

Singapore Science Centre

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Objectives and Role of the Science Centre

Singapore Science Centre is a Statutory Board under the purview of the Ministry of Education. The Centre was established in 1970 with the following mission objectives:

- (a) To disseminate knowledge in science and technology to the general public and, in particular, to students, through imaginative and enjoyable means so that they can appreciate the relevance of science in their lives;
- (b) To serve as a catalyst for our youth to develop their creativity and to nurture their interest in careers in related fields; and
- (c) To establish a centre of excellence and innovation in non-formal science education.

The Centre has thus far been successful in its effort in achieving its objectives. However, with rapid developments in science communication channels, the Centre has recently reviewed and re-defined its strategic direction with a new mission statement as follows:

“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.”

In order to fulfil its mission objectives, the Science Centre runs five different categories of activities, namely:

Science Exhibition Programmes
Science Enrichment Programmes
Science Publication Programmes
Science Promotional Programmes
OMNI-Planetarium Programmes

Annually, these activities attract about a million visitors, 70% of whom are students.

Science Exhibition Programmes

Stimulating Exhibitions are the main instrument used by the Science Centre for the effective communication of science to visitors. The themes of exhibitions are generally pertinent to the educational, economic, social or technological developments in Singapore. There are more than 7,500 sq m of exhibition space devoted to the exploration of various topics in science and technology. Currently, the Centre houses more than 700 exhibits, with each exhibit being an incubator of scientific knowledge.

Almost all the exhibition themes in the various galleries are related to the science syllabi of the schools and the exhibits serve as excellent materials for complementing science teaching in primary & secondary schools and junior colleges. The exhibits are also visually aesthetic and inviting for visitors of all ages. In designing and fabricating the exhibits, a delicate balance is struck between the educational aspect and entertainment value of the display -- this is to capture the visitor's attention and to hold his interest long enough for him to explore and understand what the exhibits are trying to convey. With interactive exhibits to touch, see and hear, students would have a better understanding of the scientific principles involved and, at the same time, appreciate the impact of scientific and technological advances on their lives.

Science Enrichment Programmes

The Science Centre runs a host of science enrichment programmes to complement science teaching and learning in schools. Each programme has been specially developed to provide students some thought-provoking activities that encourage them to investigate further. Special emphasis on the hands-on experiments aims to captivate their imagination while illuminating essential scientific concepts and methods.

Annually, the Science Centre offers 1,700 enrichment programmes for more than 120,000 students. These enrichment programmes, which include laboratory courses, lecture demonstrations, science talks, gallery teachings, mathematical problem-solving activities, observatory sessions and film shows, are conducted at the Science Centre during the school terms. Special arrangements can also be conducted during the weekends and vacations. Unique facilities provided by the Science Centre such as the Ecogarden, the Observatory, the Brain Station, the Primary Science Room and the Biotechnology Laboratory further enhance its education programmes.

Science Publication Programmes

Publications such as the *Singapore Scientist* and natural history guide books continued to play an integral part in the Centre's efforts of promoting and disseminating knowledge of science and technology.

(i) *Singapore Scientist*

Singapore Scientist, the only science magazine published in Singapore, is widely read by teachers, students and members of the public who need information on the development in science and technology. It also serves to update readers on the Centre's activities. There is also a special pull-out section for students incorporating experiments, quizzes and unique features to supplement their science lessons. The *Singapore Scientist* enjoys a circulation of 25 000 copies per issue and an estimated readership of more than 120,000.

(ii) *Guide Books on Natural History*

Many a teacher have been embarrassed or perhaps nonplussed by students who expect them to identify organisms. These may be common plants and animals, none the less, the teachers may

not be able to recognise them. The publication of the guide book series is in response to the paucity of educational materials on local flora and fauna. Accompanied by many colourful photographs, these guide books are approximately 160 pages in length and contain a wealth of information. They come in a compact, pocket-sized format and are intended for a very wide readership, from the serious-minded science teachers and student to the casual nature lovers. A total of 30 titles had been published. More than 500,000 copies were printed and sold.

