

# 16<sup>th</sup> ELEMENTZ SCIENCE RESEARCH CONFERENCE & EXHIBITION RESULTS

## Group A

	School	Title of Project	Number of pupils in project group and their names	Name of teacher mentor or mentor from higher institutions	Awards
A1	Ahmad Ibrahim Secondary School	Investigation on the quality of waters in Sembawang and Sungei Buloh Nature Reserve	Quek Li Juan Vivian Yan Kaitao Shawn Goh Shao En Low Liong Leong	Chew Jia Zhen Geraldine Ng Ping Siang Yap Wei Liang Nicholas	COC
A2	Anderson Secondary School	Effect of Silver Nanoparticles on Stem Cell Differentiation	Lim Xue Qi Choo Su Qin	Dr Mark Richards Mr Sathish Balu Mdm Lum Yoke Wah	COC
A3	Anderson Secondary School	Comparative chemical composition and antimicrobial activity of aqueous and ethanolic extracts of Cinnamomum verum, Piper nigrum, Zingiber officinale and Curcuma longa	Soh Jia Yi, Joycelyn Chia Kai'En, Minn Chang Fong Leng Serena Lai Xinyun Tan Xu Kang	Ms Mok Lai Koin Ms Josephine Neo	Silver
A4	CHIJ St Nicholas Girls' School	To investigate the strength and water resistance of paper made from fibers of different fruits	Mok Shi Min Christianne Low Kai Min Anisa Li Shi Hui Angela Lim Zi Qi Michelle Heng Sihui	Ms Lim Ai Lian	Gold
A5	CHIJ St Nicholas Girls' School	Antimicrobial Effectiveness of Different Flavoured Mouthwashes	Hsu Yu Ting Iris Ho Ning Claire Hsieh Jih Hsyang Jermayne Yeo Chze Min Inez Athenea Poon	Chan Siying Celine	COC
A6	Deyi Secondary School	Food Preservative	Xavier Lye Pin Liang Murphy Chin Sheng Yi Sezhiyan Nandhini Nithya Ganesh	Tan Jin Poh	COC
A7	Fuchun Secondary School	To compare the concentration of Vitamin C in commercial fruit juices against home-made fruit juices	TANG SHAO HUI CHANG AI TING DEBORAH PEH MEI YEE PHILIA NEO TONG WEE SHAHIRAH BTE KHAIRUDIN	Tan Hwee Hwee, Serena Muhammad Fadli Zulkiflee	COC
A8	Holy Innocents' High School	Investigating the feasibility of generating useful products from waste fruit peels	Amanda Clare Lawrence Lee Yun Qin Ng Qi Yuan Daniella Bianca Cadayona Lim	Mrs Susan Tan Mr Kevin Roberts	Bronze
A9	Maris Stella High School	Determining Anti-Bacterial Resistance For Ulcer Medication (An In Vitro Study)	Tan Ken-I Ryan Seah Yu Wei Michio Apollos Tan Abigail Michiryu Aquila Tan Abigail Tan Wei Zhi Joshua	Mrs De Cruz-Prameeta Nadia Karina	Silver
A10	Northland Secondary School	Effects of acid rain on algae	Abel Praveen Devaraj S.J. Akshay Sng Zhi Yong K.J. Sivaya	Clement Ong	COC
A11	Orchid Park Secondary School	Life of a bread after it's dead	Muhd Hidayat Ang Teng Swan, Tami Rachel Oon Deuel Teo Choo Yan Ru	Naufal Bin Ab Hadi Shamima Mustakim Baitullah	COC

