CURRICULUM ALIGNMENT GUIDE

Computing programmes of study:
National curriculum in England

KEY STAGE 3 AND 4

100 Ideas for Secondary Teachers:

Outstanding Computing Lessons

INTRODUCTION

100 ideas: Outstanding Computing Lessons is a collection of 100 practical, tried-and-tested ideas for teaching computing. It is aimed at computing / ICT teachers of all levels, whether specialist or non-specialist, newly qualified or experienced.

For more information on 100 Ideas: Outstanding Computing Lessons and to find additional education resources and supporting materials, including more than 50 free worksheets to accompany the activities in the book, visit: teachwithict.com/100ideas

10 sample activities can be downloaded for free at teachwithict.com/bonus

KEY STAGE 3

STANDARD	DESCRIPTION	ACTIVITY
3.1	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems.	Idea: 14, 18, 42, 43, 44, 46, 47, 50, 80, 81, 82, 84, 85, 86, 87, 88, 89, 90, 91, 93, 94, 95, 96, 97, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109.
3.2	Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem.	Idea: 48, 51, 53, 57.
3.3	Use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions.	Idea: 3, 18, 80, 81, 82, 84, 85, 86, 87, 88, 89, 90, 91, 93, 94, 95, 96, 97, 98, 99, 101, 102, 103, 104, 105, 108, 109.
3.4	Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal].	Idea: 62, 63, 66, 67.
3.5	Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems.	Idea: 12, 36, 38, 39, 40, 54, 60, 61.
3.6	Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits.	Idea: 37, 52, 58, 59, 60, 62, 63, 64, 65, 66, 67, 68.
3.7	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users.	Idea: 19, 21, 22, 23, 26, 30, 31, 32, 69, 71, 73, 93, 105.
3.8	Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability.	Idea: 19, 26, 30, 31, 32, 69, 71, 73.
3.9	Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns.	Idea: 24, 25, 27, 29, 33, 41.

KEY STAGE 3

STANDARD	DESCRIPTION	ACTIVITY
4.1	Develop their capability, creativity and knowledge in computer science, digital media and information technology.	Idea: 1 – 110.
4.2	Develop and apply their analytic, problem-solving, design, and computational thinking skills.	Idea: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 41, 42, 43, 44, 46, 47, 48, 49, 50, 80, 81, 82, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109
4.3	Understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to report a range of concerns.	Idea: 16, 20, 24, 25, 27, 29, 33.