

# 17<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	Biomonitoring of Sungei Buloh Besar and Punggol jetty using mussels <i>P. viridis</i>	Khit Sue Zhen, Kuah Min Ying, Mastura Bte Latif, Syed Naufal	Chia Yan Qi Audrey	Commendation
A2	Anderson Secondary School	To investigate the viability of producing green plastics by Anderson Secondary School	Nephele Ng, Charlotte Seah, Cherilyn Kwek, Chin Yan Bing	Mdm Lum Yoke Wah	Silver
A3	CHIJ St Nicholas Girls' School	Effect of the type of flour on the strength of homemade glue	Low Si Jie, Natalie Khoo Ziqi, Ng Wen Zhen, Nicole Lai Poh Yee	Mr Chan Kin Chuah	Bronze
A4	CHIJ St Nicholas Girls' School	Investigation on the Best Alternative Substance for Aluminium Chlorohydrate in Homemade Deodorants	Tan Ying Hui Valerie, Thel Su Thazin, Wong Jia Ying, Xu Chunran	Mr Jason Koh	Commendation
A5	Holy Innocents' High School	Crystallization of Pharmaceuticals	Jacelyn Heng Jing Xian, Cheng Kai Chen Euson, Chung Ming Hean Gabriel, Goh Yng Swan, Russel Tan Jun Hong	Woo Wei Shan Stanley Chua	Commendation
A6	Maris Stella High School	Evaluation of environmental impact of sunscreen using Allium Cepa test	Cheah Tze Juen, Ong Tjun Tjet, Augustine Lee Xuan Wei, Darius, Tan Jean Kye, Linus Ng	Mabel Ngo	Silver
A7	North Vista Secondary School	Investigation on effect of different coloured light on Vitamin C	Valen Yo, Toh How Cher Andy, Ang Yu Wei Liz, Richmond Kong	Ng Li Wei Ms Malathy D/O Karupan Mr Khoo Hock Soon	Bronze
A8	Orchid Park Secondary School	Investigation on preservation methods	Lim Quan Hui, Christy Ee Xin Ru, Yap Kai Ling, Patricia Mae Britania	Mr Jeevan Mr Low	Commendation
A9	Pei Hwa Secondary School	To determine antioxidant properties of cooling herbs	Karyn Poh Wei, Ng Yu Hui, Liang Xin Yu, Beh Xing Yee, Ong Fan Jing	Harrick Tu Jason Chen Yingjie	Commendation
A10	Presbyterian High School	Crystallisation	Chin Yi Jiang, Timothy Wan Kai Yang	Mr Chandrasegaran Palaniswamy Mdm S Shahira	Gold
A11	Serangoon Secondary School	To investigate the possibility of making paper out of agricultural waste and fruit peels	I'li Qurratu'aini Bte M F, Vickneswari D/O Thamil Chelvam, Tan Yi Lin, Chewn Thing Kwan	Peh Su Fang Lung Sau Ying	Bronze
A12	Singapore Chinese Girls' School	Combining Eye Gaze Detection and EEG-based attention detection in a Hybrid Brain-Computer Interface (BCI) for Navigation Control	Chia Jia-En, Victoria Charlotte Ng Wei Yi	Mrs Yeo Siew Li Chin Zheng Yang	Commendation
A13	Kunming No 14 High School, China	Economic benefit and ecological effect of fish proliferation	Yuan Yu Tong, He Chen, Li Yan Rong, Yan Shu Hao, Dou Yue Xing	Chen Ming Zhao Shuang Li	Commendation
A14	Nguyen Tat Thanh High School, Vietnam	Study on the fabrication of superhydrophobic, superoleophilic materials from agricultural wastes (loofah) – Application in marine oil spill recovery	Hoang Thu Huong, Nguyen Thuc Anh, Vo Nguyen Nguyen Khoi, Phạm Anh Kim, Pham Quang Gia Bao	Nguyen Thị Bích Việt	Gold
A15	PCCCR, Thailand (Princess Chulabhorn's College Chiangrai, Thailand )	Application of Metronome Synchronization as Tuned Mass Damper System	Ruangsak Patomwong, Narongrid Seesawad, Poomnithat Pokkantha	Mr Dusadee Srisongrach Dr Somwan Chumphongphan	Commendation