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A12	Pasir Ris Crest Secondary School	TO INVESTIGATE WHETHER PLASTIC PLATE MADE FROM WASTE MILK IS STRONGER THAN A REGULAR PLASTIC PLATE	KOH CHEN HUANG, SAMUEL IVAN KOA HAN ZHE BAY SU HWEE RUKHSHANA MAUFIQAH BTE M H	CARMEN CHOONG ONG XINYI	Bronze
A13	Presbyterian High School	Use of Natural Substances as Pesticides for Plants	NG KENG HWANG CHONG PEI FANG ELEANOR LI BAICEN KENNY SEAH YONG JIE	Aaron Phua	COC
A14	Singapore Chinese Girls' School	Studies on Scratch Holograms Produced by Compass Tool	Lok Yee Ling Wong Shu Hui, Kellie Ng Avery Tan Jit Yih	Yeo Siew Li	Gold (Presentation)
A15	Kunming No 14 High School, China	Measurement and Control of Water Mixing Valve's Outlet Water Temperature	Zhang Jun Hong Zhang Yi Tang NingYi Zhu Qi Yue Li Rui Song	Zhang Yong	Bronze
A16	Nguyen Tat Thanh High School, Vietnam	Identify Toxic borax by turmeric	Le Vo Thu Uyen Nguyen Thi Nguyet Nguyen Thi Kim Hue Nguyen Minh Anh Le Quang Anh	Vo Thi Hai	COC

## Group B

	School	Title of Project	Number of pupils in project group and their names	Name of teacher mentor or mentor from higher institutions	Awards
B1	Ahmad Ibrahim Secondary School	Investigation on Mytilid Mussel Perna Viridis (Mytilidae: Bivalvia) as Bio-monitoring Agent in Singapore.	Jeremy Toh Kit Meng Lee Ann	Chew Jia Zhen Geraldine Ng Ping Siang Yap Wei Liang Nicholas	COC
B2	Anderson Secondary School	Comparison of the effectiveness of natural antiseptics to commercial chemical antiseptic.	Ben Joseph Murphy Ezekiel Phang Felix Ong Wei Cong Huang Xin Yan	Andrew Lee Xin Zhan Nadiah Karina	COC
B3	Bukit Panjang Govt High School	Investigation on Water Purification Capabilities of Moringa seeds	Desmond Poh Jing Cheng Teoh Xu En Ryan Tan Wei Jie Tay Jiun Yuan	Yu Sheau Jen	COC
B4	CHIJ St Nicholas High School	Effects of Fertilizers on Common Green Carpet Algae Growth	Lee Si Jia Kay Yeung Lee Sherleen Lisa Weng	Ms Lee Ruo-Ning	COC
B5	CHIJ St Nicholas High School	Investigating Flexural Strength of Coconut fibers in making casein plastic	Emily Tay Ee Lin Chow Yean Li Choo Tong Ling Chia Xin Yi Shirleen Celeste Ow Wern Qi	Otto Tham	Silver
B6	Fuchun Secondary School	To determine the air quality of different locations based on number of particles	Kaloyan Petrov Caluodov Wu Yan Puay Wee Yee TAN SENG CHAI MUHAMMAD MATIN M	James Li Sylvia Ang	Bronze
B7	Holy Innocents' High School	Investigating the shelf-life of cut apples with sanitiser and anti-browning treatments.	CHIA YONG HAO CALEB TAN XING ZHAO WILFRED TAN XINWEI JUSTIN TAN JING KAI	Kong Su San Sze Wee Ping Phua Zhen Hua	Bronze
B8	Maris Stella High School	Synergy Studies of Traditional Chinese Medicinal Plants	Zhao Zijun Chia Eik Chao Poh Dominique Zhao Chenyu	Mrs De Cruz-Prameeta Nadiah Karina	Silver
B9	Northland Secondary School	Solar Distillation and Salt Water Circuit	Urlwin Toh Keng Kiat San Diego John Michael Bautista Villanueva Quier Erice Vergara Zhang Wanting Khairul Fahmi B Mohd K	Nilasari Mohamed Softe	COP
B11	Orchid Park Secondary School	Investigating the Lactose Content in Various Types of Milk	Sandali Siyara Tran Quynh Anh Chong Hou Wei Lincoln Teo Ren Jun Lee Zhan Peng	Denise Lee Michelle Kwok	Gold
B13	Singapore Chinese Girls' School	Studies on thick lens made from bottles filled with liquid	Lin Jie-Min, Chelsea Chloe Alexis Ong Athena Leong Yin Huey	Mrs Yeo Siew Li	COC
B14	Kunming No 14 High School, China	Using Mathematical Models to Predict Danger Classes of Plague	Zhao Zi Hang Luo Nan Yu Xin Yun Li Wei Tong Yan Pei Hao Chao	Ma Yu Xiao Zhao Qiang	Gold
B15	MWITS, Thailand	Development of Shellac-Carnauba wax fruit coating for shelf-life extension of tropical fruits	Miss Panchita Chang	Mrs. Chutuporn Sawatruksa	Bronze

