

# A SPEECH

by

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People appreciate the study of Mathematics to be based on reason, and appreciate Mathematics as a way of studying the relation between things, thereby helping men to make sense of the world around us. Mathematics trains one to think logically, to express one's ideas succinctly through symbols and formulae, and to solve problems creatively. Many situations encountered in our everyday life can be formulated as mathematical problems before solutions are sought and found. From calculating the change one should get after paying for some shopping, to ensuring the security of sensitive information required in electronic commerce, from science, engineering and information technology to finance, medicine and the social sciences, Mathematics permeates our lives.

I am happy to see so many young mathematical talents here today. More than 7000 students from over 100 secondary schools and junior colleges participated in this year's Mathematical Olympiad. We have principals and teachers to thank for this enthusiastic response, and we feel heartened that the winners this year come from a wide spectrum of schools. It shows that our schools actively engage students in opportunities outside the classroom which offer challenge, and which

encourage thinking skills and problem solving skills in students.

I would also like to commend the organisers-The Singapore Mathematical Society, and the Mathematics Department, National University of Singapore—for their effort in organising the Mathematical Olympiads annually. Competitions like these serve to stimulate interest in the subject, challenge our students to look beyond their textbooks and apply what they have learnt in school. Our teachers too receive continual learning opportunities through participation in enrichment programmes, workshops and Olympiads that you organise regularly. These activities complement our vision of "Thinking Schools, Learning Nation".

As for the students, you have been blessed with the gift of being adept at the study of Mathematics. But I also hope that you have a wide range of interests, and that you retain a sense of wonder and appreciation of the world around you. These should supplement your proficiency in Mathematics and spur you to greater heights. I would like to share a story with you. There was once a centipede that was amazingly good at dancing with all hundred legs. All the creatures of the forest would gather to watch the centipede dance and

be duly impressed, except the tortoise. The tortoise could not go against popular opinion and say the dance was lousy; nor could he claim to dance better. So he wrote a letter to the centipede instead. He wrote, "I am an admirer of your exquisite dancing. I must know how you go about it when you dance. Is it that you lift your left leg number 28 and then your right leg number 39? Or do you begin by lifting your right leg number 17 before you lift your left leg number 44? I await your answer in breathless anticipation."

What do you think happened next? When the centipede read the letter, it immediately began to think about what it actually did when it danced. Which leg did it lift first? Which leg next? The result was of course that the centipede never danced again. It was a sad case of imagination being strangled by reasoned deliberation.

Creativity demands imagination, for without imagination nothing really new will be created. In the creative process, there is a delicate interplay between reason and imagination, and we will do well if we do not allow reason to frustrate the imagination.<sup>1</sup> Your strength in reasoning, should not serve to strangle or limit your imagination. In fact the Mathematical discipline paves the way to cultivating critical thinking and problem-solving skills. As we gear ourselves for the knowledge-based economy of the next millennium, the importance of creativity and problem-solving skills cannot be overemphasised. It would be to your advantage to seize the opportunities given to you to hone these crucial qualities.

Finally, my congratulations to you, the participants and prize winners. May you continue to enjoy and be fascinated by the study of mathematics, and may you add to the contributions in various spheres in life that Mathematics already boasts of doing.

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The speech was given at the Prize Presentation Ceremony of Singapore Mathematical Olympiads 1999 at Lecture Theatre 7A, Faculty of Engineering, National University of Singapore on Saturday 2 October 1999. It is reproduced here with kind permission.

<sup>1</sup> The story of the centipede and the point drawn are summarised from "Sophie's World-A Novel about the History of Philosophy" by Jostein Gaarder, Farrar, Strauss & Giroux, 1996, p.443-4.

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