the artificial taste of stevia is imperceptible.	1. Phoebe Ong Yan Xuan 2. Noah Tham Ming Yi 3. Issac Phang Juncheng 4. Chaw Qi Xuan	Angela Toh Gan Ying Harrick Tu	Silver
D8	Presbyterian High School	S1-2	Natural Hand Sanitisers	Producing a natural hand sanitiser that is effective in killing bacteria and gentle to the hands, and placing it around the school for students and staff to use can help us create a healthier and better learning environment.	1. Xavier Choo 2. Sidharth Rajesh 3. Joshua Tan 4. Sean Chua 5. Zacharee Cheng	Shahira Teo Weihong	COC
D9	Punggol Secondary School	S1-2	An investigation of the properties and biodegradability of different starch based bioplastics.	There has been growing interest in low-cost, biodegradable starch-based bioplastic. This research aims to investigate effect of the type of starch used on the heat resistance, flexibility and biodegradability of the bioplastic.	1. Nicholas Teo Wu Yu Xuan 2. Yong Yi Ting 3. Yee Xin Ni 4. Loh Prudence	Christine Hor Debbie Teo	Gold

Grp	1. School	2. Category	3. Title of Project	4. Synopsis of Project	5. Names of participants	6. Name of mentors	Award
D10	Singapore Chinese Girls' School	S1-2	An investigation on the antibacterial properties of Chinese medicine	In this experiment we will be growing bacteria on nutrient agar, which is an agar that is used during science experiments. Nutrient agar is a general purpose medium supporting growth of a wide range of non-fastidious organisms. We will be using different types of chinese herbs which are anti bacterial then we will test how long they take to kill the argar on the petri dish. The results will show whether they are really anti-bacterial or whether they can kill bacteria.	1. Yeo Min En Minette 2. Ananya Gupta 3. Ko Eunbin 4. Yong Yu-En Amanda	Julia Teo Yeo Siew Li	Bronze
D11	St Nicholas Girls' School (Secondary Section)	S1-2	Herbal Alternatives to Chemicals in Moisturisers	Our project aims to investigate the herb that can help to retain most moisture when added to shea butter. Our results show that calendula moisturiser is the most effective.	1. Zhang Zi Yun 2. Tarsha Lim Jia Xuan 3. Sim Sze Yee, Gabrielle 4. Ang Wei Fang Dora	Sandra Ong David Chang Cai Jinhong	COP
D12	Woodgrove Secondary School	S1-2	Investigating the effectiveness of slime as a heat insulator compared to cardboard and plastic	A layer of slime is placed around the beaker containing hot water and the rate of temperature drop is measured to determine whether slime is a good insulator of heat.	1. Liew Sheng Jun Austen 2. Muhammad Nur Hazmi Raziq Bin Hashim 3. Emma Nur Illyana Binte Jeff Azman 4. Nur Insyirah Binte Amza	Reeve Ng Felicia Liew	COC
D13	Woodlands Ring Secondary School	S1-2	Help or hindrance? Does same look equate to same effect?	We investigate the effect of three colorless, common liquids in our homes (artificial vinegar, cooling water and tap water) on the growth of sedum pachyphyllum, a readily available succulent plant.	1. Ong Herk Pin 2. Pranav 3. William Lin Tai You 4. Aakash Ashik	Jimmy Siow Loong Kong You Kong Win Chang	COC
D14	Yishun Secondary School	S1-2	To investigate how various nutrients deficiencies would affect the growth of green leafy vegetables in hydroponic cultivation	To ensure food security in Singapore's future, hydroponics cultivation is an important step to take. Our research can aid urban farmers to identify various nutrients deficiencies through simple visual diagnosis.	1. Loo Chian Yee 2. Rishi Narain 3. Kenneth Christiansen Hartono 4. Jocelyn Yeo Su Yu 5. Chen Rongsheng	Ang Swee Siang Tan Ee Cheng Norhaytiy Bujang Norhaya	Silver
