



# Computing Policy

The aim of this document is to provide an overview to the new Computing Curriculum and a programme of study across the Key Stages. It should also serve as a glossary of terms allowing a clear understanding.

The national curriculum for computing has four main 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.

## **Assessment**

By the end of each Key Stage, pupils are expected to know, apply and understand the matters, skills and processes outlined in the relevant programme of study.

## **Glossary of Terms**

### **Abstraction**

Only focussing on the details relevant to the task, in computing this may be by using a database to handle data. In doing this the data can be looked at in specific groups. An example is using Target Tracker to show the progress of pupils on Pupil Premium.

### **Logic**

The non-arithmetic operations performed by a computer, such as sorting, comparing, and matching, that involve yes-no decisions. This might be completed using programs such as Excel or Flowol.

### **Algorithms**

The step-by-step procedure for a machine to complete a task, for example the instructions given to a pro-bot to guide it round a track, or the instructions put into a bee-bot to guide it through a maze.

### **Data Representation**

The way in which information is presented. In its simplest form this could be representing a data set as a graph. However it is also using the appropriate software for the task. Not everything has to be done in Word or PowerPoint.

Overview of Curriculum/Programme of Study  
(See appendix 1)



## Computing Curriculum 2014

### **Purpose**

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. By 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 Target**

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.

### **Enrichment Opportunities**

## **National Curriculum Computing Program of Study (PoS) - (split into smaller objectives)**

### **Key stage 1**

Pupils should be taught to:

- (A) understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- (B) create and debug simple programs
- (C) use logical reasoning to predict the behaviour of simple programs
- (D) use technology purposefully to create, organise, store, manipulate and retrieve digital content
- (E) recognise common uses of information technology beyond school
- (F) 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.

## **Computing Program of Study (PoS) - National Curriculum (split into smaller objectives)**

## Key Stage 2

Pupils should be taught to:

- (A) design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- (B) use sequence, selection, and repetition in programs; work with variables and various forms of input and output; use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- (C) 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
- (D) use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- (E) 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
- (F) use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact..

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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Topic	Keeping Safe	Artist	Researcher	Explorer	Garden Centre	Publisher
Year 1	<p><b>Internet Safety</b></p> <p>See lesson plans in TeacherAdminShare(K:) (Folder) COMPUTING (Folder) e-safety FS-Year 1</p>	<p><b>Explore paint program</b> <b>Create a firework picture and Christmas Card. Create a Self Portrait.</b> <b>Explore using digital camera/video/iPad camera</b></p> <p>2 Publish 2 Paint a Picture Colour Magic Paint Package</p>	<p><b>Navigate e-books</b> Oxford Owl <a href="http://www.oxfordowl.co.uk/">http://www.oxfordowl.co.uk/</a></p> <p><b>Voice recorders to record own version of the story</b></p>	<p><b>Program floor robot/screen character</b></p> <p><b>Children use Beebot to find treasure</b> · Treasure map 10cm x 10cm squares · Flash cards to help sequence route</p> <p><b>Tynker Puppy Adventure</b> <a href="http://www.brainpop.co.uk/games/tynkerpuppyadventure/">http://www.brainpop.co.uk/games/tynkerpuppyadventure/</a></p>	<p><b>Explore a range of Simulations</b></p> <p><u>Seed Packet Printer</u> 2Simple City 2Science Simulations</p> <p><u>Science Clip Growing Plants</u></p> <p><u>Seed Song Kent ICT</u></p>	<p><b>Create an e-book based on a fairy tale</b></p> <p>2Create A Superstory</p> <p>Story Bird (online)</p>
PoS	F	D E	F	A B C	C D	D

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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Topic	Keeping Safe	Journalist	Builder	Photographer	Animators	Jesters
Year 2	<p><b>Internet Safety</b></p> <p>See lesson plans in TeacherAdminShare(K:) (Folder) COMPUTING (Folder) e-safety Year 2</p> <p>Mobile Phone Guidance <a href="http://www.phonebrain.org.uk/under-sevens/">www.phonebrain.org.uk/under-sevens/</a></p>	<p><b>Create a front page of a newspaper/ leaflet</b></p> <p>2 Publish + Publisher</p>	<p><b>What devices do we use to control things (taffic lights, DVD, Sky Box etc)</b></p> <p><b>Understand algorithms (Branching database, journey home different routes)</b></p> <p>Lego Wedo</p>	<p><b>Children explore using a camera to take a photo, download them and edit</b></p> <p><b>Create a collage based around a theme</b></p> <p>2Photo Picasa 3 Auto Collage</p>	<p><b>Create a short animation based around a topic</b></p> <p>2Amimate</p>	<p><b>Create two characters to have a conversation or tell jokes using programming skills</b></p> <p>Scratch</p>
PoS	F	D	A B C E	D	D	A B C

