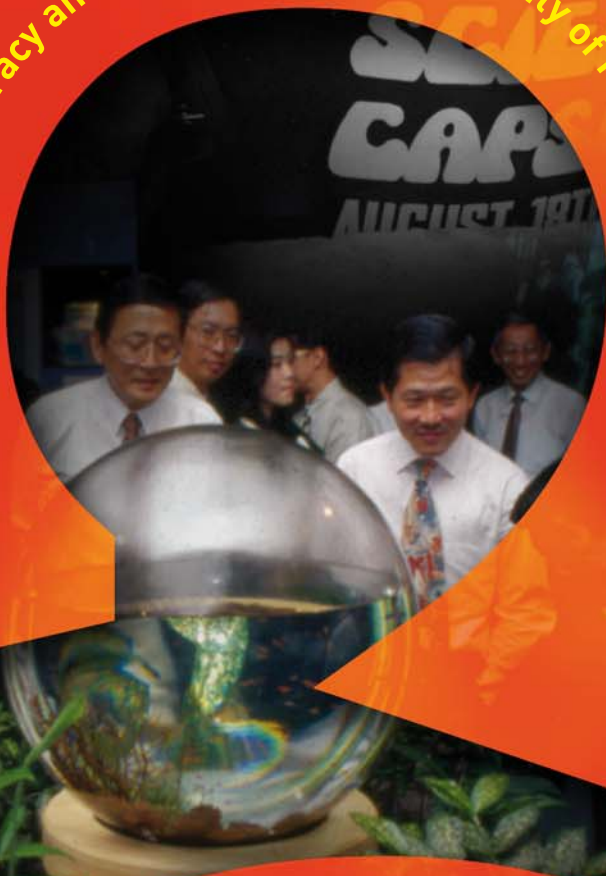


Raising science literacy and building scientific capacity of future generations

Annual Report 2013/2014



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Chairman's Review

Our Heritage

35 years ago, the Science Centre Singapore was established. It was borne of a vision by our founder, Dr Toh Chin Chye, for an informal educational institution that would provide a rich experience for students outside the classroom and complementing the local educational system. It would also be a place for families and the general public to learn and enjoy science in fun ways.

It is with much pride that we look back on our heritage and our progress. We have been a proud custodian of creativity and innovation; engaging, enriching and inspiring over 30 million students and visitors.

We've 'edutained' some 21 million visitors at the Centre, enriched more than 4 million students through some 3,000 specially crafted educational programmes, and entertained over 7 million visitors at the Omni-Theatre.

Milestones & Achievements

Our milestones have been many. In 1987, we opened Southeast Asia's first Omni-Theatre, followed by Southeast Asia's largest Observatory in 1989. A major refurbishment in 1998 saw us adding new permanent exhibitions and labs, a Kinetic Garden and an Annex Building.

In 2000, we established Singapore's first and only permanent snow centre, Snow City.

In 2011, Omni-Theatre was upgraded with Asia's newest and largest seamless dome screen. That same year, we launched the Singapore Academy of Young Engineers & Scientists (SAYES) and the Centre for Research and Applied Learning in Science (CRADLΣ).

Over the past years, we have been the proud recipient of numerous awards. This year, we were conferred the "ASPAC Creative Science Award" and "ASPAC Creative Science Exhibit Award". We also won the "2013 We Welcome Families Excellence Award" and "2013 TripAdvisor Certificate of Excellence".

35th Anniversary Celebrations

Our 35th year was marked by exciting events such as the third unveiling of our Science Time Capsule and subsequent exhibition showcasing Singapore's rich science and technology heritage.

We also launched a bigger-than-before Singapore Science Festival with international performances and over 76 activities islandwide, drawing 186,529 visitors. Two blockbuster exhibitions, Megabugs Return! and Island Adventurer, welcomed visitors to the Centre too.

Rounding up our celebrations was the year-end 35th Anniversary Open House cum Science Street Fair. The three day science carnival drew a resounding 36,000 visitors.

In all, we attracted 886,446 visitors to the Centre in the year. Together with the Omni-Theatre and Snow City we had 1,093,919 visitors.

Stepping into the Future

Stepping into the future, we hope to continue to be a torchbearer of Singapore's scientific progress and spirit of innovation.

