



## National Curriculum Coverage Computing

### How is the Subject Content from the National Curriculum Covered?

#### Purpose of study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

#### Aims

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems are responsible, competent, confident and creative users of information and communication technology.

## Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. Schools are not required by law to teach the example content in [square brackets].

### Key stage 1

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions **(Y1 – iprogram and itech, Y2 – iprogram, ianimate and itech)**
- create and debug simple programs **(Y1 – iprogram and itech, Y2 – iprogram, ianimate and itech)**
- use logical reasoning to predict the behaviour of simple programs **(Y1 – iprogram and itech, Y2 – iprogram, ianimate and itech)**
- use technology purposefully to create, organise, store, manipulate and retrieve digital content **(all Y1 and Y2 units)**
- recognise common uses of information technology beyond school **(all Y1 and Y2 units)**
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. **(all Y1 and Y2 units)**

### Key stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts **(Y3 – ijam and iprogram, Y4 – ijam, iprogram, icreate, and icommunicate, Y5 – ijam, iprogram, ioffice, and icommunicate, Y6 – ijam, iprogram and icommunicate)**
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output **(Y3 – ijam, iprogram icreate and icommunicate, Y4 – ijam and iprogram, Y5 – ijam, iprogram, icreate, and icommunicate, Y6 – ijam, iprogram, icreate and icommunicate)**
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **(Y3 – iprogram, Y4 – iprogram, Y5 – iprogram, Y6 – iprogram, icreate and icommunicate)**
- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration **(Y3 – ioffice, icreate, icommunicate, Y4 – icreate, icommunicate, Y5 – icommunicate, Y6 – icreate and icommunicate)**
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **(Y3 – icreate and icommunicate, Y4 – ijam, icreate and icommunicate, Y5 – ijam, ioffice and icreate, Y6 – ijam and ioffice)**
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information **(Y3 – iprogram, icreate, icommunicate and ioffice, Y4 – ijam, iprogram, icommunicate and ioffice, Y5 – ijam, iprogram, icreate, icommunicate and ioffice, Y6 – ijam, iprogram, icreate, icommunicate and ioffice)**

- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **(All year groups, in all topics)**