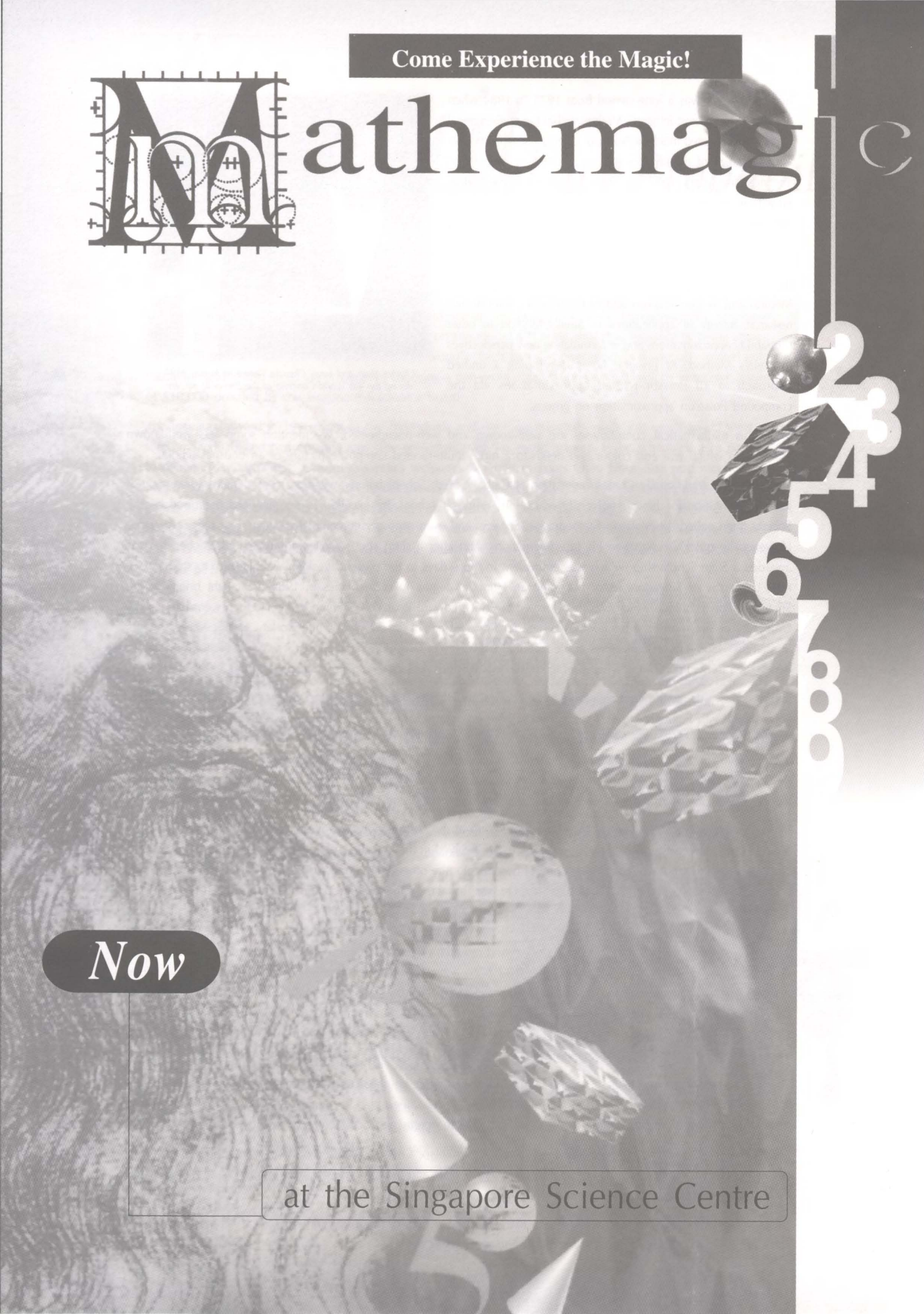
Come Experience the Magic!
Mathemagic
Now
at the Singapore Science Centre

MATHEMAGIC is a new exhibition about mathematics at the Science Centre which promises to change your perception of mathematics! As the name itself suggests, **MATHEMAGIC** presents the fascinating and intriguing aspects of the subject. With this recreational approach to mathematics, it is hoped that greater interest would be generated in the subject.

The exhibition has been made possible by the generous support from Singapore Totalisator Board and Singapore Telecom Pte. Ltd.

