

Reviews

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mathematical functions. Mathematical language is at the heart of physics.

Peter Campbell

HANDLE WITH CARE

A Tour of the Calculus: The Philosophy of Mathematics

David Berlinski

Rating: ★★

Price: \$16.95

Details: Published by William Heinemann, London, UK, in 1997, paperback, 352 pp, including an extensive index, ISBN: 0 43409 844 2

WE RECOMMEND

Mathematics for the Million: How to Master the Magic of Numbers

Lancelot Hogben

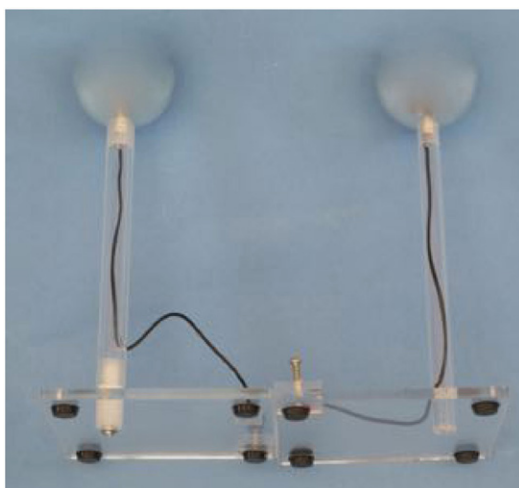
Rating: ★★★★★

Price: The book is out of print in the UK, but it is not difficult to obtain a second-hand copy.

Details: Revised edition published by the Merlin Press, London UK in 1968, paperback, 650 pp, including 'Answers to some of the exercises' and an index, ISBN: 0 85036 387 7. Originally published in 1936 by George Allen and Unwin.

EQUIPMENT: NARIKA HIGH-VOLTAGE GENECON

Portable electrostatic generator



One of the disadvantages of traditional Van de Graaff generators is their size; portability is often not one of the considerations when designing these units. The Narika Genecon overcomes this limitation, easily fitting into a small box.

The unit comes with a Genecon generator and two small spheres mounted on acetate rods,

with individual stands. Each sphere is about 5 cm across, and when mounted on the stand is 20 cm high. They each have a single cable running down the centre of the rod, terminating in an insulated screw. The review apparatus allowed the rod and sphere to be dismantled, making transport easy.

REVIEWS

Both spheres are able to touch, if required, to allow sparks to be generated. Whilst there are no facilities to fix accessories onto the top of each sphere, placing the hair from a doll onto the top allowed the traditional demonstration of repulsion to be demonstrated. With a little ingenuity, other traditional demonstrations such as the Hamilton Flywheel can be easily set up. The manual, which on the review copy was a booklet of A4 sheets, is very comprehensive. It explains a number of experiments, including some to make yourself. All of the suggested experiments worked, and adapting a suggested experiment allowed me to show that current is a movement of charge using the shuttling ball experiment. A classic question from A-level examinations is calculating the charge on two pith balls that are repelling each other, and again with a little ingenuity this was not difficult to demonstrate and obtain a good approximation.

The unit does come with a warning that over-exertion can damage it. Certainly in the period of time I have used it, I did not find that you needed to over exert yourself to obtain excellent results, and I also felt that the unit was tougher than the instructions made out.

I would certainly see a use for this in the classroom. The generator manual claims to produce a potential difference of around 10 kV, and I managed to obtain a spark of about 8 mm

between the two spheres, suggesting that this may be a little conservative. The unit was easy to use, and very quick to set up. The only negative point would be that it is limited in only generating about 10 kV, however, I did not find any issues with this and with a little thought this can easily be overcome. Looking at our Van de Graaff taking up the most of a shelf in the prep room and looking at the Narika unit which could fit inside a shoe box, there doesn't seem to be much of an argument in keeping the old one!

John Kinchin

WE RECOMMEND

Narika High-Voltage Genecon

Data Harvest Group Ltd

Rating: ★★★★★

Price: £294

Details: www.data-harvest.co.uk/catalogue/science/secondary/general-equipment/genecon/NRK004?utm_source=banner&utm_medium=homepage-banner&utm_content=electrostatics-banner&utm_campaign=electrostatics-homepage-banner

SOFTWARE: S.O.R.S

Narrative-driven diagnosis game doesn't quite make the cut

Given the popularity and nature of computer games, it's such a shame that there isn't more education contained within them. *Physics Education* has reviewed a number of education-based games over the years, and some that you could extract some education from, but sadly it doesn't seem an area that progress is being made in. This game is 'a narrative-driven game where you must diagnose

and help patients whilst also trying to work out who to trust, and what's going on at the hospital. All this whilst dealing with hackers...' which I think means that you get text to read and not very exciting graphics. Certainly the small sample of gamers I got to have a go with S.O.R.S didn't show much interest. They seemed far more used to 3D worlds and being able to go multiplayer.