## 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	Investigating level of pollution in Singapore waterways through assessing health of mussels	Khuyagbaatar Urangua, Leong Jia Ying, Muhammad Nur Izeay B Yazid, Wong Zheng Long	Chia Yan Qi Audrey	Silver
B2	University High School, Melbourne (Partner School: Anderson Secondary School)	Investigations on the breakdown of starch-based plastics	Paddy Gianni, Connie Gamble, Jessica Capalnear, Zachary Chakhvorostov, Mungo Moje-O'Brien	Elizabeth Bryan (University High School, Melbourne) Lum Yoke Wah	Gold (Presentation)
B3	CHIJ St Nicholas Girls' School	Synthesis of Candles made of Vegetable Shortening and Coconut Oil	Tan Jing Xuan Tricia, Tan Rui Lin, Erica, Tan Jing Wen, Sarah, Victoria Lim Yi Xuan Zoe Chow Zuer	Mr Tham Otto	Bronze
B4	CHIJ St Nicholas Girls' School	5 Common Spices a Day, keeps the Bacteria away!	Jayne Low Ting Hui, Chong Jie Lin, Deborah Lee Jingyi, Grace Yang Zhong Ting, Deng Cheng	Mr Jason Koh	Commendation
B5	Holy Innocents' High School	Production of Ethanol from Fruit Waste	Teo Yu Ling Crystal, Chan Hui Xin Renee, Neo Wei Jie Shawn, Tan Jun Hao, Ho Si Ci	Gwendolynn Tan Kevin Roberts (NYP)	Bronze
B6	Maris Stella High School	Detection of migration of phthalates from plastic containers	Wang Zesong, Yang Chenyu, Zhang Haopu, Yang JingZhou, Xu Peihao	Mabel Ngo	Commendation
B7	Orchid Park Secondary School	To investigate the effect of fruit skin as fertilizer for plant growth	Wong Jolin, Shi WeiYan, Jesse Neo Kah Sin, Choo Yan Ru	Daniel Chua Jeanne Lim	Commendation
B8	Pasir Ris Crest Secondary School	Using expired milk to water plant as an alternative to fertilizer	Livia Lily Mammen, Ashok Kumar Shwetha, Keethanna Jeyaseelan, Charmailt Ng	Ong Xinyi Kent Lo	Commendation
B10	Serangoon Secondary School	Everyday Organic Batteries	Crystal Chia Sze Yun, Melvin Ang Jun Wei, Chantelle Loh Yi Wei, Chris Ryan Patrick, Charissa Ong Siang Ying	Tan Xiang Yeow Ang Chian Huey	Participation
B11	Singapore Chinese Girls' School	Design and Development of Can Satellite	Tan Mei Yi Belle, Esther Poh Hui Yi, Moe Ma De Khin	Mrs Yeo Siew Li Dr. Michelle Shaoguang	Commendation
B12	Singapore Chinese Girls' School	Why Do Drugs Have Side Effects?	Choi Yun Sun, Chin Cui Ning, Ashley Lum	Mrs Yeo Siew Li Verma Chandra Nguyen Ngoc Minh	Commendation
B13	Whitley Secondary School	Oil Sorbents from Organic Wastes	Yao Yichen, Li Keyou, Ahmat Firz Bin Zulkifli, Lee Yong Ker, Joel Young	Alex Teoh	Bronze
B14	Kunming No 14 High School, China	The evaluation and optimization of taxi resource allocation system in Information era	Huang Yi Pu, Lei Chen Wen Xuan, Zhang Ran, Yang Jin Yu, Feng Jing Nian	Che Jia Xin Ma Yu Xiao Zhao Qiang	Silver
B15	MWITS, Thailand  (Mahidol Wittayanusorn School, Thailand)	Antioxidant extraction from Pomegranate seed for nourishing product.	Miss Thatcharat Karikanchana	Miss Gunnitha Siwaleephan	Gold

