The OpenScience Laboratory

Transcript:

Narrator:
What does practical Science mean to you? White coats, machinery, instruments, knobs and dials? This is the world of Science that has dominated for more than three centuries and it is reflected in the practical work in many courses. But alongside this traditional practice new techniques and new skills are emerging. Instruments have grown in complexity and many are controlled and manipulated through computers run by specialist technicians.
In some fields, Science takes place in massive central facilities that are too large to be run by individual scientists. Science data are acquired remotely by satellite or data feeds and are accessed by scientists at their desks often thousands or even millions of miles away. The traditional experimental skills, for example, manual manipulation, have been supplemented by digital skills and students must be prepared for a future in Science involving working through a screen.
The challenge for teachers is to exploit the opportunities of digital science, without losing the thrill, the immediacy, and the wonder. The Open University has enthusiastically taken up that challenge for learning and teaching to develop The OpenScience Laboratory, a virtual laboratory and field centre for practical science. The OpenScience Laboratory is open to universities, schools and the public making the world of Science accessible to more people, including those in emerging economies. Users are able to engage with Science and acquire the skills of Science.
The virtual microscope replicates the controls in a conventional microscope where slide sets, for example, of Martian rocks, can be accessed by students anywhere. They can be working with specimens that cannot be distributed to individual universities.
Our activities are based wherever practicable, on real data. The virtual lab rat replicates the behaviour of real specimens, minimising the use of animals in teaching. Astonishingly rich data can be accessed from remote sites. Students can work with the same data sets that are analysed by today's professional scientists.
The geology of Mars is open for study.
Real labs with inherent risks can be reproduced. Gaming technology allows the student to explore that environment, interacting with real data that is played out through the virtual interface – as in our avatar-led geological field trip to the Lake District and through our virtual chemistry labs.
Citizen Science involves distributed data gathering and invites members of the public to get involved. iSpot helps anyone to identify anything in nature and our Treezilla application is a nationwide tree survey to map all of Britain's trees and measure their environmental benefits. Situ8 is a tool for collecting and sharing geotagged field data in outdoor environments.
Activities and enquiries, be they five minutes, five days or much longer, are carefully structured to provide unique learning experiences. Students are also able to devise their own scientific investigations using our nQuire tool. Exploring Science through a screen makes it accessible. The Open University, working with partners in the UK and overseas, can transform the learning of practical Science and bring students closer to authentic frontiers.