We relentlessly reinvent to play a key upstream role in raising science literacy and building the scientific capacity of future generations, and we do this together with our dedicated partners and stakeholders from the public and private sectors.

The future will prove to be an exciting place for us as we embark on new initiatives and projects. KidsSTOP, Singapore's first children's science centre, is all set to make its appearance mid 2014. It will be a place where children aged 18 months to eight years can Imagine, Experience, Discover and Dream.

New exhibitions and spaces visitors can look forward to include a Digital Planetarium, Virtual Aquarium and Brain exhibitions.

On the educational front, the new year will see us rolling out more programmes as well as five additional STaRKits for school students. The Centre is also looking to set up a Let's Explore enrichment hub. Exciting new

developments can be expected at Snow City too. Snow City will be launching a thrilling new climbing experience, The Cliff. A revamp is also slated for the new year and will give Snow City a fresh, new and updated look.

Support & Appreciation

The Centre would not have been able to accomplish all it has without the support and contribution from partners, sponsors and donors.

We take this opportunity to say a big 'thank you' and look forward to many more years of collaborations.

It is also the guidance and dedication of our Board that has allowed us to achieve measures of success. I take this opportunity to thank our Board members for their commitment. Additionally, I would like to acknowledge and thank exiting Board member, Mr Martijn van Koten for his many years of service and dedication to the Board.

Lastly, I would also like to thank the Centre's management and staff for continually innovating to bring to fruition new and improved ideas and projects.

Eager to meet the future, we invite you to join us on an exciting journey to inspire and nurture a new generation of young scientists!



MS TANYEN YEN

*CHAIRMAN
SCIENCE CENTRE BOARD*

Togetherness • **E**mpowerment • **A**chievement • **M**eaning

Working together as a **TEAM** to deliver value to visitors, partners and the community for 35 years.



Board Members



Ms Tan Yen Yen
Chairman



Mr Quek Gim Pew
Deputy Chairman



Mr Phillip Tan



Dr Goh Chong Chia



Mr Lee Ark Boon



Mrs Tan Mui Hwoon



Ms Ang Ee Luang



Mr Sin Kim Ho

Board Members



Prof Paul Teng



Ms Melissa Ow



Mr Lim Eng Hwee



Mr Kenneth Tan



Mr Zaqy Mohamad



Ms Shirley Wong



Mr Eiji Koike



Mr Bruce Poh

Management Team

Director's Office:



From Left to Right : Dr Andrew D Giger, Director, Research & Web Outreach & International Relations, Mr Clarence Sirisena, Deputy Chief Executive, Projects & Exhibitions, A/Prof Lim Tit Meng, Chief Executive, Ms Anne Dhanaraj, Senior Director, Education Programmes, and Mr Gerald Tee, Director, KidsSTOP™

Corporate Services:



From Left to Right : Mr Michael Chay, Director, Marketing & Communications, Mrs Veronica Heng, Director, Operations, A/Prof Lim Tit Meng, Chief Executive, Ms Cham Lee Fin, Director, Finance & Administration, and Mr Aaron Chew, Director, Human Resources

Projects & Exhibitions:



From Left to Right : Mr Lee Lian Soon, Assistant Director, Special Projects, Mr Daniel Tan, Acting Senior Director, Projects & Exhibitions, Mr Clarence Sirisena, Deputy Chief Executive, Projects & Exhibitions, and Mr Lim Ping, Assistant Director, Exhibitions

Education Programmes:



From Left to Right : Ms Kamaria Bte Abdul Ghani, Director, Science Upstream & Gallery Programmes, Dr Tan Ei-leen, Deputy Director, Physical Sciences, Mrs Anne Dhanaraj, Senior Director, Education Programmes, Mrs Ong Me Lan, Director, Outreach & Promotion, and Dr Lee Song Choon, Assistant Director, Life Sciences

35 years of delivering **HIGHLIGHTS** in science through exciting and engaging exhibitions, events, programmes and activities.



Highlights 2013/2014

35 Years of Engaging Science

The Science Centre kick-started its 35th Anniversary celebrations with the third unveiling of the Science Time Capsule, which bears testament to a heritage of science, technology and societal progress in Singapore over the past four decades. Deputy Prime Minister and Patron of the Science Centre, Mr Teo Chee Hean, graced the accompanying exhibition.