## 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	CHIJ St Nicholas Girls' School	To find the most effective Shoe Sole Design in preventing slips	Lim Yean Lyi, Lin Jiawei, Ng Xuan En, Constance, Ng Zi Yan, Giselle	Mrs Ong Ming Eng	Commendation
C2	CHIJ St Nicholas Girls' School	Effect of Coconut Oil in homemade sunscreen lotion on ultraviolet rays	Tang Jing Hui Chloe, Rebekah Seow, Tracy Yeo Yu Ting, Wong Mei Mei, Hazel,	Mrs Ong Ming Eng	Silver
C3	Compassvale Secondary School	Investigating the use of running water to generate electricity in urban pipe systems of high-rise buildings	Louicia Lee Xin Yi, Yeo Zhi Hui, Melody Tan, He Ming Xuan, Lee Tze Sin, Alicia	Mr Tan Wei Kiang Derek Mr Chng Jun Liang Emmanuel Mr Ahamed Shah	Bronze
C4	Deyi Secondary School	Minimum Amount of Copper Required to Exhibit Antibacterial Properties.	Sim Tang Zheng, Han Htoo Zin, Mavis Lee Xin'er, Lim Jun Jie, Shirlyn Tay	Mr Tan Jin Poh Ms Nur Azlina Bee Ms Teo Chong Ming	Commendation
C5	Fuchun Secondary School	An investigation on generation of electricity using solar energy	Jean Liew Zhi Jun, Liu Si Yi, Tan Jia Xuan, Chin Zhi Xuan	Liang Lai Hup Sonny Koh-Teh Yi Wen	Commendation
C6	Maris Stella High School	Evaluating antibacterial and synergistic effects of 9 Traditional Chinese medicine Herbs	Tey Li Zhang Edmund, Dylan de Souza, Eric Goh Kang Yang, Jonathan Koh Hao Tian	Mabel Ngo	Gold (Presentation)
C7	Orchid Park Secondary School	Investigating the anti-bacterial properties of common spices (cinnamon, cloves, garlic and onion) in extending the shelf life of bread.	Ong Jing Wen, Eleen Ong Cenhui, Gideon Isaac Ong Gie Leong, Ong Zhen Dong	Chen Xuanning, Edmund  Naufal Abdul Hadi	Commendation
C8	Pasir Ris Crest Secondary School	Newspaper as an alternative to soil for plant growth	Ho Yu Yang Sean, Stella Seah Hwee Min, Lim Jermaine, Tan Jia Chern, Quek Jia Hao, Berwin	Ong Xinyi Kent Lo	Commendation
C9	Presbyterian High School	Garbage enzyme	Goh Eik Teng Venessa, Tan Zi En, Lau Wei Xi, Leong Tze Yung	Mrs Choy Hui Peng	Commendation
C10	Punggol Secondary School	Effects of fruit remains on the rate of growth of plant	Irwin Wong, Niviya Parkash, Kimberly Chung, Cheryl Toh, See Jin Long	Mrs Mabel Yap Mr Roy Tan Jun Yi	Bronze
C11	Serangoon Secondary School	Efficacy of N95 and surgical masks against microbes	Jayachandran Vinayak, Muhammad Adi Saifullah, Jansen Marc Maluyo	Mr Ng Soon Aik Mdm Fathima Beevi	Commendation
C12	Serangoon Secondary School	Investigation of ways to reduce the transmission of sound	Muhammad Rafi B Ali Wafar, Danial Hadi B Shahifuddin, Isma Danish B Ismaya, Hariz B Razali, Tan Yew Shaun	Mr Yan Tuck Poh Mr Tan Kian Chong	Silver
C13	Singapore Chinese Girls' School	Investigating the efficiency of using sugarcane pulp (bagasse) to make an effective organic fertilizer	Ng Avery, Chloe Tan	Dr Loke Han Ying Dr Brian Tan Tan Chee Yong Travis	Commendation
C14	Nguyen Tat Thanh High School, Vietnam	Research the fabrication of optical disintegrated plastic bags based on recyclable PE films and nano – TiO2 photocatalyst	Nguyen Minh Hieu, Dinh Thi Ha Anh, Nguyen Mai Ngoc, Nguyen Huy Nam Anh, Bui Huong Tra	Nguyen Tien Dung	Gold