D15	Nguyen Tat Thanh Lower and Upper High School	S1-2	Organic fertilizer made from coffee grounds and its application in growing vegetables in households	The research has made a great contribution to improving the awareness of waste classification in households and environmental protection awareness, recycling waste into organic fertilizers to grow fresh vegetables. In general, after 3 weeks composting coffee grounds, eggshell, rice husks, vegetables and fruit left, generally during the composting temperature ambient temperature is higher than ambient temperature with the mode gas supply by mixing well. Thermophilic anaerobic digestion of coffee grounds is quite good. Temperature ranges from 30oC to 50oC, pH ranges from 6.5 to 8.0, and humidity fluctuates from 44.74% to 62.44%. The treatment of organic waste for growing fresh vegetables is significant to solving environmental problems and food hygiene and safety. This organic fertilizer production model is simple, cheap and easy to apply in growing fresh vegetables in households, ensuring food safety.	1. Hà Hải Dương 2. Nguyễn Hoàng Minh 3. Đường Lê Tuệ Minh 4. Phạm Trâm Anh 5. Nguyễn Bá Khiêm	Msc. Tran Minh Duc	Bronze
E1	Anderson Secondary School	S1-2	Effects of temperature on the retention of Vitamin C	Project focus on exploring how the different compartments(chiller,freezer or normal)in the refrigerator is able to retain the vitamin C in oranges. The control experiment is done at room temperature.	1. Soh Yi Jing, Andra 2. Sharleen Lim Chen Ru 3. Tan Dan Feng 4. Lim Yue Cen 5. Kyra Leow Ruo Ting	Tan Zi Bin Arthur Lim	Bronze

Grp	1. School	2. Category	3. Title of Project	4. Synopsis of Project	5. Names of participants	6. Name of mentors	Award
E2	Christ Church Secondary School	S1-2	Moisture Sensor	The moisture sensor will be placed on the elderly's bed to detect urine, sweat or saliva. Beds with bodily fluids are harmful to bed-ridden elderly people as they are prone to infections if there are any open wounds present on their skin. This is also a hygienic housekeeping practice.	1. Hong YuXin 2. Loi XIn Ni 3. Maple Koh Xin Yi 4. Domingo Princess Joyce San Jose	Mdm Rajeswari Sinkaram Alan Ho Chin Kun	Bronze
E3	Compassvale Secondary School	S1-2	Investigating the use of the thermoelectric effect to generate electricity	Based on the Peltier-Seebeck effect, the team aims to investigate the amount of light produced by a light emitting diode when a temperature difference is applied across a thermocouple.	1. CHAN PEI QING 2. CHERYL LEE EN QI 3. DAI LIN NA SELENA 4. ENG JIE XUAN 5. SHERMAINE TAN RUI EN	Emmanuel Chng Nicholas Choy Shah Ahamed	Bronze
E4	Evergreen Secondary School	S1-2	PlastECOs	Bio-plastics are the biodegradable alternative to plastic. The objective of PlastECOs is to test the tensile strength and flexibility of bio-plastics made from different fruit peels.	1. Ang Yenlin Britney 2. Darius Peh Peng Ern 3. Mok Hui Ting 4. Muhammad Fairil Zikry Bin Jasmani	Foo Yun Shuen Cassandra Tseng Jih Cheng	COC
E5	Northbrooks Secondary School	S1-2	Sound Proofing	To investigate which affordable and economical materials are the most efficacious in blocking or reflecting sound wavelengths	1. Anselm Nair 2. Teki Abhay Das 3. Loh Chuan Kit 4. Alexis Thia 5. Ng Yu Yang, Darius	Nick Chan Choon Loong	COC
E6	Presbyterian High School	S1-2	A Quiet Place	A quiet environment helps students focus better when they are studying. This project aims to identify suitable recycled material that can soundproof rooms from external sound sources.	1. Nevin Joseph 2. Panchakunathorn Thanapon 3. Jonas Tham Min Xuan 4. Badabagni Anshu 5. Sikhakolli Anu Preethi	Edmund Choo Teo Weihong	Silver