Following this launch, the Centre rolled out year-long celebratory events including a bigger-than-before Singapore Science Festival. The festival boasted more than 50 partners and over 70 activities islandwide, including international performances and talks by science heavyweights like Dr Ken Farquhar and Dr Peter Wothers.

Visitors to the Science Centre were also treated to three blockbuster exhibitions, *Titans Of the Past - Dinosaurs and Ice Age Mammals*, *Megabugs Return!* and *Island Adventurer – Alfred Russel Wallace and the quest for the origins of species*. *Titans of the Past* showcased real dinosaur fossils and animatronic Ice Age mammals. *Megabugs Return!* drew visitors into a world of mega animatronic insects. *Island Adventurer* was a collaborative effort between the Science Centre and the National University of Singapore showcasing the expeditions of the famous scientist-explorer, Alfred Russel Wallace.

The celebrations culminated in the first ever Open House cum Science Street Fair. The three-day science carnival held at the year end, drew a total of 36,000 visitors who enjoyed a variety of science performances, hands-on activities, street challenges, blockbuster exhibitions, unique game stalls and food galore.



35th Anniversary
SCIENCE CENTRE
*Celebrating the Past,
Shaping the Future*



Into the Future - Beyond 35 years

In our next growth phase, it is critical for the Centre to enhance its role as Promoter and Educator and take on the mantle of Edutainer and Initiator.

The Centre will continue to seek new and innovative ways to popularise science and increase engagement with students, teachers, children, families and the public. As an Edutainer, we will seek to meld fun and enjoyment with the learning of science. And as an Initiator, we will drive science-related activities including championing Singapore's Youth Science Movement and the Singapore Science Festival's international chapter.

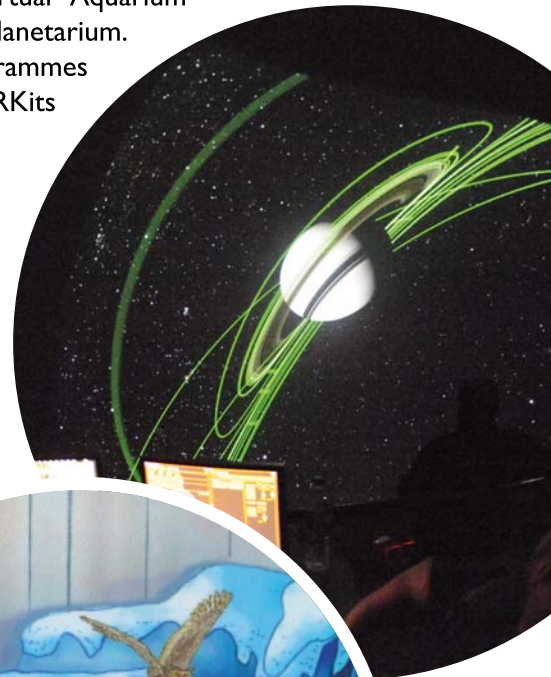
Making its appearance in mid 2014 is a brand new attraction from the Science Centre. This new attraction, KidsSTOP™, is Singapore's first children's science centre. Sharing space with the Omni-Theatre, KidsSTOP will cater to children aged 18 months to eight years. It is a place exclusively for them to Imagine, Experience, Discover and Dream.

The coming years promise to bring an even more unique blend of exhibitions, events and programmes to visitors.

These include the Brain and Virtual Aquarium exhibitions as well as a Digital Planetarium.

Yet more engaging educational programmes are also in the pipeline, including new STaRKits and Let's Explore kits.

Exciting new developments can be expected at Snow City too, with a thrilling new climbing experience, The Cliff, and a revamp that will give Snow City a fresh, new and updated look.



Awards 2013/2014

1) 2013 ASPAC Creative Science Communication Award

*By Asia Pacific Network of Science & Technology Centres (ASPAC) Conference
ArtChemist Show*

2) 2013 ASPAC Creative Science Exhibit Award

*By Asia Pacific Network of Science & Technology Centres (ASPAC) Conference
Fire Tornado Exhibit*

3) 2013 Total Defence Award

*By MINDEF
3rd Tier Meritorious Defence Partner*

4) Partner of the Academy of Singapore Teachers Award

By Ministry of Education

5) Partner of the Energy Efficiency National Partnership

By National Environment Agency

6) 2013 We Welcome Families Excellence Award

By The Singapore Productivity Association

7) 2013 TripAdvisor Certificate of Excellence

By TripAdvisor





Learning from the past and reinventing for the future to continually 'edutain' millions of Singaporeans through unique and relevant **EVENTS.**



Events Timeline.....

