

Computing education essential in technologically diverse world

Press release

Ofsted has published the latest in a series of reviews into different subjects across the curriculum. Today's review looks at computing.



This review explores the literature relating to the field of computing education to identify factors that can contribute to high-quality computing curriculums, assessment, pedagogy and systems. We will use this understanding of subject quality to examine how computing is taught in England's schools before publishing a subject report to share what we have learned.

The national curriculum for computing sets out that 'a high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world'.

Today's review highlights approaches to constructing, sequencing and teaching a coherent computing curriculum that achieves the aims set out in the national curriculum. Central to this is the importance of identifying and ordering the underlying knowledge that pupils require to make sense of complex ideas and engage in tasks or activities within the subject.

Teachers' content and pedagogical knowledge are important factors in high-quality computing education. The review notes that there remains a shortage of suitably qualified computing teachers, which will have significant consequences for the quality of education that pupils receive if nothing is done to remedy the situation. School leaders need to provide teachers with sufficient professional development to enable them to design and teach a high-quality computing curriculum.

Ofsted recognises that there is no singular way of achieving high-quality computing education and there are a variety of ways that schools can construct and teach a computing curriculum. The review identifies some common features of successful curriculum approaches:

- the planned curriculum includes a breadth of knowledge in computer science, information technology and digital literacy
- declarative knowledge ('knowing that') and procedural knowledge ('knowing how') are identified, sequenced and connected in the curriculum
- pupils learn important programming knowledge to enable them to become skilful programmers.
- programming languages are chosen to meet curriculum goals
- development of computational thinking and problem-solving is underpinned by domain-specific knowledge that is identified and sequenced in the curriculum
- the curriculum to teach pupils how to create digital artefacts is underpinned by specified declarative and procedural knowledge
- teachers should not make assumptions about pupils' prior knowledge of digital literacy
- knowledge related to e-safety is carefully sequenced to ensure that content is appropriate for pupils at each stage of their education
- component declarative and procedural knowledge are identified and sequenced to enable pupils to be successful in learning complex ideas or processes
- teachers have access to continued professional development in high-quality computing to develop and maintain their subject knowledge

Her Majesty's Chief Inspector, Amanda Spielman said:

Digital technology is driving extraordinary global changes, so it's crucial that children and young people are educated to make use of their opportunities.

Computing is rich in complex knowledge, which can make it interesting for pupils to learn. Yet it is also hard to teach well.

I hope this review is useful for teachers and school leaders and helps to raise the quality of computing education for all young people.

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