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September 1999

Regulars

Editorial

by Robert Hunt



New in this issue

The PASS Maths [Higher Education Course List](#) has now been fully updated for entry in 2000 by Megan Mills, a sixth-form student at [Impington Village College](#) in Cambridgeshire. This year it includes for each institution a brief description of the mathematics courses offered. We hope you find it useful.

The [PASS Maths puzzles](#) have always been a most popular aspect of the magazine, and from now on they will be updated at the start of *every* month. We have joined forces with our sister site, [NRICH](#), to offer a much larger range of puzzles, but we will always continue to offer our own puzzles in our own particular style! You'll also see "quick-link" buttons for other NRICH material on every page.

Our News items have also proved popular, and we have published more of them than ever before in this issue, with much more detail about the mathematical background to each item of news. They're almost mini-articles in themselves.

The next issue, in January 2000, will have a complete redesign to bring the site's appearance right up to date. An as-yet-secret name change is also in the offing. In the meantime, we are running a questionnaire to get feedback from *you*, our readers, to find out what you think about PASS Maths and where we should go next. If you get asked in a pop-up window whether you'd mind answering a few questions, please say "yes"!

Ever-increasing standards: a problem of communication?

Once again, this summer saw an increase in the numbers of pupils achieving good grades in both GCSE and A-level examinations, and Mathematics was no exception. At GCSE, 10.5% of Mathematics entries received an A or A* grade, compared with 9.9% last year. At A-level, the increase was more modest, with 28.3% of entries receiving an A grade, compared with 28.0% last year.

The Education Secretary, David Blunkett, and the Education Minister, Baroness Blackstone, welcomed the results, saying that pupils and their teachers deserve congratulations for all their hard work. According to

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them, the results are clear evidence that standards are steadily rising, with the Government well on course to achieve its goals.

However, many other people found it difficult to believe that there was any true increase in standards. Certainly, the increase at GCSE looks implausible. The Director of Policy at the Institute of Directors thought that the improved results at A-level were due to increasing modularization of exams and that there was in fact no rise in standards. Academics reportedly despaired at the on-going ease with which pupils achieve top grades without any apparent increase in the academic ability of freshers at their Universities. Some parents felt that, if they are really to believe that exams are as difficult now as they have always been, then most people who went to school in the 1970's must have been as thick as two short planks.

The teachers' unions and the examination boards all insisted, however, that the results are reliable, objective and consistent, with no relaxing of standards from year to year.

PASS Maths would like to suggest that the problem is one of communication. Each player in this drama has different aims, and so they view the problem from a different angle.

Teachers, of course, want the best for their pupils, and see results as a personal reflection on their teaching ability. The examination boards need to maintain standards but are also in a competitive marketplace: they do not wish to alienate their prospective customers. The Government sees the results as a reflection of its education policies and has great self-interest in seeing them improve every year. Employers, on the other hand, want useful yardsticks to measure what school-leavers know, and find constantly changing syllabi and examination methods (e.g., modules) unhelpful. Academics want a fixed measure of academic ability, to enable them to choose who to admit to University in a fair way. With so many different outlooks, it's no surprise that there is disagreement.

None of these groups, however, manages to effectively convey to the other groups why they think the way they do. Parents, for instance, frequently do not understand what changes have taken place in the A-level mathematics curriculum over the last 10 years and what new teaching methods are in place, nor are they certain what employers and academics want from a sixth former with A-level maths.

There are many differences between the skills and knowledge required of mathematics pupils now and those required in the past. Discrete maths has become much more important at school, as have investigative skills. Mechanics, on the other hand, has been in somewhat of a decline: whereas once all Further Mathematics pupils could be expected to have studied mechanics, though no statistics, nowadays a significant proportion have studied virtually no mechanics but a great deal of statistics. University courses have had to change to cope: in the past a knowledge of mechanics would have been assumed while statistics would be taught from scratch, whereas now both mechanics and statistics have to be taught from scratch. Academics unsurprisingly see this as a retrograde move, but that is because of their own particular perspective. They see ever increasing numbers getting top grades but also see a decline in the abilities that they used to take for granted, such as graph sketching; and they find A-level grades ever less helpful indicators of ability. Employers have similar problems.

So should the numbers getting each grade, e.g. the numbers receiving an A, be fixed percentages of the number of entries? That makes it easier to compare the relative academic ability of two people who took exams in different years, but allows no way for a true increase in knowledge to show up in the results. The Government would then have no way of measuring whether their changes in "Numeracy teaching" at primary schools were having an impact. However, the current system allows people to accuse the Government (through the examining boards) of fixing the figures.

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What can be done? There is probably no way to make everybody agree; but if only everybody could be made to understand what changes to the syllabus are taking place, and what everybody else wants out of the system, then the argument might be less heated!

GCSE Results

The BBC's Exam Results 99 Special: GCSEs – subject by subject.

A Level results

The BBC's Exam Results 99 Special: A Levels – subject by subject.

About the author

Dr. Robert Hunt is the Editor of PASS Maths.



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