## Group C

	School	Title of Project	Number of pupils in project group and their names	Name of teacher mentor or mentor from higher institutions	Awards
C1	Anderson Secondary School	Improvement in efficiency of solar panels and utilization of fuel cells for optimum output of electricity throughout days and nights	Chaokitkha Kantaphon David Liu Kangxun Tan Yong Rui	Dr Tan Yen Kheng Mdm Tey Chin Chin	COC
C2	Bukit Panjang Govt High School	INVESTIGATION OF GRATZEL CELLS	Tam Keng Hong Eugene Low Marven Ng Keith Tan	Yu Sheau Jen	Bronze
C3	CHIJ St Nicholas Girls' School	Organic Detergent made from discarded citrus fruit peels	Lam Ting En Elizabeth Koh Yuan Melliana Yamin Aye	Ms Lee Ruo-Ning	COC
C4	CHIJ St Nicholas High School	Effects of Cream of Tartar on Drying Time of Homemade, Child-safe Play Dough	Rachael Marie Yukon Wu Weiying Yap Fang Ling Yap Peizhen	Randy Chia	Bronze
C5	Compassvale Secondary School	Investigation into the generation of useful electrical energy in areas of high human traffic	Yong Kai Wen Sim Mong Chuan Loh Yang Xian Lee Bo Hua Muhammad Amirul Amin B Mohd R	Mr Tan Wei Kiang Derek Mr Chng Jun Liang Emmanuel Mr Ahamed Shah	Gold
C6	Fuchun Secondary School	A study of how different music affects concentration while studying.	Ching Mei Ling Bavani AUSTIN CHUE ZHI HAO RICHMOND CHOO TZE YONG	Terence Chee Evon Lee	Silver
C7	Holy Innocents' High School	Investigating the performance of solar cells for generating electricity from the Sun	Wee Zi Jun Sophian Izdiyar B Osman Guan Jia Sheng Timothy Huang Kerong	Mrs Julia Chin Mrs Angel Yeo Mr Ng Wai Hong Mr Zulkifli	COC
C8	Maris Stella High School	Evaluation of metabolites present in Camellia Sinensis aqueous extracts and its in-vitro antimicrobial activity	Hong Fung Heng Colin Edsel Lim Yong Xun Gerald Yeo Zhi Xiang Kang Hwee Thern Samuel Vernon Ong Jing Heng	Ngo Mei Zhi Mabel Josephine Neo	COC
C9	Northland Secondary School	Biosynthesis of Casein Plastic from Milk	Rhae Yoon Jeng Mum Hanisah Bte Saifulbahri Nur Hafizah Bte Mansor Izzah Umairah Bte Mohamed R	Reuben Seow	COC
C10	North Vista Secondary School	Saccharine appraisal and quantification	Valen Yo Chloe Lim Le Yi Shermaine Ang Wei Ning Bryan Boey Han Mun Eugene Goh Wei Chung	Miss Ng Li Wei Ms Malathy D/O Karupan	COC
C11	Orchid Park Secondary School	Efficient methods of cooling of drinks	Tan Jing Yang Dexter Gui Geoffrey Lee	Frederick Chan	COC
C12	Pasir Ris Crest Secondary School	CONVERTING WASTED KINETIC ENERGY BY ELECTRICAL APPLIANCES BACK TO ELECTRICAL ENERGY	ZYANN TAN HWEE YING LOH JINRYL RIFQA NABILLA BTE RIDZWAN NADIA LIANA BTE ABDUL RAHIM RITA RAIHANAH BTE MOHAMMAD R	CARMEN CHOONG ONG XINYI	COC

