Teaching ICT at Key Stage 3

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Key Stage 3 is defined as the education of pupils in years 7, 8 and 9 (aged 11 - 14 years) and is characterised as a number of subjects taught compulsorily and separately with no final, summative or accredited assessment. The QCA specifies the content of the curriculum and the characteristics of the levels of attainment called the National Curriculum. The QCA has developed a curriculum "big picture" to reinforce the concept of curriculum as the entire planned learning experience of a young person and shows the range of subjects and the spectrum of activities.
http://www.qca.org.uk/libraryAssets/media/Big_Picture_2008.pdf

The National Strategies website is the definitive source of authorised information regarding how the curriculum should be delivered from early years (aged 4) to 16. The 14-19 Strategy and Functional Skills are presented separately. http://www.dcsf.gov.uk/14-19
http://www.qca.org.uk/qca_6062.aspx

Good starting points:

http://nationalstrategies.standards.dcsf.gov.uk/secondary

http://curriculum.qca.org.uk/key-stages-3-and-4

http://publications.teachernet.gov.uk

http://www.dcsf.gov.uk/14-19

The following resources include:

The National Strategy – the ICT Strand
Ofsted Perspective - Key Stage 3 teaching of ICT
The National Curriculum for Key Stage 3 ICT
Teaching and learning processes in Key Stage 3

The National Strategy – the ICT Strand

The Key Stage 3 Strategy for ICT Capability (2002) has been superseded by ICT strand of the National Strategy which provides guidance and resources for teachers at

http://nationalstrategies.standards.dcsf.gov.uk/secondary/secondaryframeworks/ictframework

The original strategy materials included a Framework to support the planning, teaching and assessment of ICT and a number of sample teaching units (STU) for Years 7, 8 and 9, with detailed lesson plans that exemplify effective teaching of ICT capability. These remain a useful resource to exemplify long and medium term planning and the structure of lessons. The Framework introduced concepts of ICT capability, starters and plenaries, mini-plenaries and yearly teaching objectives.

The Secondary Strategy focuses on a number of generic areas which impact upon the teaching of ICT at Key Stage 3 including: behaviour, attendance and SEAL; pedagogy (whole school approaches); assessment for learning; functional skills in literacy, numeracy and ICT and "intervention".

Intervention is the concept of securing the learning of all pupils in mainstream lessons through tailored intervention support programmes and specialised, individualised provision that accelerate and maximise pupils' progress and to minimise performance gaps. Aspects of intervention include progression maps, study plus and the role of the teaching assistant.
http://nationalstrategies.standards.dcsf.gov.uk/secondary/intervention

The renewed ICT Framework builds on the original Framework published in 2002, and is designed to "*increase pupils' access to excellent teaching, and engaging, purposeful learning that will enable them to make good progress through Key Stage 3 and Key Stage 4*".

The Framework is structured:

- to provide guidance on planning and teaching;
- to incorporate existing guidance on day-to-day and periodic assessment;
- to increase the emphasis on the key concepts, key processes and functional skills;
- to build on what pupils have learned in Key Stage 2;
- to ensure that ICT skills are integrated with knowledge and understanding in a range of contexts; and

- to support planning and to build on existing National Strategies resources.

It strongly reflects the four strands of the National Curriculum - finding information, developing ideas, communicating information and evaluating. It interprets those in terms of the knowledge, skills and understanding associated with each.

When "finding information" in Key Stage 3 pupils should understand that Information items come in different forms and from different sources. Keywords include: searching, selecting, search engines, Boolean searches, data sets, organising, investigating, purpose, scope, processing, retrieval

When "developing ideas" they pupils should understand that use of ICT can increase the efficiency of information processing and that processes can be speeded up using automation. Keywords include: models, modelling, representation, system, conditions, input, rules, outcomes, sequencing, instructions, control, plan, predict.

When "communicating information" pupils should understand that it is "*important to be selective and sensitive in what we present to a particular audience or community and engage in critical reflection on how others present fact and opinions or materials to publicise or entertain*". Keywords include: fitness for purpose, communication, environment, audience expectations, needs, refining, presenting, text, images, sounds, formatting, risk management, security.