Science Promotion Programmes

The Science Centre organises mass-based activities through its promotional programmes which aim at encouraging participants to channel their creative energies and innovative skills into more productive pursuits in line with national aspirations. Some of the promotional programmes are described below:

(i) Singapore Youth Science Festival

First introduced in 1978, the Singapore Youth Science Festival (previous known as the Singapore Youth Science Fortnight) is an annual event jointly organised by the Singapore Science Centre and the Science Teachers Association of Singapore and sponsored by the Shell Companies in Singapore. The various activities of the Festival are geared towards conveying the message that there is more to science than just rote learning. A Science Teachers' Seminar is also organised as part of the Festival for science educators in Singapore. The Seminar aims to inspire teachers with some novel programmes in science teaching and learning, as well as to motivate them to try out different teaching strategies in the classroom. It also allows educators of youths to exchange views and experiences in science education. Over 60 000 students and educators participate in the Singapore Youth Science Festival every year.

(ii) Primary Science Club and Activity Badge Scheme

The Primary Science Badge Scheme is jointly managed by the Singapore Science Centre, the Science Teachers Association of Singapore, the Singapore Association for the Advancement of Science and the Singapore National Academy of Science. It is supported by the Ministry of Education. The main objective is to encourage students in primary schools to develop initiative and creativity by carrying out self-directed activities in various areas of science. Under the scheme, a student may earn badges in many disciplines. More than 50 000 badges are awarded every year. Selected projects undertaken by badge recipients would be displayed at the annual badge presentation ceremony.

(iii) The Virtual Science Centre <http://www.sci-ctr.edu.sg/>

The Virtual Science Centre (VSC) is a computer-based project which makes use of Internet technology. It aims to facilitate on-line interaction and to encourage information exchange and resource sharing among students, teachers, schools and public users. The VSC project enables the Singapore Science Centre expand beyond its physical boundaries into cyberspace. It provides the Science Centre with a complementary platform to further enhance its existing programmes. With the support of the National Science and Technology Board and the National Computer Board, the following facilities have been developed:

- a) a **science education server** to store and update science education information and resources for access by schools and public users locally and globally; and
- b) **public access terminals** to allow visitors to acquire additional science knowledge over and above the existing exhibits at the Singapore Science Centre.

Currently, both new and archived information on programmes and activities of the Singapore Science Centre and its Omni-Theatre can be accessed at <http://www.sci-ctr.edu.sg/>. The Science Centre is working with professionals as well as institutions to explore new ways of presenting information on science, research and technology and promoting science awareness and enthusiasm within the framework of VSC. Students, teachers, science clubs and associations, scientific and professional organisations, publishers, and other science-related specialists would be invited to participate. The Virtual Science Centre has agreed to host the web site of the Asia Pacific Network of Science & Technology Centres (APNSCT) formed recently.

OMNI-Planetarium Programmes

OMNIMAX programmes use a film frame 10 times larger than the conventional 35mm film and a hemispheric screen which 'wraps' the audience at the centre to give them a remarkable sense of involvement. When the show begins, the audience would be engulfed by the immense size and three dimensional quality of the undistorted picture. They lose perception of time and space and forget that they are in a theatre. They can feel the motion and it is like taking a trip in a time machine. It is an expressive, engrossing and ever startling experience, both educational and exciting.

The planetarium programme is produced by a highly sophisticated projection system which is able to provide an accurate and realistic projection of stars and other celestial objects across a 5-storey high, 23m wide hemispheric screen to create an illusion of the night sky or space. The projection system consists of an array of more than 100 slide and special effects projectors, including the starball projector, which has a staggering 10,164 lenses, one for each of the stars it projects. It can present the sky as seen from any planet in the Solar System at any time of the year. You can even travel in time to see the sky our ancestors saw thousands of years ago, or the skies as they will appear in the future.