	School	Title of Project	Number of pupils in project group and their names	Name of teacher mentor or mentor from higher institutions	Awards
C13	Presbyterian High School	Investigation of the effects of TCM and tobacco on the heart rate of Daphnia	TIMOTHY WAN KAI YANG CHIN YI JIANG, RYAN NG KEHAN DARREN CHUA DONG SHENG	Aaron Phua	COC
C14	Presbyterian High School	To investigate if expired milk can be used to produce casein	LIM JIA JIA, JOLYN GO KIRSTEN ISABELLE ROSALES LONG YILIN KAELYNN SOH HWEE MINH CHEE WAI ERN	Mdm S.Shahira	Gold (Presentation)
C15	Serangoon Secondary School	To investigate the nutrients of drinks with fruits and how they affect health	Lee Yan Yee SHEN GUANG XU LI WENKUN LIM JOYE	Lung Sau Ying Peh Su Fang	COC
C16	Nguyen Tat Thanh High School, Vietnam	Installation of Panda's cellulose and Roselle's anthocyanin	Nguyen Ngoc Anh Bui Vu Hai Thanh Nguyen Minh Thuy Nguyen Duc Huy Nguyen Doan Loc	Tran Huu Dai	Silver

## Group D

	School	Title of Project	Number of pupils in project group and their names	Name of teacher mentor or mentor from higher institutions	Awards
D1	Anderson Secondary School	A Comparative Study of the Protein Content Present in Different Types of Food	Edelweiss Ng Yeoshi Tan Shirley Teng	Leow Teng Hong	Gold (Presentation)
D2	CHIJ St Nicholas Girls' School	The effectiveness of organic antibacterial spray as a repellent to common bacteria found on tables	Tara Seow Ting Tan Si Jie, Maranda Tan Mei Xin, Gretal Sheng Jia Ying Sherise	Ms Lee Ruo-Ning	COC
D3	CHIJ St Nicholas Girls' School	Using nuts to replace fuel for cooking or car usage	Yap Yi Xuan Esmanda Wong Wen Wei Toh Si Jia Cindy Yu Yuan Hua	Ms Lee Ruo-Ning	COC
D4	Compssvale Secondary School	An investigation on using food waste to produce bioplastic	Yong Han Ming Lim Wan Ning Quek Soek Shan Jezebel Teo Cai Ling Baavya Boyina	Lim Yiling Clarissa Low Qin Tian Sharoo Jenny	Silver
D5	Deyi Secondary School	The effect of Ultra Violet Rays on Bacteria	Chan Wan Ting Elizabeth Faith Chang Yu En Neo Jia Wei, Wayne Lim Shannen	Tan Jin Poh	COC
D7	Northland Secondary School	To investigate the electrical conductivity of pencil of different grades (B, 2B, 3B and 4B)	Ng En Qi Amiran Bin Amari Ng Swee Joo Nike Pui You Qi	Eric Xie	Bronze
D8	Orchid Park Secondary School	Factors that affect oxidation in apples	Jerome Wong Keith Kwok Ryan Kaw Ngo Seng Gee Jason Lee	Frederick Chan	Silver
D9	Pasir Ris Crest Secondary School	TO INVESTIGATE WHETHER ADDING COIR TO PAPER WILL STRENGTHEN IT	TAN HUI XUAN NG YI LIN, EILEEN JANANI D/O NADARAJAN TAN JUN YUAN, SYLVESTER SAEF ALI BASHA B CEKENDAR B	CARMEN CHOONG ONG XINYI	Bronze
D10	Pei Hwa Secondary School	Investigating the oxidising and reducing properties of foods	Nur Sulistiara Tiong Hui Ting Valerie Quah Soo Ying Emmeline Ng Shi Yong Tay Hwee Yan Ang Xiuqi	Miss Michelle Lim Mr Tu Harrick Iskandar	COC
D11	Presbyterian High School	The effects of recycled materials on water spinach growth	Chau Shao Jun Wilmer Tan Chuan Min Shaun Teo Chuan Yi, Maximus Aclag Gerard William Gonzales	Mr Chandrasegaran Palaniswamy	COC
D12	Serangoon Secondary School	To investigate the effectiveness of non-chemical pesticides in <i>Brassica parachinensis</i>	DEEMITHRA CHAMIKARA W CRUSEM KYLLE DEINNE MARGES PHAN NGOC MINH XUYEN DE JESUS RACHEL PAM	Fong Jia Hui Ang Chian Huey	COC
D13	Singapore Chinese Girls' School	Stop Monkeying Around	Angelique Chia Rui Yi Tay Linn Qi, Clara Natalie Claire Ng Shu-En Sarah Lai Sue Ann	Mrs Cha Wai Mun	COC
D14	Yio Chu Kang Secondary School	Comparison of reducing sugar level in whole fruit and fruit juice	Mark Zhen Yang Chang Wei Song Lim Guan Hong Leron Ryan Chua Jordan Ng Jim Heng	Mdm Connie Yeo Ms Chia Yi Ying	Bronze
D15	Nguyen Tat Thanh High School, Vietnam	Fabrication of Chitosan – Fe <sub>3</sub> O <sub>4</sub> and using it in heavy metals treatment	Van Ngoc Tran Ninh Phan Nhat Khanh Nguyen Tuan Kiet Bach Duc Khoi Nguyen Trinh Quang Hai Dang	Tran Minh Duc	Gold