April 2013

- Launch of Megabugs Return! Exhibition
- Launch of Bugs! 3D – A Rainforest Adventure Movie
- A*STAR Talent Search

May 2013

- Launch of iZ Hero Exhibition
- 36th Shell Singapore Youth Science Festival
- Tan Kah Kee Young Inventors' Award

July 2013

- Launch of Defending Science Exhibition
- Sony Creative Science Award
- Singapore Science Festival
- STAR Lecture
- Singapore Mini Maker Faire
- GeneFest
- Kids Science Fest

August 2013

- Amazing Science-X Challenge
- Singapore Amazing Machine Competition
- Science Buskers Festival
- Biotech Fair



September 2013

National Junior Robotics Competition

October 2013

Launch of Titans of the Past – Dinosaurs and Ice Age Mammals Exhibition

Launch of Titans of the Ice Age IMAX Movie

Young Learner's Festival

November 2013

Launch of Island Adventurer – Alfred Russel Wallace and The Quest for the Origin of Species Exhibition

Scinematation

Science Street Fair

January 2014

Singapore Robotic Games

March 2014

MindFest

Singapore Amazing Flying Machine Competition

Singapore Science and Engineering Fair

First Lego League Singapore

Galaxy Forum Southeast Asia



Exhibitions

Titans of the Past - Dinosaurs and Ice Age Mammals

Titans of the Past provided visitors the rare opportunity to view real dinosaur fossils, including the world's largest *T.rex* skull ever found! It also featured animatronic Ice Age mammals such as the legendary saber-toothed tiger. Over a four-month span, the exhibition attracted over 100,000 visitors.

Island Adventurer – Alfred Russel Wallace and The Quest for the Origins of Species

Singapore's largest ever exhibition on the famous explorer-scientist showcases breathtaking creatures Wallace collected during his exploration and reveals how his work in Singapore and Southeast Asia led him to formulate a theory of evolution by natural selection.

Megabugs Return!

Megabugs Return! sought to demystify the fear people have of them. Visitors were drawn into a world resembling a larger-than-life backyard. Fringe activities such as insect origami and colouring art engaged even the squeamish. Extended educational programmes further introduced visitors to a wide variety of insects.

Defending Science

Defending Science exhibition uncovers the mysteries behind military marvels and defence strategies. Stealth and surveillance, the science of aerodynamics, armour and protection and radar technology are just some of the highlights for visitors.

iZ Hero

A first-of-its-kind exhibition, iZ Hero provides a fun and interactive way for children to learn how to navigate cyber space safely and responsibly. Through creative gameplay, children and parents are made aware of the many dangers that lurk in the online community and how to combat the threats.



Shows

IMAX MOVIE

Titans of the Ice Age played at the Omni-theatre in conjunction with the blockbuster exhibition, Titans of the Past – Dinosaurs and Ice Age Mammals. In August 2013, The Omni-theatre was closed for the set up of Singapore's first children's science centre, KidsSTOP. It reopens in May 2014.

Titans of the Ice Age

Titans of the Ice Age transports viewers to the beautiful and otherworldly frozen landscapes of North America, Europe and Asia ten thousand years before modern civilization. Travel across monumental glaciers and sweeping grasslands for a close encounter with awe-inspiring Ice Age creatures, Saber-toothed tigers, giant sloths and mammoths. The movie inspires with its bigger-picture perspective on the relationship between climate, the Earth, its resources and inhabitants.

3D SHOW

Bugs! 3D – A Rainforest Adventure

The fascinating world of insects, magnified 250,000 times larger than life, came alive in Bugs! 3D - A Rainforest Adventure. Audiences journeyed with a praying mantis and butterfly through their lifecycles and inevitable encounter in the tropical rainforest, where predator met prey.



