

# Information and communication technology

**Level 1** Pupils navigate on-screen resources to explore and locate information. They investigate imaginary and virtual worlds and explore options. They capture information and share their work with others. They work with text, images and sound to explore and share their ideas. They explore how devices respond to commands. They use ICT safely by following instructions. They understand that work can be saved and retrieved for later use. They talk about their use of ICT.

**Level 2** Pupils find and use information to answer questions. They sort and organise information and present it in different forms. They use simple editing and formatting techniques to develop their work. They use ICT to communicate with others following instructions on safe use. They plan and give instructions to make things happen or to control devices and describe the effects. They make informed choices when using ICT to explore what happens in real and imaginary situations. They describe how they use ICT to develop their work.

**Level 3** Pupils search for and use information from a range of sources and make judgements about its usefulness when following straightforward lines of enquiry. They collect, record and organise data to answer questions and present findings. They use editing and formatting techniques to develop and refine their work to improve its quality and presentation. They use sequences of instructions to control devices and achieve specific outcomes. They answer questions when using ICT models and simulations. They use communication tools to share and exchange their ideas with others, and follow strategies for staying safe. They describe their use of ICT inside and outside school.

**Level 4** Pupils refine searches to find, select and use information, questioning its reliability. Pupils understand the need for collecting information in a format that is suitable for processing. They interpret their findings, question plausibility and recognise that poor-quality information leads to unreliable results. They develop simple ICT-based models to explore patterns and relationships, and make predictions about the consequences of their decisions. They plan, test and refine sequences of instructions. They capture data using sensors to support investigations. They create and combine different forms of information, refining and presenting it for a particular purpose, showing an awareness of audience and the need for quality. They communicate and exchange information and ideas with others, collaborating to develop and improve work. They understand the benefits of online communication and can manage some of the risks associated with the digital environment. They compare their use of ICT with other methods and with its use outside school.

**Level 5** Pupils combine ICT tools within the overall structure of an ICT solution. They select the information they need for different purposes, check its accuracy and organise it in a form suitable for processing. They use ICT to structure, refine and present information in different forms and styles for specific purposes and audiences. They exchange information and ideas with others in a variety of ways, including using digital communications. They create sequences of instructions and understand the need to be precise when framing and sequencing instructions. They are systematic in changing the variables in an ICT-based model and explain the impact of the changes. They use ICT to organise, store and retrieve information using logical and appropriate structures. They use ICT safely and responsibly. They discuss their knowledge and experience of using ICT and their observations of its use outside school. They assess the use of ICT in their work and are able to reflect critically in order to make improvements in subsequent work. They use appropriate evaluation criteria to critically evaluate the fitness for purpose of their work as it progresses.

**Level 6** Pupils plan and design ICT-based solutions to meet a specific purpose and audience, demonstrating increased integration and efficiency in their use of ICT tools. They develop and refine their work to enhance its quality, using a greater range and complexity of information. Where necessary, they use complex lines of enquiry to test hypotheses. They present their ideas in a variety of ways and show a clear sense of audience. They develop, try out and refine sequences of instructions and show efficiency in framing these instructions, using sub-routines where appropriate. They use ICT-based models to make predictions and vary the rules within the models. They assess the validity of these models by comparing their behaviour with information from other sources. They plan and review their work, creating a logically structured portfolio of digital evidence of their learning. They discuss the impact of ICT on society.

**Level 7** Pupils design and implement systems. They are able to scope the information flow required to develop an information system. They combine information from a variety of ICT-based and other sources for presentation to different audiences. They identify the advantages and limitations of different information-handling applications. They select and use information to develop systems suited to work in a variety of contexts, translating enquiries expressed in ordinary language into the form required by the system. They develop, test and refine sequences of instructions as part of an ICT system to solve problems. They design ICT-based models and procedures with variables to meet particular needs. They consider the benefits and limitations of ICT tools and information sources and of the results they produce, and they use these results to inform future judgements about the quality of their work. They make use of audience and user feedback to refine and enhance their ICT solutions. They take part in informed discussions about the use of ICT and its impact on society.

**Level 8** Pupils independently select appropriate information sources and ICT tools for specific tasks, taking into account ease of use and suitability. They design successful ways to collect and prepare information for processing. They design and implement systems for others to use. They take part in informed discussions about the social, economic, ethical and moral issues raised by ICT.

**Exceptional Performance** Pupils evaluate software packages and ICT-based models, analysing the situations for which they were developed and assessing their efficiency, ease of use and appropriateness. They suggest refinements to existing systems and design, implement and document systems for others to use, predicting some of the consequences that could arise from the use of such systems. When discussing their own and others' use of ICT, they use their knowledge and experience of information systems to inform their views on the social, economic, ethical and moral issues raised by ICT.