## Group E

	School	Title of Project	Number of pupils in project group and their names	Name of teacher mentor or mentor from higher institutions	Awards
E1	Anderson Junior College	The effect of Silver Nanoparticles(NPs) Decorated on Molybdenum Disulfide(MoS <sub>2</sub> ) for dye detection via Raman Spectroscopy	Ho Zhen Kit Dhivya Priya Kanisan Tay Kai Yang	Lu Jun Peng Sng Peng Poo	Gold
E2	Yishun Junior College	Cloud Detection and Monitoring	Loh Yi Chang	Lee Kang Hao	Silver
E3	Anderson Junior College	3D Printed Fuel Cell	Soh Pongtawee Julian Cheung Jun Yan Alvin Loke Ming Hui	Jeffrey Toh Wong Chee How	COC
E4	Yishun Junior College	The investigation of the relationship of galvanic skin response with stress	Kieren Chua Yeo Shan Kun Daza Louis Don Jadie	Asst Prof Yeow Chen Hua (NUS mentor) Miss Lim Wei Li (teacher-in-charge)	COC
E5	Anderson Junior College	Manganese Dioxide-Based Supercapacitor	Naida Cicelly Tania Ng Wei Kang Feng Yuanyuan	Jeffery Toh Ping Yong Vincent Goh Wing Hoe Wei Chao	Silver
E6	Yishun Junior College	Investigation of the antibacterial activity of Thai and Sweet basil on <i>E.coli</i>	Boo Shi Min Fang Yuan Toh Ding Jun	Tay Woon Ping	COC
E7	Anderson Junior College	Batteries of the Future	Leow Cong Sheng Tan Guan Ting Teo Hwee Chuan	Mr Sutanto Jeffery Toh Ping Yong	Bronze
E8	Yishun Junior College	Effects of Sanitisers on the Safety and Physiochemical Properties of Lettuce	Ho Jie Min Melody	Chua Chee Siang Lu Hui Ping	Bronze
E9	Anderson Junior College	Properties Enhancements of Waterborne Polyurethane by introducing Dopamine-modified Graphene Oxide	LEONARD SIM JUN JIE CHEN HUI TING RACHEL CHUA CHONG ER	Lu Xuehong Chen Funggui Liu Wanshuang Aw Meng Yuan	Silver
E10	Yishun Junior College	Removal of Heavy Metal Ions using <i>Cocos Nucifera</i> and <i>Imperata Cylindrica</i>	Lim Szu Wen Isabelle Wilson Tan Jun Long	Chua Chee Siang	COC
E11	Anderson Junior College	3D printed prosthetic hand	Chew Xin Hui Wong Ye Qi Daryll Christabelle Tee Jie Ying	Wong Chee How Jeffrey Toh Ping Yong	Gold (Presentation)
E12	Yishun Junior College	Determination of the relationship between high-sugar diet, neurodegeneration and developmental delay in <i>Drosophila melanogaster</i>	Irsyaad Hasif Bin Ramle	Lu Huiping Dr Koh Tong Wey	Gold
E13	Anderson Junior College	Cloning and Characterisation of two O-Methyltransferases (OMTs) in Basil that are involved in the Phenylpropanoid Pathway	Wee Yong Geng, Eldric	Mr Ho Kian Tong	Bronze
E14	Anderson Junior College	The Study of the Most Effective Working Condition of Phase Change Materials (PCMs)	Guo Yushan Meng Cheng Zheng Danrui	Mr Ho Kian Tong	Bronze