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Science Outreach & Competitions

Science and Engineering Fair

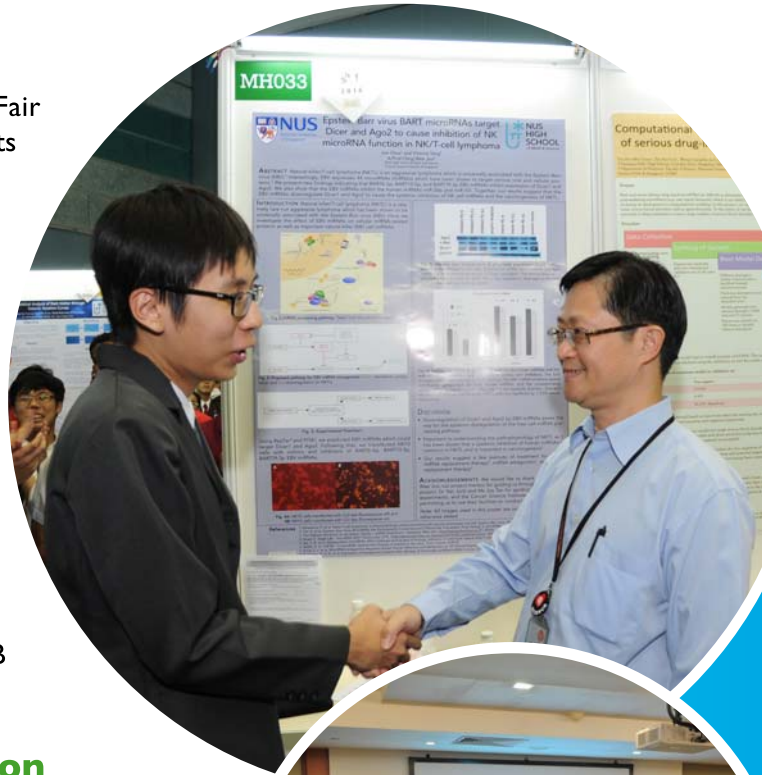
In its 14th year, the Singapore Science and Engineering Fair continues to make strides with 572 research projects submitted. Of these, 86 projects were shortlisted for A*STAR Talent Search 2014, double that of last year's figure. Nine finalists, a first, will be sent to compete in the prestigious Intel International Science and Engineering Fair in the United States.

A*STAR Talent Search

From 43 shortlisted projects, eight highly self-motivated and driven finalists emerged for A*STAR Talent Search 2013. Chief Judge Prof Dr Hartmul Michel, impressed by the students' passion and knowledge, awarded first place to Zera Ong of Raffles Institution, who had proposed a new research into the analysis of mutants affecting NFkB signaling in developing Zebrafish.

National Junior Robotics Competition

Celebrating its 15th year, the competition has witnessed more than 40,000 participants and 200,000 supporters. Themed "Celebrating Science", it welcomed budding talents to pit their robotics skills against one another. Competing for the top "Best Robot Performance" Award were 40 finalist teams from the primary and secondary levels and 20 finalist teams from the tertiary level.



Shell Singapore Youth Science Festival

The 36th Shell Singapore Youth Science Festival kicked off with the exciting and colourful Stage! Drama Competition. Kuo Chuan Presbyterian won the judges over with a skit celebrating “Numbers in Nature” while 47 Secondary 3 normal stream students and ITE student facilitators enthusiastically participated in the SSYSF Innovation Camp, themed “Innovative Sustainable Solutions for the 21st Century”.



Sony Creative Science Award

Students from the primary level once again rocked the Sony Creative Science Award with more than 4,200 innovative toy creations. Winning toys included “Ball & Roll” and “Oscillating Rolling Ben”. Over the past 16 years, 55,000 students had submitted some 45,000 toys, marking SCSA as the nation’s largest and longest standing toy-making competition.

Tan Kah Kee Young Inventors’ Award

Since its inception in 1986, Tan Kah Kee Young Inventors’ Award has continued to draw innovators and creators of all ages and from all walks of life. This year saw 1,043 out-of-the-box innovations, of which 76% were contributed by 100 primary and secondary schools. The award ceremony was graced by Ms Indranee Rajah, Senior Minister of State, Ministry of Law and Ministry of Education.



Singapore Science Festival

The Singapore Science Festival was back again with a big bang, attracting a total of 186, 529 participants. Themed “Science is Fun”, it engaged children, families, professionals and the general public through six core events and another 70 partner events spread throughout Singapore.

The highlight STAR lecture, “The Modern Alchemist” by Dr Peter Wothers, received raving reviews from audiences. Another highlight, the Singapore Mini Maker Faire attracted 170 makers and had some 5,000 participants ‘DIY-ing’ wacky and fun projects in science, art, engineering and technology.