C15	MWITS, Thailand (Mahidol Wittayanusorn School, Thailand)	Solving Dots and Hexagons game	Miss Premravee Teeravichayangoon	Miss Gunnitha Siwaleephan	Bronze

## 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	Balance Evaluation Training Assessment (BETA) incorporating use of smartphone-based integrated system	Chow Qian Yu, Chan Zhen Jason, Pang Min Hui, Winnie	Mdm Tey Chin Chin Aung Aung Phyo Wai	Gold
D2	CHIJ St Nicholas Girls' School	Varying Composition of Essential Oil to reduce E. Coli bacteria on Phones	Goh Kerriane, Evelyn Lee Ji Ying, Gillian Lam Yan Rong, Fong Tze Wei, Alyssa	Mr Tham Otto	Commendation
D3	CHIJ St Nicholas Girls' School	Effect of Paper Airplane Design on Travel Distance	Christabelle Kam Rui Ting, Celeste Gue Ci Ying, JeAnn Leow Tse Yin, Isabelle Tan Yi Jun	Mrs Ong Ming Eng	Commendation
D4	Compassvale Secondary School	Low-cost method of cleaning water using waste materials	Cheong Huan Feng, Hanaxel Kwa Yong Qi Imbag, Vidhi Mahajan, Malavika Anbarasan, Surabhi Sridhar	Mdm Low Qin Tian Mdm Preeti Kulkarni Mdm Jenny Sharoo	Bronze
D5	Hougang Secondary School	Investigation on anti-slip tape as a solution for athletes wearing spectacles	Delphe Neo Wan Xiang, Justin Tan Jun Ming, Luke Liao Gek Siong, Andrea Bertina Lazaroo	Miss Lee Min Miss Goh Shu Hui	Commendation
D6	North Vista Secondary School	Investigation on the effect of pH of water on rate of gaseous exchange in Hydrilla plants	Ng Jun Wei Jeff, Peh Ze Rong , Teo Jun Rui Jonathan, Lim Chen Hong	Ng Li Wei Ms Malathy D/O Karupan Mr Khoo Hock Soon	Bronze
D7	Orchid Park Secondary School	Best Plastic for Photo Frame Cover	Goh Tze Yuen, Aaron Oh Jun Hao, Siti Umairah Bte Ahmad Zaidi, Tan Jian Yong	Frederick Chan Wong Wei Hui	Bronze
D9	Serangoon Secondary School	Music to the Ears or Pain to the Ears	Pravina D/O V Dhanaraj, Sree Krishna Surya Praharsitha Tallapragada	Fu Shin Hui Ng Hafizzudin	Commendation
D10	Serangoon Secondary School	Production of Hand Soap from Different Types of Honey and the Investigation of their Effectiveness	Siti Nurkhalilah Bte Haji K, Francheska Jullien Christ Pido Lazo, Kwon Sanghyeok, Tan Chun Kwang Xavier	Diana Goh Chern Fong Jia Hui	Commendation
D11	Singapore Chinese Girls' School	Optimization of a Zeer	Lok Yee Ling, Athena Leong Yin Huey, Howe Ying Yi	Mrs Yeo Siew Li Mrs Julia Teo	Gold (Presentation)
D12	Woodlands Ring Secondary School	To Investigate The Effects Of Human Urine On The Electrical Power Output Of A Microbial Fuel Cell	Philippe Madrid Israel, Lim Hong Zhu, Christopher Ng Nian Kang, Justine Joy, Billy Dragova	Mr See Poh Leng	Silver
D13	Nguyen Tat Thanh High School, Vietnam	Study the production of geopolymer concrete from fly ash and alkaline activator made of NaOH and hush ash	Le Phuong Thanh, Pham Quang Huy, Nguyen Doan Viet Hung, Bui Phuong Linh, Nguyen Xuan Hai	Nguyen Hong Quyen	Silver
D14	PCCCR, Thailand  (Princess Chulabhorn's College Chiangrai, Thailand)	Remembering Flash Drive Program	Dullayathit Phittayapanjarat, Chunngam Ampavasiri	Mrs. Manatchanok Tamwong Mr. Kritsana Somkuan	Commendation
