

Assessing attainment in computing: a national curriculum framework (ISTE standards in purple)

	CS	IT	DL
1	<p>Understand what algorithms are</p> <p>Create simple programs</p>	<p>Use technology purposefully to create digital content</p> <p>Use technology purposefully to store digital content</p> <p>Use technology purposefully to retrieve digital content</p>	<p>Use technology safely</p> <p>Keep personal information private</p> <p>Recognise common uses of information technology beyond school</p>
2	<p>Understand that algorithms are implemented as programs on digital devices</p> <p>Understand that programs execute by following precise and unambiguous instructions</p> <p>Debug simple programs</p> <p>Use logical reasoning to predict the behaviour of simple programs</p>	<p>Use technology purposefully to organise digital content</p> <p>Use technology purposefully to manipulate digital content</p> <p>In a collaborative work group, use a variety of technologies to produce a digital presentation.</p>	<p>Use technology respectfully</p> <p>Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies</p> <p>Engage in learning activities with learners from multiple cultures through email and other electronic means.</p> <p>Communicate about technology using developmentally appropriate and accurate terminology.</p>
3	<p>Write programs that accomplish specific goals</p> <p>Use sequence in programs</p> <p>Work with various forms of input</p> <p>Work with various forms of output</p>	<p>Use search technologies effectively</p> <p>Use a variety of software to accomplish given goals</p> <p>Collect information</p> <p>Design and create content</p> <p>Present information</p>	<p>Use technology responsibly</p> <p>Identify a range of ways to report concerns about contact</p>
4	<p>Design programs that accomplish specific goals</p> <p>Design and create program</p> <p>Debug programs that accomplish specific goals</p> <p>Use repetition in programs</p> <p>Control or simulate physical systems</p> <p>Use logical reasoning to detect and correct errors in programs</p> <p>Understand how computer networks can provide multiple services, such as the world wide web</p> <p>Appreciate how search results are selected</p>	<p>Select a variety of software to accomplish given goals</p> <p>Select, use and combine internet services</p> <p>Analyse information</p> <p>Evaluate information</p> <p>Collect data</p> <p>Present data</p>	<p>Understand the opportunities computer networks offer for communication</p> <p>Identify a range of ways to report concerns about content</p> <p>Recognize acceptable / unacceptable behavior</p>

<p>5</p>	<p>Solve problems by decomposing them into smaller parts</p> <p>Use selection in programs</p> <p>Work with variables</p> <p>Use logical reasoning to explain how some simple algorithms work</p> <p>Use logical reasoning to detect and correct errors in algorithms</p> <p>Understand computer networks including the internet</p> <p>Appreciate how search results are ranked</p>	<p>Combine a variety of software to accomplish given goals</p> <p>Select use and combine software on a range of digital devices</p> <p>Analyse data</p> <p>Evaluate data</p> <p>Design and create systems</p> <p>Participate in group learning projects using digital tools with teacher support.</p>	<p>Understand the opportunities computer networks offer for collaboration</p> <p>Be discerning in evaluating digital content</p> <p>Recognise bias in digital resources while researching a topic.</p>
<p>6</p>	<p>Use computational abstractions</p> <p>Model state of real world problems</p> <p>Use a programming language to solve computational problems</p> <p>Understand simple Boolean logic</p> <p>Understand how numbers can be represented in binary</p> <p>Understand the hardware components that make up computer systems</p> <p>Understand how text can be represented digitally in the form of binary digits</p> <p>Understand how pictures can be represented digitally in the form of binary digits</p>	<p>Undertake creative projects with challenging goals</p> <p>Use multiple applications</p> <p>[Work with] applications across a range of devices</p> <p>Collect data</p>	<p>Understand a range of ways to use technology respectfully</p> <p>Recognise inappropriate content</p> <p>Recognise inappropriate contact</p> <p>Recognise inappropriate conduct</p> <p>Know how to report concerns</p> <p>Reuse digital artefacts for a given audience</p> <p>Attend to usability of digital artefacts</p> <p>Understand a range of ways to use technology safely</p>

8	<p>Evaluate computational abstractions</p> <p>Model state of physical systems</p> <p>Model behaviour of real world problems</p> <p>Understand several key algorithms that reflect computational thinking</p> <p>Use at least one additional programming language (that must be textual) to solve computational problems</p> <p>Make use of appropriate data structures</p> <p>Design modular programs that use procedures or functions</p> <p>Understand uses of Boolean logic in programming</p> <p>Be able to carry out simple operations on binary numbers</p> <p>Understand the software components that make up computer systems</p> <p>Understand how instructions are stored by computer systems</p> <p>Understand how text can be manipulated digitally in the form of binary digits</p> <p>Understand how sounds can be represented digitally in the form of binary digits</p> <p>Understand how pictures can be manipulated digitally in the form of binary digits</p>	<p>Combine multiple applications to achieve challenging goals</p> <p>Analyse data</p> <p>Meet the needs of known users</p> <p>Create original animations or videos documenting school, community, or local events.</p>	<p>Revise digital artefacts for a given audience</p> <p>Attend to trustworthiness of digital artefacts</p> <p>Protect online identity</p> <p>Protect privacy</p> <p>Participate in a cooperative learning project in an online learning community.</p>
9	<p>Design computational abstractions</p> <p>Model behaviour of physical systems</p> <p>Use logical reasoning to compare the utility of alternative algorithms for the same problem</p> <p>Develop modular programs that use procedures or functions</p> <p>Understand uses of Boolean logic in circuits</p> <p>Understand how computer systems components communicate with one another</p> <p>Understand how computer systems communicate with other systems</p> <p>Understand how instructions are executed by computer systems</p> <p>Understand how sounds can be manipulated digitally in the form of binary digits</p>	<p>Create digital artefacts for a given audience</p> <p>Select multiple applications to achieve challenging goals</p> <p>Use collaborative electronic authoring tools to explore common curriculum content from multicultural perspectives with other learners.</p> <p>Integrate a variety of file types to create and illustrate a document or presentation.</p> <p>Independently develop and apply strategies for identifying and solving routine hardware and software problems.</p>	<p>Repurpose digital artefacts for a given audience</p> <p>Attend to design of digital artefacts</p> <p>Understand a range of ways to use technology securely</p> <p>Understand a range of ways to use technology responsibly</p> <p>Gather data, examine patterns, and apply information for decision making using digital tools.</p> <p>Evaluate digital resources to determine the credibility of the author and the publisher and the timeliness and accuracy of digital content.</p>

The text above is derived directly from the [2014 national curriculum programmes of study for computing](#), under the terms of the [open government licence 2.0](#). The organisation in this form is intended to support teachers in forming judgments of their pupils' achievement of and progress towards the statutory 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."

The statements for KS1 and KS2 were included in this form in 'Computing in the national curriculum: a guide for primary teachers' available from [Computing at School](#) and [Naace](#). The numbering given here is for convenience only.