CORNERSTONE MATHS

ABOUT CORNERSTONE MATHS

Cornerstone Maths uses technology to enhance learning in mathematics. By integrating information and communications technology (ICT) into lessons, it uses representations and simulations—visual and interactive graphs, tables and equations—to demystify key mathematical ideas.

Teachers observed students making meaningful connections that led to deeper understanding and learning

Intended for use by pupils in Key Stage 3, current units address hard-to-grasp concepts in linear function and geometric similarity. Upcoming units will focus on algebraic expressions and ratio.

Cornerstone Maths began as an SRI International research project in the late 1980s, and is based on two decades of examination into how technology can be used to help children learn important and abstract mathematics. In 2005, large-scale testing in schools across Texas and Florida yielded positive results. Teachers observed students making meaningful connections that led to deeper understanding and learning, and pupils involved in the programme showed significant learning gains over those who were not.

In 2011, SRI International collaborated with the London Knowledge Lab to launch a pilot Cornerstone Maths programme in England. With backing from the Li Ka Shing Foundation, the year-long study—which was updated to align with England's new national curriculum—involved 19 teachers and 490 students from mixed backgrounds around the country. Targeted one- to three-week units help pupils achieve deep learning of the most difficult mathematics concepts through guided explorations and activities that foster reasoning and collaboration.

"There was a very distinct demarcation in my Year 8 class between those who had learnt it through Cornerstone Maths last year, and those who hadn't," says Liz Gould, a teacher at Ormiston Bushfield Academy in Peterborough. "I can categorically say that the retention a year on is significantly better than a class who had done similar work from a textbook."

Teachers also learn. Cornerstone Maths leverages the crucial importance of teacher learning by offering professional development and involvement with a lively project community.

"It was a really valuable experience for me as a trainee to meet up with other professionals and other institutes," says Alex Walley, a teacher at Ormiston Sir Stanley Matthews Academy in Stoke on Trent. "It was about seeing how this big mathematical idea, and this new technology, would actually work in our day-to-day practice."

SRI International and London Knowledge Lab are now introducing Cornerstone Maths to 100 schools across the country, and plan to engage with more schools in the future.

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ABOUT LONDON KNOWLEDGE LAB

The London Knowledge Lab is a unique collaboration between two of the UK's most prominent centres of research – the Institute of Education and Birkbeck.

By spanning disciplines, LKL can explore the future of learning from many different perspectives.

Opened in 2004 by Seymour Papert of MIT, the Lab brings together computer and social scientists from a very broad range of fields, including:
— education,
— sociology,
— culture and media,
— semiotics,
— computational intelligence,
— information management,
— personalisation,
— semantic web
— ubiquitous technologies.

By spanning disciplines, LKL can explore the future of learning from many different perspectives. We see this as essential as the ways in which we learn, and what we need to know, are changing. Our research aims to explore and invent the roles of technology in this process, and to understand how technology relates to broader social, economic and cultural factors.

Our mission

— Understand the place of digital technologies and media in our cultural, social and educational relationships with knowledge – finding, acquiring, creating, and sharing it;
— Design, build and evaluate systems, processes and interfaces that enhance these relationships; and
— Examine critically the assumptions about knowledge and learning that underlie the increasingly wide range of applications of digital technologies.

Co-directors

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