Book Review

Alex's Adventures in Numberland

Vandana Kerur*

Title: *Alex's Adventures in Numberland: Dispatches from the Wonderful World of Mathematics*

Author: Alex Bellos

Publisher: Bloomsbury Publishing India Private Limited

Language: English

Year of Publication: 2010

Price: ₹399

About the Author

Alex Bellos is a British writer and broadcaster. He has a degree in mathematics and philosophy from the University of Oxford, and is currently a curator at the Museum of Science. He has authored books on mathematics, and also has an online coloumn in the *Gaurdian*. The book, *Alex's Adventures in Numberland,* is a bestseller, which was first published in 2010. It has been reprinted and translated into 20 languages.

Review

Mathematics is a subject that is either dreaded or loved. In most students, a phobia or aversion or complete disinterest sets in early, with a rare chance of the attitude changing in later years. But there are also those who love the subject, and students who declare it as their favourite subject are the ones who can treat each problem as a puzzle, a challenge — solving it by applying the correct method, the exhilaration pushing them to take up bigger challenges.

Sadly though, neither type of student has been shown the fascinating side of the math world.

Ours is a result-oriented society. Of all disciplines taught in schools, mathematics lends itself to be a 'scoring' subject, where the correct application of a formulae can ensure 100 per cent marks. Eventually, the approach of teaching and learning

* *Cuemath Franchise Teacher Partner and Freelance Writer*, Goa

the subject has become restricted to mastering formula and applying them appropriately. Both teachers and students rarely pause to question, wonder and go beyond textbooks.

Bellos seeks to reconnect us with numbers around us. He decides to visit the world of maths, 'Numberland', as he terms it. As an adult, he can wander with a mind free of exam stress and relearn school mathematics with a fresh perspective and curiosity. Through anecdotes, he covers topics of school levels (Class V–XII), including arithmetic, algebra, geometry and statistics, presenting them in 12 chapters. The first chapter is interestingly labelled as Chapter Zero, since the topic discussed there is pre-mathematics, mainly about how numbers emerged. Chapters 1 to 11 take us away from the drudgery of problem-solving exercises to a world, where familiar terms and theories encountered in our texts are seen with a different eye. The Pythagoras Theorem, for instance, is revealed to be more than just a relationship between squares on the sides of a right-angled triangle. The area of a semicircle on the hypotenuse, for example, is equal to the sum of the areas of the semicircles on the other two sides. Amazingly, it holds good for any shape (regular or irregular) drawn on the three sides.

Bellos was curious about how different cultures and even religions approached mathematics, and how they helped shape it. He visits India, the land that gave the world 'zero', and learns about 'Vedic mathematics' among many other things. He explores Japan's love of abacus, origami and Sudoku. He tests his knowledge of probability at a Casino in Reno and attends the Mental Calculations World Cup in Germany. He travels around the globe, gaining a deeper insight as he moves on, and shares all of them in the book, weaving mathematical concepts with geography, culture, history and religion.

In his introduction to the book, he says it is aimed at the reader with no mathematical knowledge. This statement should not be interpreted to mean that it covers only anecdotes and trivia. On the contrary, it explains in detail proofs and explanations of all topics covered (several proofs of the Pythagoras Theorem are presented). We are introduced to mathematicians, their lives and works, their proofs and paradoxes. Concepts unheard of in textbooks are also discussed. Still, a person with no mathematical knowledge will not find the book tedious. The engaging style of the author and the stories presented will surely draw the reader deeper into the Numberland, where he/she can discover for himself/herself that maths need not be boring.

How is this book an asset if maintained in a school library? To do well in a subject, it is important to have an interest in it. This fact holds good both for teachers and the

taught. A well-structured syllabus can provide students with a strong grasp of the fundamentals of critical thinking and problem-solving, but that is not enough. Educators need to realise that mathematics is not just about correct answers or derivations. If the teacher can understand and appreciate the complexity and beauty of the subject, he/she can pass on this zeal to the students, bringing out their ability to perceive and analyse. As each topic is taught in a class, a brief discussion on its real world application can make a huge difference to the level of interest generated. The Fibonacci Series, for example, is not just a sequence of numbers. It is abundantly seen in nature, in both the plant and the animal world. Origami is so much more than precise folding of paper. It has applications in robotics, creating heart stents and designing solar panels for satellites.

The book has around 400 pages and is well-structured. The content page includes a brief description of each chapter along with the page numbers. An introduction by the author is followed by 12 chapters. Each chapter is self-contained, meaning a topic is covered in its entirety with no continuing link from the previous chapter. This makes one free to choose and read the chapters in any order. Every idea presented comes with diagrams. A 16-page attachment in the centre of the book features coloured photographs of the places and people the author had visited during his travels. Detailed notes and appendices, a glossary of the mathematical terms used and an exhaustive index appear on the rear of the book.

To many students, mathematics has a stigma of being difficult and boring. Many teachers are of the opinion that it is a tedious subject to be taught. Bellos dispels both the myths and proves that it is a subject that can be taught without being intimidating.