Case Study

ZEISS Digital Classroom

Sevenoaks School, UK

Seeing beyond

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Sevenoaks School, UK

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Sevenoaks School is a prestigious independent school set in a beautiful, 100-acre campus in the Kent countryside. The school's new state-of-the-art Science and Technology Centre, with its sunlit atrium, was described by the Royal Institute of British Architects as "a great cathedral of a space, full of life and light". It is here that the pupils of Sevenoaks explore science and technology. The pace of discovery accelerated in March 2021, when the Biology department installed a ZEISS Digital Classroom comprising a suite of 10 networked Primostar 3 microscopes.

Transforming the student experience

The school has a strong tradition in Biology, says Karen Mylod, the Head of Biology at Sevenoaks whose department boasts 10 teachers. All pupils take the International GCSE Biology, and of the 400 or so pupils in the sixth form, more than half have chosen Biology as part of their International Baccalaureate diploma programme.

Already, the ZEISS Primostar 3 microscopes are transforming the student experience, says Karen, through their combination of powerful optics, built-in WiFi cameras and networked iPad displays. "The system is great for collaborative work, which students really like to do. For example, when a student finds something interesting under their microscope, the rest of the class doesn't need to queue up to stare into the eyepiece – they can just look at the iPad." The ZEISS Digital Classroom also allows the teacher to monitor the images on each pupil's microscope and highlight interesting examples on a bigger screen, for the whole class to see.

Karen Mylod, Head of Biology at Sevenoaks School

Inspiring student projects

The ZEISS Digital Classroom is also having a big impact on how Sevenoaks sixth formers carry out their research projects, Karen explains. "Our students do an individual project for which they come up with a research question, formulate a hypothesis, and design a practical experiment. The ZEISS Digital Classroom setup is great because collecting good numerical data is so important, and students being able to document their images is a key part of that. It takes away the guesswork, and having to rely on sketches of what they have seen. Instead, students' images can now be included with their work."

Karen offers an example of a student who decided to investigate the bold claims of a brand of hair-thickening shampoo. He took five hairs from the heads of 15 other boys and examined those hairs using the ZEISS Primostar 3 microscope. He then had the boys use the shampoo for a week, before taking new hair samples and imaging again. "With our previous set-up, using manual microscopes, this project would have been difficult to achieve, but because we now have the digital microscopes, the pupil could measure easily in micrometres using the Labscope app." All well and good, but what about the important question: did the shampoo deliver on its promise? "I didn't think the shampoo was going to work, but the difference in the hair – its appearance in his 'before' and 'after' pictures, and also in the thickness measurements – was amazing."

Simple 'plug and play' setup

One goal of the ZEISS Digital Classroom is to make teaching as frictionless as possible. The ZEISS Primostar 3 microscopes are designed to be robust and straightforward, and the accompanying Labscope software effortless. "The ease-of-use of the ZEISS software was absolutely vital," says Karen. "After all, we're biologists, not IT specialists! And our students, they just download the app straight on to their iPads and they are up and running. They find it all very intuitive."
Each of the microscopes in the ZEISS Digital Classroom are used in conjunction with several sets of dedicated iPads, says Karen, but each microscope also has a QR code that students can use to link the microscope to their personal devices if they prefer.
So how is teaching with the new microscopes? "The teachers really love them. They think that they're really easy to use. And the optics are fantastic: especially at the highest magnification, we get really clear images. It is so much better than the microscopes we replaced." They are also a lot easier to set up, Karen notes. Teachers and students at Sevenoaks no longer need to spend valuable learning time manually configuring the microscopes, because getting up and running with the Primostar 3 is as easy as plug and play.
The ZEISS Labscope Teacher app also allows the teacher to specify the set-up required for the task at hand, and the microscopes simply configure themselves. That said, manual calibration is still possible within the software, if required.

Making microscopy more accessible

"It's funny," says Karen. "One of the other teachers said to me, 'Surely, the students should still be learning to calibrate the microscope manually?' I said, 'Why?'.
It's clear to me that making microscopy more accessible – and less fiddly and boring – boosts student engagement. The laboratory and scientific workplace of the future is digital, and we are teaching to this future."
And the future for Biology students at Sevenoaks is all about curiosity. "This new ability to see and capture such tiny differences has our students exploring questions about the living world that may not have been possible before these microscopes became available," says Karen "It has opened new doors of curiosity and investigation for them."

Adding a new dimension to teaching

How does Karen sum up her experience of the ZEISS Digital Classroom? "I think it's brilliant – and the students love it. It adds a new dimension to teaching microscopy, and it clearly demonstrates the importance that Sevenoaks School places on science."

The ZEISS Digital Classroom was supplied to Sevenoaks School by K-Tec Microscope Services Ltd, a trusted microscopy partner of ZEISS.

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