E7	Serangoon Secondary School	S1-2	Investigate the use of organic chemicals to keep away body odour and smelly feet	To investigate the anti-bacterial and anti-fungal properties of different types of plants. The aim is to use the chemicals extracted from the plants to prevent bacterial and fungal infections in humans.	1. Lee Kang Wei, Samuel 2. Gupta Vanshika 3. Mohamad Bin Mohamad Amin 4. Cheong Rui Ting Tiffany	Mr Peck Chin Hee, Gregory Mdm Tan Phuyay Boon	COC
E8	Singapore Chinese Girls' School	S1-2	Comparative study of the effectiveness of antibacterial traditional medicine to commercial disinfectants	Our experiment involves bacteria and disinfectants. We would like to find out whether natural disinfectants work better than commercial disinfectants as people are generally using commercial disinfectants with the fact that it is convenient. It is also said that most of the commercial disinfectants can kill most bacteria. Through this, we would like to compare the differences and what is actually better for us.	1. Maisarah Hamdan 2. Nurin Aliyah 3. Rachel Lin	Julia Teo Yeo Siew Li	COC
E9	St Nicholas Girls' School (Secondary Section)	S1-2	Investigation into the optimum time raw chicken breast meat should be soaked in Meiji Milk to tenderise	To predict the optimum time chicken breast meat soaked in milk to maximise the tenderness. The tenderness chicken breast meat is tested using a simplified Warner-Bratzler Shear Force assessment.	1. Yeo Shi Ning Ashley 2. Sharmain Lim Chen Ting 3. Mok Tze Yuen 4. Goh Si Xian, Amanda	David Chang Cai Jinhong Sandra Ong	COC
E10	Woodgrove Secondary School	S1-2	Investigation on the change in concentration of vitamin C in fruit juices and drinks when stored under ambient room temperature	To investigate the change in vitamin C (ascorbic acid) content in fresh and processed fruit juices. The aim is to find which drink has the greatest change in vitamin C content when stored at rtp.	1. Evelyn Cheng Kie Xun 2. Wong Zi Mun 3. Muhammad Rashid Bin Lamri 4. Quek Jia Cheng Ivan	Lim Hwee Peng Jeremy Wu Elaine Khoo	COC
E11	Woodlands Ring Secondary School	S1-2	Investigation of the suitability of bioplastics as a substitute for plastic bags in terms of the pressure it can withstand	Different types of bioplastics will be compared with common plastic bags in terms of the amount of pressure it can withstand before breaking to determine the most suitable substitute.	1. Dhaniyah Aqilah Binte Suhaidi 2. Erin Quek Min Ling 3. Lim Shang Xian 4. Wei Hui Yuan	Neo Kai Sheng	Gold

Grp	1. School	2. Category	3. Title of Project	4. Synopsis of Project	5. Names of participants	6. Name of mentors	Award
E12	Nguyen Tat Thanh Lower and Upper High School	S1-2	Application of informatics for determination and searching information of flowering plants in Hanoi National University of Education	<p>Based on Microsoft Access to design structure and fill data to determine 50 species; the name of production will be called DFPVN 1.0 (Determination of Flowering Plants in Vietnam). DFPVN can be made better in the next version.</p> <p>+ Identifying the flowering plants by Microsoft Access, PAUP and MrBAYES programs.</p> <p>+ Making a set of image data in the study to identify plants DFPVN 1.0 can be used to determine plants fast and correctly; display screen is easily used in Vietnamese and English..</p> <p>☐ Combination of DFPVN 1.0 and PAUP or MrBayes software is the new method in Vietnam.</p> <p>☐ The visual data set is used to increase the autonomy in learning and to help teachers teaching in the direction of capacity development, organizing activities for pupils to study biology.</p> <p>..</p> <p>☐ Combination of DFPVN 1.0 and PAUP or MrBayes software is the new method in Vietnam.</p> <p>☐ The visual data set is used to increase the autonomy in learning and to help teachers teaching in the direction of capacity development, organizing activities for pupils to study biology.</p>	1. Đỗ Hải Đăng 2. Trần Thế Hùng 3. Đỗ Khánh Thương 4. Nguyễn Thị Diệu Quỳnh 5. Nguyễn Nữ Nguyệt Minh	PhD. Ha Thi Thuy	Gold
