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Using the book

Throughout this book the authors have drawn upon their extensive experience of teaching and mentoring trainee teachers to present a wide range of case studies that you can adapt and use in your own classroom. The book contains a number of features that will help you to strengthen your subject knowledge and develop your skills in teaching ICT.

Features

At the start of each chapter you will find a list of **learning outcomes**. These provide the intended focus of each chapter. You can skim these to see the structure and content of each chapter.

Following these are the relevant **Teachers' Standards** that the particular chapter will help you to understand and demonstrate. You may wish to search for individual standards that you have identified as areas for development, or alternatively to make a note of your reading and associated activities in your teacher training notes or portfolio.

Each chapter contains a number of **activities** that help you to become actively engaged with the content of the chapter. Sometimes these will ask you to reflect on your reading or placement experiences, or they may be tasks that you will need to undertake using ICT. You may find it helpful to undertake the activities with a friend, or discuss the outcomes with your tutors or school mentors.

Case studies are provided to illustrate how the ideas presented in each chapter can be achieved in a real context.

In order to reflect the cross-curricular nature of this book, **links to the National Curriculum** are provided in order to help you examine how ICT can be used to support learning in other curriculum subjects, or how ICT capacity can be developed through other curriculum subjects. In every case, the links are not exclusive and you should think about other opportunities beyond those presented to you.

Research underpins high-quality teaching. Each chapter contains **research focus** features that highlight key literature sources related to the topic under discussion. The features provide an overview of current research in that area.

Each chapter concludes with a **learning outcomes review** which summarises the main points raised.

Finally, **self-assessment questions** are provided for you to reflect upon the key components of the chapter. Suggested responses to these self-assessment questions are included at the end of the book.

ICT across the curriculum

To help you find your way around this book, you can use the following tables to locate where particular subjects and themes are discussed.

Table 1 on p. 4 shows where National Curriculum subjects are addressed specifically throughout the book.

ICT-specific issues and themes are also dealt with, and these are shown in Table 2 on p. 5.

Primary ICT across the Curriculum is an essential book for trainee teachers who are eager to contribute to the transformation of the primary curriculum. We hope that you will enjoy exploring how you can use ICT in your classroom to enhance both children's learning and your own teaching.

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<i>Subject</i>	<i>Chapter</i>	<i>Brief description</i>
English	1	Suggested methods for enhancing instructional writing with presentational software; developing journalistic writing using audio podcasts
	3	Considering procedural and instructional language using flow charts
	4	Using a range of sources to locate information. Evaluating and presenting information; developing collaborative texts and presentations; writing for different audiences
	5	Word processors to develop writing; structuring writing and developing a sense of audience; using multimedia as a stimulus for writing
	6	Critical evaluation of information; developing speaking and listening skills through multimedia
	6, 7, 8	Considering research evidence for ICT promoting literacy skills
	7	Using video and e-mail to enhance story-writing
	9	Persuasive writing
	Mathematics	1, 3, 7
2, 3		Developing problem-solving and calculation skills using spreadsheets
3, 9		Handling data
Science	2, 3	Using information-handling software to enrich activities linked to <i>Life Processes and Living Things</i>
	3	Using sensors and data-loggers to support investigative science and the study of <i>Life Processes and Living Things</i>
	4	Healthy living
	7	ICT to support fieldwork
Design and technology	3	Developing, planning and communicating ideas; designing and creating computer-controlled models
History	2	Information-handling software supporting study of the local area; computer databases used to enrich understanding of <i>'The Victorians'</i> topic
	5	Presenting historical findings using multimedia
	7	Creating <i>'Tudor blogs'</i>
	9	Accessing museums, artefacts and cultural settings online
Geography	2	Information-handling software, supporting study of the local area
	3	Recording and analysing weather data
	4	Conducting investigations outside the classroom
	6, 7, 9	Comparing and contrasting localities
Art and design	5, 9 9	Evaluating work and collaborating on presentations; investigating different kinds of art, craft and design [for example during visits to museums, galleries and sites, on the internet].
Music	3	Exploring musical pitch and duration using Roamer
	4	Researching the lives and music of famous composers; potential of podcasts for recording and presenting musical performances
Physical education	1, 5	Using video to analyse athletic performance
Personal, social and health education and citizenship	2	Investigating a charity website
	4, 9	Caring for the environment; healthy eating, exercise and staying healthy
	6	Social aspects of behaviours, identifying risky situations and seeking and locating appropriate advice; exploring issues of identity and self-image
	9	Recognising membership of community and playing an active role as citizens; recognising and respecting diversity and difference

Modern foreign languages	4, 9 9	Using automatic translators to investigate languages. Potential of school-linking for developing awareness of other languages
Religious Education	6, 9	Awareness of and developing respect of religious and cultural differences
Other	2	'Thinking Skills' as a statutory cross-curricular requirement

