

Exciting times



John Bransby, vice-principal and head of science in Herzlia High School, Cape Town, supports the new science curriculum

The new South African physical sciences OBE curriculum for Grades 10, 11 and 12 is certainly not something to be feared or concerned about. On the contrary, if approached correctly – in a manner that is going to be enjoyable to both the teacher and the learners – it can be fun, interesting and even exciting!

Sure – the content is slightly different, assessment, testing, examining and style of questing is also different – but different does not mean bad!

Digital teaching and learning of the physical sciences is surely the route to go.

Teaching, particularly science teaching, has become one of the most challenging and stressful careers today!

Young people have had very early exposure to the racy, exciting, attention-grab-

bing world of TV, videos, computers, arcade games, DVDs, MP3s, iPods, mobiles and many more exciting gadgets! Textbooks and the chalk and talk method of lesson presentation that have been used for the past 100 years can no longer hold the attention and interest of many of our learners.

The big question is: “Are the majority of my lessons interesting, challenging and stimulating enough to be truly meaningful to the young people in the 21st century?”

Software

In classrooms and laboratories throughout the world, more and more science teachers are using the digital medium for the presentation of theory lessons in the sciences. This also means that more and more software is becoming available – thus providing ready-made lessons for those classrooms and laboratories equipped for modern teaching and learning methodologies. Start by purchasing CDs that are based upon the new curriculum, together with the basic hardware and then, as funds permit, build up a library of other CDs and DVDs to illustrate the various components and concepts in our curriculum.



Some suggested programs

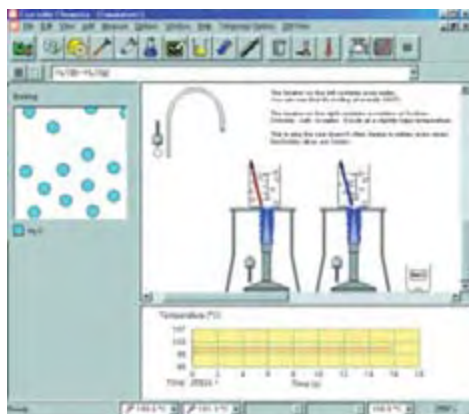
Maths & Science Marketing CD Rom

Laboratory teaching discs:

The PowerPoint format for content delivery is ideal for teaching any sized classes – even up to 100 learners at a time – especially if handled by an experienced teacher.

It is very useful to print out hard copies of the PowerPoint slides and make them available to learners before using them in the classroom or laboratory. Duplicate the slides you will be teaching during the term and distribute them to every learner on the first day. Use the format in which there are three slides per A4 page, and print back to back. This makes space available for learners to write additional information from the board. The learners use these handouts from which to study for tests and exams. These discs are written by South African teachers – on the new curriculum. The cost is only R400 per disc.

There is also a set of ten learner discs – which learners can purchase for them-



selves – for use at home. The cost of the learner discs is R150 each.

SmartLab's Cyber School CD Rom discs:

SmartLabs in Johannesburg is a fairly new company, producing and distributing equipment, chemicals and many different, exciting sets and kits available for teaching in the laboratory. I strongly recommend that you have a close look at what is available from this dynamic new source – be sure they will surprise you! They are different from the traditional science equipment outlet. They have excellent CD Rom discs – making good use of 3D animated video clips – ideal for illustrating so many of the concepts we need to teach.

Maskew Miller Longman's Physical Sciences Exam Bank CD Rom discs:

Maskew Miller Longman publishes a series of Exam Bank CD Rom discs. These enable teachers to prepare tests, examinations and revision exercises – merely by selecting which questions they want to include from the fairly large data base on the disc.

Once you have selected the questions, the software will automatically produce your question paper – with answer sheet and data sheet – as well as suggested solutions in the form of a memo and mark scheme as well!

I have used these discs quite often and find them very helpful – especially if you are the only senior science teacher at your school and you need to set many papers and tests for your learners! If the teacher is computer literate and able to follow instructions, no training is required in order to start using these discs.

Crocodile Physics and Chemistry software:

Crocodile Physics and Chemistry software, produced in the UK, is available in South Africa. It is interactive software that can be used on an ordinary screen and is also ideal for use on interactive white boards. It is very useful and user friendly, enabling one to change the variables and see what happens as a result of the respective changes. This software is available through a licence agreement for a few computers or for putting onto servers in computer rooms. The licence needs to be renewed from time to time



and is quite expensive. Products are continually updated and made available free of charge during the licence period. It costs quite a lot more than other software that is available in South Africa, but is worth purchasing if you have the necessary funds.

Useful websites

Maths and Science Marketing – for fantastic curriculum-based CDs: www.mathsandscience.com. Smartlabs – for excellent Cyber School CDs and exciting new laboratory equipment: www.smartlabs.co.za. Walter Fendt – many fantastic physics demos: www.walter-fendt.de. Crocodilia and crocodile clips for Physics & Chemistry demos: www.crocodilia.com. Maskew Miller Longman – useful Exam Bank CDs: www.mml.co.za. Thutong DoE National website – lots of materials: <http://new.thutong.org.za>. WCED: <http://wced.gov.za>. DoE: <http://education.gov.za>. How stuff works – useful science stuff: www.howstuffworks.com. Department of Science and Technology: <http://updated.dst.gov.za>. Physics experiments: www.physclips.unsw.au. Science in Africa: www.sciencein africa.co.za. Khanya – the IT arm of the Western Cape Education Department: www.khanya.co.za. Absorb Physics: www.absorblearning.com. SMART Board downloads (Free) www2.smarttech.com.

Google Images

I have often used Google images to find a particular diagram or visual representation of a particular molecule, formula, structure, piece of apparatus or graph. Once identified, the images can be saved – in a manner in which you can easily find them on your computer the next

year – when you would perhaps like to use them again.

Having made wide use of each of the above CD Roms, Crocodile Physics and Chemistry, certain websites, Google images, doing the necessary practical investigations, together with our school's prescribed textbooks and also using both the Answer Series and Physichems on a regular basis in the classroom and for homework, we have proved over and over again that our learners – even those with average academic ability – are able to achieve exceptionally well in the matric final examinations after having been exposed to exciting new ideas, stimulation, practical work, new technology and methodology. Using these facilities, I find the current curriculum is indeed interesting, fun to learn and to teach, while also preparing the learners very well for a tertiary education in the sciences.

Practicals

There is one word of caution: do not become so involved with all the above technology and content delivery that you neglect the practical work that needs to be done! There is absolutely no substitute for the sheer delight, learning experience and pleasure that you will see on the faces of your learners

when they do their own experiments – or even when you demonstrate experiments for them!

It is time for us to be positive, accept the challenges that lie ahead in the teaching and learning of our new physical sciences curriculum and see how we can make our own teaching and the learning of our students that much more creative, fun, enjoyable and effective. Once you have set yourself up properly – you will wonder how you could ever cope without access to these excellent facilities!

Good luck for all your endeavours.

John may be contacted at jbransby@herzlia.com or mwteach@mweb.co.za for further questions, discussions and comments about these ideas, materials, CDs and concepts. ❀

