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May 1997

Regulars

Editorial



Allergic to mathematics? It seems that many people are. Of course, if you are reading this editorial, it's likely that you aren't as allergic as some. So here is the basic problem confronting the PASS Maths project and its editorial policy: how to explain the purpose of mathematics to a wider audience, including some who have decided it's not for them, and who do not realise what they are missing.

Does it matter, except to mathematicians? Well, we are not impartial, but of course it does. We can point, if nothing else, to the emphasis given to mathematical education in those countries with the world's most successful economies.

In the UK the Confederation of British Industry believes that improved mathematical skills are essential to economic progress, and employers will be looking for skills in its future managers.

So our national self-interest requires better understanding of mathematics, but you may say, why does it have to be me? Can't someone else do it? Well, to some extent that is true. Some of us seem naturally interested, others are not. The problem is that the non-mathematicians amongst us need to know when to call in the mathematicians, and to do that they must know what mathematics can do. This is much easier and more interesting than many people think: after all, most of us drive a car or operate a radio or TV set, and know about the usefulness of these gadgets. An expert knowledge of exactly how they work is not needed.

The inner beauty of pure mathematics

We have emphasised the uses of mathematics, but most mathematicians find a deep satisfaction in abstract mathematical ideas themselves. In other words, the inner beauty of pure mathematics, not necessarily linked to applications, can provide its own justification. The extraordinary thing is that a great deal of useful mathematics has been discovered in this way. Who would have thought, for example, that the study of prime numbers could be of the least practical use? But it is: number theory forms the basis of modern ciphers and codes which are essential for modern electronic banking (not to mention other security uses). So even if the inner beauty of mathematics is not an argument that persuades you, mathematics cannot simply be judged on whether it seems to be useful at the present time.

A journey with mathematics

PASS Maths will take its readers on a kind of sight-seeing tour of mathematics. Many of the sights have historic foundations. For example in our first issue (January 1997) we saw how the work of Sir Isaac Newton, Daniel Bernoulli and Leonhard Euler and others laid the foundations of modern fluid and aerodynamics. This does not mean that mathematics is full of stuffy and out-of-date ideas. It shows rather that the best mathematical ideas have amazing staying power. Some of our sights are relatively modern. For example, the mathematics behind telephone networks, featured in this issue. No tour of mathematics will be complete without the most amazing sight of all, the ability of mathematics to describe at least in outline both the entire history of the universe, and the working of the subatomic world, the stuff of which our universe is made. We will also visit those sites, rather like prehistoric stone circles, where mystery is in the air, and apparently simple problems remain unsolved.

We will not neglect recreational stops during our journey. We cannot provide the equivalent of the game zone in the motorway service area, but we hope you will find our puzzles intriguing and entertaining on the journey.

Staff room

We welcome the contributors to the Staff room section in this issue. It is a vital part of PASS Maths' objectives to encourage a stimulating exchange of views on all issues connected with public awareness of mathematics. The Staff room section is a forum for feedback and for your views on this and related issues, so further contributions will be very welcome.



Plus is part of the family of activities in the Millennium Mathematics Project, which also includes the NRICH and MOTIVATE sites.