E13	Yishun Town Secondary School	S1-2	Engineering a sustainable bio-plastic from plant starch to replace the use of traditional plastic	To engineer and explore the mechanical strength of different bio-plastics made from common plant starches (potato, tapioca and corn) and together with the use of natural additives. A tensile test method will then be used to quantify the mechanical strength of the bioplastics.	1. Chan Wei Loon 2. Liew Yu Chen 3. Sim Hon Meng 4. Tristian Tan Yi En 5. Tu Yang	Ms Teo Linling	Silver
F1	Anderson Secondary School	S1-2	Investigation of effects of UV Radiation on The Strength Of Human Hair from Different Age Groups	The aim of this project is to find out the effects of UV radiation on strength of human hair structure from different age group . Information on effects of UV radiation on skin, eyes and immune system are easily accessible, however, the effects of UV radiation on strength of hair is not as well known. The project strives to dwell deeper into the fundamental aspects of cell integrity and hopes that the results obtained will improve the understanding of effects of strength human hair due to UV radiation.	Foo Guo Yi, Low Ji Yuan, Wong Kenzie and Yasmin Clarissa	Yu Sheau Jen	COC
F2	Ang Mo Kio Secondary School	S1-2	Which fruit contains the most Vitamin C?	Our team seek to find out which fruits, particularly those easily available, contain the most amount of vitamin C. We also wish to find out if storage method (at room temperature vs in the fridge) affect the amount of vitamin C in the fruits. This may mean eating certain fruits high in vitamin C can help us hit the daily requirement for vitamin C easily.	1. Avner Lim Shi Quan 2. Hua Shicheng 3. Wee Kai Keat 4. Yeo Yonson 5. Ariston Reese Ann Aguila 6. Indera Ardy Putera Bin Imberan	Ms Karen Teo Ms Tan Jieying Ms Jessica Lim Lay Keng	COC

Grp	1. School	2. Category	3. Title of Project	4. Synopsis of Project	5. Names of participants	6. Name of mentors	Award
F3	Christ Church Secondary School	S1-2	Button Panel Notifier	Acts as an "informer" for the elderly to the caregiver. Instead of making multiple trips to ask what the elderly wants, elderly could just notify their wants via a set of basic commands on a customised remote control. The buttons are mainly calls for meals, toilet breaks or personal assistance, etc.	1. Shamil Hakim 2. Nicholas Aishwar Robert Michael 3. Chew ZhiDe Martin 4. Nathan Kuak 5. Ayuni Insyirah Binte Ahmed Yani	Mr Khairulnizam Chan Huazhi	COP
F4	Deyi Secondary School	S1-2	Rice Water, Life Water	To investigate the amount of NPK (nitrogen, phosphorous and potassium) in different types of rice water	1. Tan Bing Jie Nigel 2. Phoi Wei Hui 3. Chung Li Lian	Miss Leng Su Yee Miss Eileen Tan	Bronze
F5	Nan Chiau High School	S1-2	To Investigate the effectiveness of compost on growth of plants	Fruit peels and scraps were gathered for the manufacture of our compost two months prior to our investigative project. The compost were then used on one of the two pots of papaya plants. The growth will be monitored.	1. Ang Ding Hang 2. Cai Yongsheng 3. Chong Wei Jun 4. Ng Wei Heng 5. Roy Aw Jun Ming	TAN JIA MIN JASMINE	Silver
F6	Northbrooks Secondary School	S1-2	Cultured milk Bean Sprouts	The aim of the research is to study the effect of common culture milk on the germination process of common vegetables, thus helping to improve the crop yield.	1. Ahmad Mikhail Rauff 2. Suraj Sundaresan 3. Naufal Ezmal Bin Rosly 4. Hanson Low Ming Hin	Ting Teck Wee, Timothy Tan Aik San, Melvyn	Silver