Objectives of the Exhibition

The Mathemagic exhibition has the following objectives :

a) to further cultivate interest in mathematics among students as well as members of the public,

b) to provide an avenue whereby visitors may look into the various facets of mathematics in a non-formal setting,

c) to present mathematics in a fun and enjoyable way so that visitors may overcome any misconceptions they may have of the subject.

The Exhibits

The exhibition consists of fascinating and challenging interactive exhibits as well as informative panels. Interactive exhibits include manipulative models, computer games, push-button systems and interactive simulations.

The highlight of the area is the large mirror maze that illustrates symmetry in a most intriguing manner. Other attractions include the large Tower of Hanoi puzzle, a "Pepper's Ghost" explaining the Pythagoras Theorem, a cycloid track, the "Big Ears" parabolic dishes, a Jackpot machine, the "Funny" mirrors, anamorphic paintings, an Elliptical Pool table, a 3-D model of the Mobious Strip and most amazingly, the Science Centre's display of its quarter million saga seeds and its determined bid to collect one million of such seeds with the help of students and members of the public in order to illustrate the concept of a million.

"The exhibition is well done. It shows that there is a lot of mathematics around us which we are not aware of. The students have picked up some useful information on mathematics."

The exhibits are arranged in nine areas or themes as follows:

Area 1 Nature of Mathematics

A "pepper's ghost" greets visitors to the area with its amazing explanation of the Pythagoras Theorem. Explanation panels will then presents mathematics as the fundamental, inter-disciplinary tool of all sciences. The historical development as well as current topics in mathematics such as the study of chaos and fractals are featured. Look out for the dynamic Chaotic Pendulum!

Area 2 Mathematics Around Us

Exhibits in this area show visitors the various mathematical forms found around us as well as in nature. Topics explained include Fibonacci sequence, spiral curve and "cracks" found on mud and pottery. Do you know, for example, that the crack lines on the glaze of potteries form 90-degree angles?

Area 3 Number Magic

This area highlights the many interesting mathematical properties of numbers. There is a display of the Science Centre's collection of a quarter-million saga seeds and the estimated volume required to meet the one million target. Can you help us meet the target?

Visitors are challenged to solve the mystery of the "Vanishing Ghosts" as well as to challenge the Centre's mathematical "Mind Reader" .

Area 4 The Algebra-Geometry Link

The exhibits in this area show the various links between algebra and geometry. Visitors are assured of success on Singapore's only elliptical pool table! A race down the slope is also used to illustrate the interesting fact that the shortest path is not necessarily the fastest path.

Students discussing the mathematical properties of the elliptical pool table.

"I really enjoyed the Puzzles Corner; the puzzles are challenging and tricky."

Area 5 Geometrical Explorations

As geometry is a popular topic in the school syllabus, this area will be of special interest to school groups. Interactive exhibits seen here include a visual proof of Pythagoras' Theorem and a 3-D proof of the mathematical expansion $(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$. Do not miss the interesting display of what appears as a random arrangement of sticks which, if viewed from a particular point, takes the form of a chair.

Visitors trying their hands at solving one of the puzzles.

Area 6 Shapes and Surfaces

This area brings out the various types of mathematical shapes and the fascinating features of each shape. With exhibits such as the large 3-D model of the one-sided Mobius Strip, intriguing anamorphic drawings and large parabolic dishes which enable visitors to whisper their secrets, an overview of various mathematical shapes and surfaces is presented.

Area 7 Symmetries

Exhibits in this area highlight the mathematical properties of symmetrical objects. The highlight is the giant Mirror Maze which completely overwhelms the visitors. Visitors will also experience split personalities as the area's magic mirror produces their identical clones. Tessellations and 3-D mathematical models are also found in the area.

Area 8 Leave It To Chance

The area presents visitors with the opportunity to appreciate the application of mathematical statistics in the real world. Visitors are challenged to guess the combinations that would "crack" open the Science Centre's safes, do battle with a one-armed bandit machine and place bets on the sum of the numbers shown on two dice.

Area 9 Winning Ways in Games and Puzzles

A large collection of mathematical puzzles and games await visitors in this area. The area serves as a cosy corner where visitors can linger while pondering over mathematical puzzles before they end their journey through the land of mathematics.

Discovering mathematical probabilities with the aid of a "one arm bandit" machine.