Table 1 Cross-curricular links

Issue	Chapter	Brief description
Thematic planning incorporating ICT	1, 3, 9	Medium-term planning around topics and themes
Learning in settings outside the classroom	3 4 7 9 6, 9	Potential of data-loggers on field trips; identifying control and monitoring technology Conducting geographical fieldwork Conducting scientific fieldwork Alternatives and supplements to visiting out-of-school settings School-linking across national and global boundaries
Promoting home-school links	4, 6 6 7	Sharing children's work with parents and the wider community Partnerships with parents for raising awareness of e-safety issues Open evenings as a showcase for children's work
Health and safety using ICT	4 6 6 6	Safeguarding children using collaborative web tools E-safety policy and practice; cyberbullying Children's emotional and social development in online and offline relationships ICT Acceptable Use Policies in school
Ethics and ICT	5, 6 9	Copyright and intellectual property Challenging stereotypes
Classroom management	7, 9	Strategies for managing ICT resources

Table 2 ICT-specific issues

References

Bew, P. (2011) *Independent review of key stage 2 testing, assessment and accountability: Final Report*. London: DfE.

DfE (2011) *The framework for the national curriculum. A report by the expert panel for the national curriculum review*. London: DfE.

Tickell, C. (2011) *The Early Years: Foundations for life, health and learning. An independent report on the Early Years Foundation Stage to Her Majesty's Government*. London: DfE.

PART 1

ICT IN THE NATIONAL CURRICULUM

1. ICT as a core skill

Debbie Simpson, Ian Todd and Mike Toyn

Learning Outcomes

By the end of this chapter you should:

- understand the difference between ICT skills and ICT capability;
- understand your own use of ICT and your development of ICT capability;
- understand the historical context behind the use of ICT in schools;
- develop your understanding of the importance of supporting children to develop their ICT capability.

TEACHERS' STANDARDS

A teacher must:

1. Set high expectations which inspire, motivate and challenge pupils

- establish a safe and stimulating environment for pupils, rooted in mutual respect.

2. Promote good progress and outcomes by pupils

- be accountable for pupils' attainment, progress and outcomes
- plan teaching to build on pupils' capabilities and prior knowledge
- demonstrate knowledge and understanding of how pupils learn and how this impacts on teaching.

3. Demonstrate good subject and curriculum knowledge

- have a secure knowledge of the relevant subject(s) and curriculum areas, foster and maintain pupils' interest in the subject, and address misunderstandings
- demonstrate a critical understanding of developments in the subject and curriculum areas, and promote the value of scholarship.

4. Plan and teach well structured lessons

- impart knowledge and develop understanding through effective use of lesson time
- promote a love of learning and children's intellectual curiosity

- contribute to the design and provision of an engaging curriculum within the relevant subject area(s).
- 5. Adapt teaching to respond to the strengths and needs of all pupils**
- know when and how to differentiate appropriately, using approaches which enable pupils to be taught effectively
 - have a secure understanding of how a range of factors can inhibit pupils' ability to learn, and how best to overcome these.

Introduction

This chapter aims to set the scene for the rest of the book by discussing some key areas. As such it does not focus on developing your understanding of how to teach ICT effectively or use ICT in your teaching; rather it aims to support your learning about the way ICT should be used. It does this by making distinctions between different approaches to teaching ICT and by considering the impact that the history of ICT use in schools has had on the way it is taught. It also asks you to consider why and how you use ICT. This will provide opportunities for you to apply your own experiences to the way you teach ICT, and teach with ICT.

This chapter will underpin Part 1 and Part 2 of this book. You will see the importance of the need to develop children's ICT capability and this will guide your learning when you read the chapters in Part 1 about teaching the ICT National Curriculum. By reflecting on the way you have learned to use ICT you will begin to realise the importance of context when using ICT to support learning across the curriculum. This will be helpful to you as you read the chapters in Part 2.

As an aid to developing your understanding, case studies are used to exemplify the key ideas presented in this chapter.

A brief history of ICT in primary classrooms

Even though every child at school in the UK today has been brought up in a world where computers are very commonplace, this has not always been the case. The significance of this is that even though it is easy to take ICT for granted, it is a very new phenomenon in education compared to the teaching of English and literacy, for example.

Within the short time that computers have been in classrooms there have been a number of different approaches to the way they should be used. Interestingly, the first computers that appeared in classrooms were not funded by the (then) Department for Education and Science (DES) but the (then) Department for Trade and Industry (DTI). This underlined the perception that computers were a part of the world of work and that children needed to learn about them to prepare themselves for leaving school. The impact of this was that the curriculum was focused on learning how to operate computers and was known at the time as Computer Studies.