D15	Catholic High School (Sec)	Evaluation of chemical composition of Camellia sinensis and other herbal infusions	Chan Ming Han, Jesper Fong Weng Loke, William Lee Jun Jie	Tan Ping Hock	Commendation

## 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	On-demand texture dialling of VO <sub>2</sub> M/B-phase nano-structured films using scanning focused laser irradiation	Lin Hong Yi, Aznikah Bte Abdul Nizar, Fong Kei Sen	Mr Sng Peng Poo Dr Zheng Min Rui	Silver
E2	Yishun Junior College & Nanyang Junior College	Optimisation of VO <sub>2</sub> thin films (hydrogel) to be used in Smart Windows	Pua Heng Yi (YJC), Kenny Ang Wee Howe (NYJC),	Tay Woon Ping Dr Long Yi	Bronze
E3	Anderson Junior College	Enhancing underwater image	Zhang Xuezhi, Wang Xuze, Lim Jinhao	Prof.Chau Tan Pei Yun	Commendation
E4	Yishun Junior College	Investigation of the anti-bacterial properties of banana peel	Goh Jun Qiang Eddy, See Boon Siang, Ardra Jayakumar	Tan Kai Ying	Commendation
E5	Anderson Junior College	Tea Laser	Goh Jun Wei, Mahesh Krishnan Shyamkumar, Ding Ning	Sng Peng Poo Zien Ooi	Commendation
E6	Yishun Junior College	Study of Allium Vegetables and their Effects on Shelf Life of Bread	Augustine Yang Gui Jie, Donlaporn Pattamawath, Kanyaporn Thakham	Lim Wei Li Lee Kang Hao Mr Anek Chaiboot	Commendation
E7	Anderson Junior College	Enhancement of ferroelectric photovoltaic effect in BiFeO <sub>3</sub> through doping	Yang Nanyang, Liang Xuxian, Qiu Jiabin	Mr Toh Ping Yong Jeffrey	Silver
E8	Yishun Junior College	Temperature Based Schottky-Contact Leakage Current Studies in GaN HEMTs	Austin Goh Junzhen	Lee Kang Hao Assoc Prof Ng Geok Ing	Bronze
E9	Anderson Junior College	Properties Enhancement of Polyurethane by Incorporating Dopamine-modified Graphene Oxide	Theodore Hadiyanto Hendrawidjaja, Soe Paing Zaw, J S Jayashree	Chen Fenggui (Dr) Ho Kian Tong	Commendation
E10	Yishun Junior College	The manipulation of objects floating on water through the generation of water waves	Shawn Liew Hong Wei, Desiree Lim	Lim Siew Leng Lee Kang Hao	Bronze
E11	Anderson Junior College & Victoria Junior College	Characterisation of silver nanoparticle formation in a sol-gel assisted process	Ang Guo Xiong, (AJC) Xiao Yi (VJC)	Poh Wei Leong	Bronze
E12	Yishun Junior College	Cryptographic Anti-Counterfeiting Measures for Official Currencies	Tong Hui Xiang, Wong Jing Kai, Teo Yew Xuan	Goh Giam Hwee	Commendation
E13	Anderson Junior College	A swellable drug-eluting stent to target fibrosis-induced ureteral stricture	Joanna Lim Jia Yi, Fiona Liauw Song Li, Wee Yu Hui	Lim Wei Shan Aw Meng Yuan Poh Wei Leong	Gold
E14	Yishun Junior College	Deciphering the Pathway of c-Met Antibodies in Cancer Cells	Woo Jun Wei	Lu Huiping Dr Julin Wong Shuxian	Gold
E15	Anderson Junior College	The development of scalable and modular intelligent systems for natural language processing	Aloysius Teow Yi Jie, Ang Ming Liang, James Zheng Zhongjia	Ho Kian Tong Xu Yongliang	Gold (Presentation)
E16	Yishun Junior College	Flexible cylindrical cooling module based on thermoelectric technology	Lim Wei Liang, Jim	Lu Huiping Mr Lee Khee Aik Christopher	Silver