F8	Punggol Secondary School	S1-2	An investigation of the effect of type and percentage of aggregate on the porosity and strength of pervious concrete .	Pervious concrete is highly porous, allowing water to drain quickly to underlying soils. This research hopes to investigate the properties of pervious concrete made from different types and percentages of aggregate.	1. Chen Chen Roulan 2. Gao Moran 3. Sivakumar Logadeepan 4. Ramesh Dhanushree	Christine Hor Debbie Teo	COC
F9	Serangoon Secondary School	S1-2	Investigating the possibility of using Oobleck as a biodegradable packaging material	In Singapore, the amount of waste disposed has increased about 7 times over the past 45 years, from 1,200 tonnes/day in 1970 to 8,284 tonnes/day in 2015. Among the different types of waste, materials such as plastic and styrofoam are non-biodegradable. To reduce the amount of non-biodegradable waste being disposed, the team would like to investigate the use of Oobleck as a packaging material. In this project, we will evaluate the performance of Oobleck as a packaging material and compare it with other non-biodegradable materials, such as polyethylene (common plastic) and polystyrene (styrofoam).	1. Rachel Yap Khanh Ly 2. Koh Michelle 3. Cheah Hui Shan 4. Katherine Ang Kiah Qing	Michelle Ong Lim Tong Yang	Bronze
F10	Singapore Chinese Girls' School	S1-2	A study on the relationship between the pH and amount of bacteria in water	To find out if there is any correlation between the pH of water and the amount of bacteria in it. We plan to collect water samples from water bodies around Singapore, such as reservoirs and beaches, and testing the pH of the water. After doing a pH test, we will do a bacteria test using an incubator to incubate the bacteria. Lastly, we will compare the results of the bacteria test and the pH test to determine if water samples with a higher or lower pH had more bacterial growth. Our hypothesis is that water samples that are alkaline and have a higher pH will have a greater amount of bacterial growth in them.	1. Nur Deanna Sim Khalid 2. Arya Lakshmi Ravichandran 3. Chua Tsze Sin 4. Xiao Yuchan 5. Kylie Wee	Julia Teo Yeo Siew Li	COC
F11	St Nicholas Girls' School (Secondary Section)	S1-2	The Effect of Concentration of Sugar Solution on Freezing via the Mpemba Effect	The Mpemba Effect has been experimented on different sugar concentrations. Results shows higher concentration of sugar solution causes liquid to freeze faster, proving the hypothesis correct.	1. Mary Anne Lau 2. Alexis So 3. Breanna Foong 4. Nikki Poh	Lim Ai Lian David Chang Cai Jinhong	COC

Grp	1. School	2. Category	3. Title of Project	4. Synopsis of Project	5. Names of participants	6. Name of mentors	Award
F12	Woodgrove Secondary School	S1-2	Investigation on the effect of drinks on teeth erosion in adults and children	To investigate the effect of drinks on teeth enamel in children and adults using eggshells. The aim is to find out which drink will cause the greatest change in mass of the eggshells.	1. Ainul Mardhiah Binte Romie 2. Madhumithaa D/O Jeeva Jothi 3. Nurul Jannah Binte Rahmat Hassan 4. Putri Nadhira Binte Mahadir	Lim Hwee Peng Felicia Liew Muhammad Fauzan Sapuan	Bronze
F13	Woodlands Ring Secondary School	S1-2	Extending the Vase Life of Cut Rose Flowers	Investigating the effects of different chemicals on the vase life of cut rose flowers	1. Koh Bo Yang 2. Lee Si Min 3. Yap Hong Yi 4. Yap Hui Xin Rebecca 5. Hoh Jun Gi	Ms Chua Yi Teng	Gold
F14	Nguyen Tat Thanh Lower and Upper High School	S1-2	SSmart home using rain-water processing system	Designing a smart home to use rain-water and solar energy through multistory water filtration system.	1. Nguyễn Đức Dũng 2. Đỗ Xuân Tuấn Minh 3. Phạm Kiên Dũng 4. Trần Quang Anh 5. Trương Hải Dương	Msc. Nguyen Tien Long	Gold