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A biologist has developed a blood test for detecting a certain minor abnormality in infants. Obviously if you have blood samples from 100 children, you could find out which children are affected by running 100 separate tests. But mathematicians are never satisfied by the obvious answer. Keith Ball uses **information theory** to explain how to cut down the number of tests significantly, by pooling samples of blood.

Making the grade: Part II
Calculus is a collection of tools, such as differentiation and integration, for solving problems in mathematics which involve "rates of change" and "areas". In the second of two articles aimed specially at students meeting calculus for the first time, Chris Sangwin tells us how to move on from first principles to differentiation as we know and love it!

The music of the primes
Following on from his article 'The prime number lottery' in last issue of *Plus*, Marcus du Sautoy continues his exploration of the greatest unsolved problem of mathematics: The **Riemann Hypothesis**.

Practice makes perfect

In 1997 Garry Kasparov, then World Champion, lost an entire chess match to the IBM supercomputer Deep Blue, and it is only a matter of time before the machines become absolutely unbeatable. But the human brain, as Lewis Dartnell explains, is still able to put up a good fight by exploiting **computers' weaknesses**.

Interview: Maths student

In this issue we talk to **maths student** Emily Dixon about her university studies, and where maths might take her in the future.

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