When "evaluating" pupils should be encouraged to make self-assessments of their work to develop their ability to provide and respond to critical feedback. Keywords include: user interface, efficiency, usefulness of a system, systematic testing, complex and rigorous success criteria, user feedback, balancing competing demands.

The structure of the Framework for secondary ICT also presents the curriculum as a two-dimensional grid of objectives arranged vertically by year group from Year 7 to Year 11, and horizontally in four strands of progression across the secondary age range.

The Framework also provides guidance on the value of planning schemes of work in ICT, how a curriculum map is formed, the role of learning objectives, unit plans and a teaching calendar.

Ofsted Perspective - Key Stage 3 teaching of ICT

Issues raised by Ofsted in relation to teaching and learning in ICT include:

- Teachers should ensure all work planned work is completed
- Teachers should be more systematic at checking pupil understanding
- Teachers should ensure adequate feedback is given to ensure that pupils know what and how to improve ICT
- Plenaries should be long enough for teachers to summarise what had been learnt and to discuss what will be learnt in the next lesson
- Teachers need to make better use of manageable assessment opportunities, including pupil self assessment

For full details of the issues see the Ofsted publication: Ofsted (2003) *The Key Stage 3 Strategy: Evaluation of the Second Year* pp17-19 London, UK: Ofsted
http://www.ofsted.gov.uk/publications/index.cfm?fuseaction=pubs.summary&id=3204

More recently, the 2005 Ofsted report highlights, amongst other issues, these findings that could influence ITT ICT course planning:

- Teachers need to give more consideration to the circumstances in which independent learning using ICT can flourish.
- Assessment of ICT capability remains a weakness in one fifth of schools at Key Stage 3 and one eighth at Key Stage 4.
- The use of assessment to respond to the needs of individual pupils remains very variable, especially at Key Stage 3 where it is unsatisfactory in almost one fifth of schools.

Ofsted (2005). Information and communication technology in secondary schools. The Annual Report of Her Majesty's Chief Inspector of Schools 2004. [Online]. London, UK: Ofsted
http://www.ofsted.gov.uk/publications/annualreport0405

In their observations of lessons and discussions with teachers, trainees may find it helpful to focus on one or more of these issues in order to develop their own ideas about what constitutes effective practice.

The Annual Report of Her Majesty's Chief Inspector of Schools 2005/06 reports,

"*in some subjects in secondary schools, the quality of provision is affected by high levels of staff turnover and difficulties in recruiting appropriately qualified staff; this is particularly the case in science, mathematics, information and communication technology (ICT) and design and technology, including food technology.*"

The Annual Report of Her Majesty's Chief Inspector of Education, Children's Services and Skills 2006/07 reports,

"*Secondary schools offer an increasing number of vocational courses to pupils aged 14 to 19 years, making the curriculum more relevant and motivating for many learners and encouraging them to attend and to learn. However, the curriculum for information and communication technology (ICT) in Key Stage 4 is not improving, and the development of ICT skills to support learning across the curriculum remains too dependent on the expertise of individual subject teachers. Schools in all phases are providing an increasing range of extra-curricular activities, which help to motivate and engage pupils.*"

The National Curriculum for Key Stage 3 ICT

This section contains an outline of the National Curriculum for England for ICT at key stage 3. It was first published by QCA in 2007 and comes into force in schools from September 2008 for year 7. The claim is that the new National Curriculum will provide:

- Greater flexibility and coherence
- New focus on aims and skills
- Greater personalisation through assessment and qualifications
- Greater coherence through a common structure across all subjects

Greater flexibility and coherence is achieved through tailoring learning to the learners' needs by having less prescribed subject content. Pupils will still be taught essential subject knowledge but the new curriculum balances subject knowledge with the key concepts and processes that underlie the discipline of each subject.