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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Topic	Keeping Safe	Restaurateur	Radio Broadcaster	Comic Writer	Director	Driving Instructor
Year 3	<p><b>Internet Safety</b></p> <p>See lesson plans in TeacherAdminShare(K:) (Folder) COMPUTING (Folder) e-safety Year 3</p>	<p><b>Set up a themed (Space, Roald Dahl) Restaurant (business cards, menu, music, posters)</b></p> <p>2Publisher 2Music Toolkit Publisher</p>	<p><b>Record an advert using a voice recorder or easi-speak.</b></p> <p><b>Edit out mistakes using Audacity.</b></p> <p>Audacity Voice recorders</p>	<p><b>Create a comic strip.</b></p> <p><b>Retell a fable or create a fable of your own.</b></p> <p><b>Practice typing.</b></p> <p>Comic Life 2Publish MS PowerPoint MS Word 2Create 2Type <u>Dance Mat</u></p>	<p><b>Film a video and edit it.</b></p> <p>Video camera Movie Maker</p>	<p><b>Program a floor turtle to draw a range of shapes or navigate a maze.</b></p> <p>Probots Scratch (make a track) Textease CT</p>
PoS	F	E	E F	E	E	A B



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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Topic	<b>Internet Safety</b>	News Broadcaster	Programmer	Scientist	Analysts	Artist 2
Year 4	<p><b>e-safety</b></p> <p>See lesson plans in TeacherAdminShare(K:) (Folder) COMPUTING (Folder) e-safety Year 4</p>	<p><b>Create a news broadcast or report based on a topic.</b></p> <p>Audacity/ Podium Movie Maker Video camera</p>	<p><b>Draw a shape on the wall using Scratch. Create own game.</b></p> <p>2DIY 2Go Kodu</p>	<p><b>Use data logger to collect data from science experiments (light, sound, temperature).</b></p> <p><b>Create a database of different habitats.</b></p> <p><b>Explore science simulations.</b></p> <p>Data logger <u>BBC Science Clips</u> Information workshop</p>	<p><b>Create a database of information and produce graphs.</b></p> <p><b>Understand inaccuracies in information or reliability.</b></p> <p><b>Search the same info using different search engines.</b></p> <p>Information workshop Textease CT <u>Who Dunit</u> <u>All About Explorers</u> <u>Dog Island</u> <u>Tree Octopus</u></p>	<p><b>Use a paint package to recreate pictures in the style of different artists (Seurat, Monet etc)</b></p> <p>2Paint a Picture Paint Textease Paint</p>
PoS	F	E	A B	B E	C D	E

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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Topic	<b>Internet Safety &amp; Networker</b>	<b>Game Maker 1</b>	<b>Weather Reporter</b>	<b>Architects &amp; Interviews</b>	<b>Driving Instructor 2 / Fairground Designer</b>	<b>Animator 2</b>
Year 5	<p><b>e-safety</b></p> <p>See lesson plans in TeacherAdminShare(K:) (Folder) COMPUTING (Folder) e-safety Year 5</p> <p><b>Find out how the internet works; about hubs, servers, routers etc.</b></p>	<p><b>Design a game either based on a traditional game or create their own.</b></p> <p><b>(Explore Variables)</b> <u>Duck Builder</u></p> <p>Scratch 2DIY</p>	<p><b>Use Green Screen to create a weather forecast or news report.</b></p> <p><b>Create a multimedia presentation all about weather.</b></p> <p><b>Data logger around the school and create graphs</b></p> <p>Backdrop TV PowerPoint Movie Maker Excel 2Calculate</p>	<p><b>Design a new school building.</b></p> <p><b>Interview someone using Voice Recorders (edit content) or video Conferencing.</b></p> <p>Google Sketch Up PowerPoint Audacity Voice Recorders/ Easi-Speak</p>	<p><b>Use Probots/Floor Turtle with Sensors.</b></p> <p><b>Design a fairground with Lego Wedo</b></p> <p>NXT Lego 2Control NXT</p>	<p><b>Create a stop frame animation (advert maybe)</b></p> <p>2Animate</p>
PoS	C F	A B	B E	C E F	A B	E

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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Topic	<b>Internet Safety</b>	<b>Trip Organiser</b>	<b>Game Maker 2</b>	<b>Environmentalist</b>	<b>Tour Guide</b>	<b>Entrepreneur</b>
Year 6	<p><b>e-safety</b></p> <p>See lesson plans in TeacherAdminShare(K:) (Folder) COMPUTING (Folder) e-safety Year 6</p>	<p><b>Plan a trip/ party using spreadsheets to work out costs.</b></p> <p>MS Excel</p>	<p><b>Design own game.</b></p> <p>Kodu</p>	<p><b>Create a database to help identify trees/ insects around the school/ village. Take photos to use in your branching database making links with algorithms.</b></p> <p><b>Create a range of graphs to display data.</b></p> <p>2Investigate MS Excel</p>	<p><b>Create a virtual tour of the school to inform new parents.</b></p> <p>PowerPoint Video Cameras Voice Recorder Photo Story 2 Movie Maker</p>	<p><b>Compile a range of different ways to promote a new product. (making advert, posters, design product packaging, blog, work out costing to sell and market.</b></p> <p>MS Excel Publisher Paint Package Movie Maker Audacity etc</p>
	F	E	A B	E	E	C E

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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Topic	<b>Internet Safety</b>					
	<b>e-safety</b>					

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Year Group	NC Objectives covered			
Year 3	<ul style="list-style-type: none"> <li>· design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>· use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>· use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	Scratch 1.4 Computing Suite  Smoking Car Game(2) Music Machine(4) Dressing Up Game(2) Getting Up Algorithm(3)		
	<ul style="list-style-type: none"> <li>· use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> </ul>			
	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			
	use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.			