Demonstrating their unique blend of science and busking were 254 participants who auditioned for this year’s Science Buskers Festival. The finals were held at *SCAPE and saw 58 finalists competing to be the top science busker. Sci Rocks! from Chua Chu Kang Primary School, Buskers with Style from Beatty Secondary School and The Best Sensation (Open category) walked away with the top prizes.

There were also a whole host of other events jointly held with numerous institutional and private partners, including X-periment!, GeneFest, Kids Science Fest, and Dr Ken’s “Science Circus Show”.

The festival rounded up with a successful, first ever Open House and Science Street Fair with some 36,000 visitors enjoying thrilling science performances, street challenges, mega exhibitions, unique game stalls, hands-on activities and good food.





Singapore Amazing Flying Machine Competition

Singapore's largest flying machine competition took off with the highest number of participants, a record 350 teams of 1,290 participants. This year, the champion team of the Autonomous Air Platforms Category D, Bombus from Nanyang Polytechnic, was given the opportunity to qualify for and represent Singapore in an international Unmanned Aerial Vehicle competition.

Singapore Amazing Machine Competition

This year's exciting competition required students to design and create a machine that would capture a photo or video through as many scientific steps as possible. A total of 200 students from 20 schools were shortlisted for the finals with Yangzheng Primary, Fuhua Secondary and River Valley High schools emerging tops in their categories.



Singapore Amazing Science-X Challenge

The Amazing Science-X Challenge received an overwhelming response of 381 participants from 127 teams for the fifth consecutive year. Some of the scientific principles explained by participants this year included the Helmholtz Carousel. This year, Gold, Silver and Bronze medals were introduced to better acknowledge the many impressively creative projects.



Educational & Learning Resources

New Educational Programmes

Several new Life Sciences and DNA programmes were rolled out in the year, including a highly popular Genetic Engineering programme where students got to tinkle with DNA cloning. Another workshop, Amazing Enzymes, taught students all about the important catalysts of life through hands-on experiments. The last in the series of new programmes was Candy Detective, where students had a fun time investigating and comparing the various uses for sugar.



My First Lab

My First Lab introduces the exciting world of science to young children through two kits, Magnetism and Electricity. Using inquiry-based learning, the kits were exclusively designed by experienced, retired Principals and are aligned with the Ministry of Education's science syllabus.



STaR Kits

Holey Moley and Friction are the latest STaR Kits developed by the Science Centre in partnership with the Ministry of Education.

Designed as a team play board game based on the popular "Snakes and Ladders" game, Holey Moley helps provide an understanding of the Mole concept, Atomic structure and Stoichiometry. The Friction kit facilitates guided inquiry in the subject of forces and friction. Students will also investigate the influences of friction.

These new kits join six others in a series used to develop inquiry skills in students.



A sense of **COMMUNITY** is what has given us purpose these last 35 years. Collaborations and alliances help promote Science and Technology to the public. It is what will give us purpose beyond 35 years.



Community & Support



Volunteer Programme

The contribution by volunteers is a major resource and asset to the Science Centre. With an increase in the number and scope of volunteers over the last years, the Science Centre re-structured its volunteer programme into student and adult groups.

This year, we welcomed Ivory Heights residents and IBM professionals to our volunteer programme. Our volunteers contribute to a variety of activities, including assisting visitors at various science stations, exhibit explanation, guided tours and help at events.

Additionally, dedicated Observatory student volunteers and members of The Astronomical Society of Singapore (TASOS) continue to make our weekly Observatory sessions engaging. Our STEP Science Educators programme train students on science communication and they contribute back by engaging schools and communities in science outreach programmes.

Members of our Singapore Academy of Young Engineers and Scientists (SAYES) also play their part in engaging with the public during events. They also collaborate with the NUS Young Educators in Science to run monthly gallery sessions demonstrating physics concepts to the public.

This year, a record number of 3,457 students contributed nearly 16,000 hours to the Centre while 427 adults spent about 2,500 hours volunteering at the Centre. Our 316 Observatory volunteers contributed a total of more than 600 additional hours. And on average, each active SAYES member has contributed about 22 additional hours of community outreach in the past two to three years.