The revised programmes of study for all subjects share a common format which includes:

- an importance statement – why the subject matters.
- key concepts – identifies the big ideas that underpin the subject
- key processes – identifies the essential skills of the subject
- range and content – outlines the breadth of subject matter

The curriculum is described in terms of knowledge, concepts and skills. A further section identifies opportunities to enhance and enrich learning, including making links to the wider curriculum such as enterprise, creativity, and cultural understanding and diversity.

What has changed and why is summarised in the document http://curriculum.qca.org.uk/uploads/overview_doc_tcm8-1839.pdf

The complete programme of study for ICT key stage 3 is available from http://curriculum.qca.org.uk/uploads/QCA-07-3336-p_ICT_KS3_tcm8-401.pdf.

The importance of information and communication technology is...

The increasing use of technology in all aspects of society makes confident, creative and productive use of ICT an essential skill for life. ICT capability encompasses not only the mastery of technical skills and techniques, but also the understanding to apply these skills purposefully, safely and responsibly in learning, everyday life and employment. ICT capability is fundamental to participation and engagement in modern society.

ICT can be used to find, develop, analyse and present information, as well as to model situations and solve problems. ICT enables rapid access to ideas and experiences from a wide range of people, communities and cultures, and allows pupils to collaborate and exchange information on a wide scale. ICT acts as a powerful force for change in society and citizens should have an understanding of the social, ethical, legal and economic implications of its use, including how to use ICT safely and responsibly. Increased capability in the use of ICT supports initiative and independent learning, as pupils are able to make informed judgements about when and where to use ICT to enhance their learning and the quality of their work.

Putting the National Strategy into practice has caused schools to refocus attention on teaching and learning processes rather than the delivery of content. These approaches are closely associated with the theories linked to accelerated learning. Accelerated learning is an umbrella term for a series of practical approaches to learning which uses new knowledge about how the brain functions when learning. Accelerated learning takes the new knowledge about the way students learn and puts it into a manageable way of working in the classroom. It forms the cornerstone of the Learning Framework adopted within the Strategy and beyond.

An excellent introduction to current thinking on accelerated learning is contained in *Learning: A Sense Maker's Guide* published by the Association of Teachers and Lecturers (ATL). Further information and purchase details are available in the resources section on the ATL website http://www.askatl.org.uk

An important publication in the Pedagogy and Practice: Teaching and Learning in Secondary Schools series is the Using ICT to enhance learning (Unit 15) that describes practical strategies for teachers to use to enhance learning through the use of ICT. The techniques suggested are tried and tested; they draw both on academic research and the experience of practising teachers. An early Ofsted report identified the issues arising from the need to develop pupils' ICT capability to enhance their learning.

"*The past five years have seen a slow but steady improvement in pupils' achievements in ICT capability, the quality of teaching, and the leadership and management of ICT ... The complementary use of ICT*

across subjects, however, has been slow to develop and is uneven across schools and subjects … The effective balance between the teaching of ICT skills, knowledge and understanding on the one hand and the application of these as part of learning across subjects on the other hand remains a difficult and elusive goal for the majority of schools." (Ofsted, 2004)

Ofsted (2004) *Information and communication technology in secondary schools: Ofsted subject reports 2002–03* London, UK: Ofsted
http://www.ofsted.gov.uk/portal/site/Internet/menuitem.eace3f09a603f6d9c3172a8a08c08a0c/?vgnextoid=c6e51e7a681eb010VgnVCM2000003607640aRCRD

Cavigioli, O. et al. (2002) *Thinking Skills and I.Q.* Stafford, UK: Network Educational Press

Ginnis, P. (2002) *The Teacher's Toolkit* Carmarthen, UK: Crown House

Smith, A. et al (2003) *Accelerated Learning: A User's Guide* Stafford, UK: Network Educational Press

Smith, A. (1998) Accelerated Learning in Practice, Stafford, UK: Network Educational Press

Thinking Skills (review of research)
http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=509

Learning styles at http://tip.psychology.org

Brain based learning
http://www.loloville.com/brain_based_learning.htm

Thinking classrooms http://www.thethinkingclassroom.co.uk

References

Cavigioli, O. et al. (2002) *Thinking Skills and I.Q* Stafford, UK: Network Educational Press

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