List of Sponsors 2013/2014

- | | |
|---|--|
| 1. Abbott Laboratories (Singapore) Pte Ltd | 10. Lee Foundation |
| 2. Agency for Science, Technology & Research | 11. Meteorological Service Singapore |
| 3. Building and Construction Authority | 12. National Climate Change Secretariat |
| 4. Civil Aviation Authority of Singapore | 13. Raffles Museum of Biodiversity Research, NUS |
| 5. Defence Science & Technology Agency | 14. Sembcorp Industries Ltd |
| 6. DSO National Laboratories | 15. Shell Eastern Petroleum Pte Ltd |
| 7. Earth Observatory of Singapore | 16. Singapore Totalisator Board |
| 8. Faculty of Science, NUS | 17. Singapore Technologies Aerospace Ltd |
| 9. Intel Mobile Communications Southeast Asia Pte Ltd | 18. Sony Electronics Asia Pacific Pte Ltd |

Science Centre Board Sponsorship Fund

Programmes & Activities

The principal activities of the Science Centre Board Sponsorship Fund are to:

- Promote interest, learning and creativity in science and technology through imaginative and enjoyable experience and contribute to the nation's development of its human resource;
- Conduct supplementary science classes, lectures, demonstrations and workshops to complement the school science syllabi;
- Produce and publish scientific literature in the form of magazines and guidebooks;
- Organise activities and programmes for targeted and general audiences so as to bring science closer to the people; and
- Screen planetarium programmes and OMNIMAX films to students and general public, using state-of-the-art audio-visual projection systems.

Board Members

Chairman	Ms Tan Yen Yen	Mr Sin Kim Ho	Ms Shirley Wong
Deputy Chairman	Mr Quek Gim Pew	Ms Ang Ee Luang	Mr Eiji Koike
Members	Dr Goh Chong Chia	Ms Melissa Ow	Mr Bruce Poh
	Mr Phillip Tan	Mr Lim Eng Hwee	Mr Kenneth Tan
	Mr Lee Ark Boon	Mr Zaqy Mohamad	
	Mrs Tan Mui Hwoon		
	Prof Paul Teng		

Key Executive Management

Chief Executive	A/Prof Lim Tit Meng
Deputy Chief Executive, Projects & Exhibitions	Mr Clarence Sirisena
Senior Director, Education Programmes	Mrs Anne Dhanaraj
Quality Service Manage	Mrs Veronica Heng

Conflict of Interest Policy

The Science Centre Board has implemented a conflict of interest policy that covers both the Board members and the staff. The document procedures require the Board members and staff to make a declaration of potential or actual conflicts of interest at the start of their term of office or at the start of their employment of service respectively. Thereafter, Board members are required to provide updates whenever there are changes to the original declaration, while staff are required to make such declarations annually.

Reserves policy is not applicable as funds received are used for their intended purposes.

Sub-Board Committees

Executive Committee

Chairman Ms Tan Yen Yen
Members Mr Quek Gim Pew
Dr Goh Chong Chia
Mr Phillip Tan
Mr Sin Kim Ho
Mr Lee Ark Boon
Ms Shirley Wong

Audit Committee

Chairman Mr Phillip Tan
Members Ms Ang Ee Luang
Mrs Tan Mui Hwoon
Mr Sin Kim Ho
Mr Bruce Poh

Finance & Investment Committee

Chairman Mr Quek Gim Pew
Members Prof Paul Teng
Dr Goh Chong Chia
Mr Kenneth Tan

Advancement Committee

Chairman Ms Shirley Wong
Members Prof Paul Teng
Ms Melissa Ow
Mr Eiji Koike
Mr Zaqy Mohamad
Mr Lim Eng Hwee
Mr Kenneth Tan

Project Committees

1. A*STAR Talent Search 2013 Steering Committee
2. CRADL 2013 Steering Committee
3. National Junior Robotics Competition 2013 Advisory Committee
4. National Science Challenge 2013 Steering, Working & Science Content Committees
5. SAYES 2013 Advisory and Executive Committees
6. Science Buskers Festival 2013 Advisory Committee
7. Shell Singapore Youth Science Festival 2013 Organising Committee
8. Singapore Science and Engineering Fair 2013 Working Committee
9. Singapore Science Festival 2013 Steering and Working Committees
10. Sony Creative Science Award 2013 Organising Committee



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