**Computing**

**Key Stages 1 and 2**

Resources to help you teach the 2014 curriculum for computing

**KS1 Computing**

Pupils should be taught to:

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| * understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
 | * [**Algorithm cards**](http://www.tes.co.uk/teaching-resource/Algorithm-Cards-6413232/)Help pupils to learn about putting instructions into order using these cards.
* [**Algorithm wall chart**](http://www.tes.co.uk/teaching-resource/Algorithms-wall-display-caption-6407039/)Create a display of algorithm definitions and examples in your classroom.
* [**Flow charts for instruction writing**](http://www.tes.co.uk/teaching-resource/Flow-charts-for-instruction-writing-6069187/)Use these blank templates for familiarising pupils with instruction writing and algorithms.
* [**Direction cards**](http://www.tes.co.uk/teaching-resource/Direction-card-for-following-instructions-3007330/)These cards help pupils to understand precise instructions before programming Roamers and Bee-Bots.
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| * create and debug simple programs
 | * [**Planning for floor robots**](http://www.tes.co.uk/teaching-resource/Planning-for-floor-robots-6066731/)Detailed termly-planning documents for using floor robots in your classroom.
* [**Bee-Bot planning sheet**](http://www.tes.co.uk/teaching-resource/Children-and-39-s-Instruction-planning-sheet-for-Bee-bots-6218057/)Instruction cards to help children to write instructions for programming Bee-Bots.
* [**Bee-Bot lesson plan**](http://www.tes.co.uk/teaching-resource/y2-bee-bots-lesson-plan-6097891)Pupils direct a Bee-Bot across a grid to a set destination, learning simple programming and debugging skills.
* [**Can you draw a rectangle?**](http://www.tes.co.uk/teaching-resource/Logo-Can-you-draw-a-rectangle-6081531/)A worksheet for pupils to write and record instructions for drawing a rectangle in Logo.
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| * use logical reasoning to predict the behaviour of simple programs
 | * [**Turtle planning**](http://www.tes.co.uk/teaching-resource/Preparation-for-the-Turtle-Programme-6171070/)In this activity, pupils learn simple programming and predict how a floor robot may move to make different shapes.
* [**Floor turtle**](http://www.tes.co.uk/teaching-resource/Unit-2D-Floor-turtle-SETTING-THE-SCENE-6081283/)Pupils programme control devices and predict their movements based on instructions.
* [**Moon challenge**](http://www.tes.co.uk/teaching-resource/BeeBot-Moon-map-challenge-6145511)An activity and record sheet for pupils to map, record and predict the path of a control device.
* [**Pro-Bot floor turtle**](http://www.tes.co.uk/teaching-resource/Year-2-Floor-Turtle-Resources-6140411/)Detailed planning and activity documents for teaching pupils how to control a Pro-Bot floor turtle.
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| * use technology purposefully to create, organise, store, manipulate and retrieve digital content
 | * [**Minibeast database**](http://www.iboard.co.uk/activity/Minibeast-Database-110)Gather data to make index cards for sorting minibeasts with this *TESiboard* activity.
* [**Finding information**](http://www.tes.co.uk/teaching-resource/ICT-scheme-of-work-Finding-Information-6079127/)Termly-planning documents and activity materials for pupils to find, store and organise information.
* [**Yes/No diagrams**](http://www.tes.co.uk/teaching-resource/Yes-No-diagrams-ICT-6082217/)A set of worksheets for pupils to practise using branching databases.
* [**Virtual class data cards**](http://www.tes.co.uk/teaching-resource/Virtual-Class-Data-Cards-6073793/)Use these editable data cards for a variety of database and organisation activities.
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| * recognise common uses of information technology beyond school
 | * [**Robots**](http://www.tes.co.uk/teaching-resource/Robots-6350872/)Introduce students to robots and machines, how they function and how they are used in society.
* [**How a supermarket works**](http://www.tes.co.uk/teaching-resource/How-a-supermarket-works-6416641/)A lesson plan and activity to explain to pupils how information is used in a supermarket.
* [**Mars Rover**](http://www.tes.co.uk/teaching-resource/The-Mars-Rover-all-terrain-vehicle-6172774/)This video from *BBC Class Clips* shows how the Mars Rover uses information technology, remote control and wireless communication.
* [**Computers in agriculture**](http://www.tes.co.uk/teaching-resource/Computers-in-Agriculture-6177080/)Explore how computers are used to help farmers and how machines are used in agricultural processes.
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| * 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.
 | * [**Internet safety lesson**](http://www.tes.co.uk/teaching-resource/Internet-safety-and-cyber-bullying-lesson-6086277/)Pupils explore the benefits and dangers of the internet, looking at how they can stay safe online.
* [**Online safety lesson plan**](http://www.tes.co.uk/teaching-resource/Online-Internet-Safety-Lesson-Plan-and-Resources-6339190/)A set of detailed lesson plans and activities to outline the importance of staying safe online.
* [**Safer internet primary lesson plan**](http://www.tes.co.uk/teaching-resource/Safer-Internet-Day-Primary-Lesson-Plan-6374201/)This lesson plan encourages pupils to identify and explore what they think a better internet might look like.
* [**Staying safe online**](http://www.tes.co.uk/teaching-resource/Kidsmart-Staying-safe-online-6163925/)Pupils are given a number of scenarios to respond to with regards to staying safe online.
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**KS2 Computing**

Pupils should be taught to:

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| * design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
 | * [**Scratch guide**](http://www.tes.co.uk/teaching-resource/Scratch-Curriculum-Guide-6114725/)A series of 20 lessons to teach pupils the basics of Scratch programming.
* [**Scratch programming lesson**](http://www.tes.co.uk/teaching-resource/Scratch-KS2-Programming-Lesson-Sequence-6317926/)Video tutorials and guides for a series of Scratch lessons.
* [**Scratch task booklet**](http://www.tes.co.uk/teaching-resource/Scratch-Task-Booklet-6411912/)Use this Scratch task booklet to introduce pupils to programming.
* [**Scratch scheme**](http://www.tes.co.uk/teaching-resource/6-Week-KS2-Scratch-SOW-6419636/)A six-week, introductory scheme of work with pupil and teacher guides, activities and tasks.
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| * use sequence, selection, and repetition in programs; work with variables and various forms of input and output
 | * [**Scratch sequence**](http://www.tes.co.uk/teaching-resource/Program-a-traffic-lights-sequence-in-Scratch-6427678/)Instructions for how to create a simple program involving traffic lights appearing and disappearing in sequence.
* [**Scratch programming**](http://www.tes.co.uk/teaching-resource/KS1-2-3-Scratch-Science-Lesson-Sequence-6405811/)A scheme of work to introduce students to basic computer programming concepts through games in Scratch.
* [**RoboMind**](http://www.tes.co.uk/teaching-resource/RoboMind-Getting-Started-6317147/)

Introduction to RoboMind, where pupils learn how to use the program and how to choreograph their own virtual robot dance.* [**Input/output**](http://www.tes.co.uk/teaching-resource/Input-Output-6263672/)

A simple activity for pupils to consolidate learning about input and output. |
| * use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
 | * [**Algorithms**](http://www.tes.co.uk/teaching-resource/Algorithms-6402943/)Exercises and a presentation to describe how algorithms work.
* [**Human crane algorithm**](http://www.tes.co.uk/teaching-resource/-6416640)Pupils create and test crane algorithms that move blocks from one bowl to another.
* [**Jam sandwich algorithm**](http://www.tes.co.uk/teaching-resource/Jam-Sandwich-Algorithm-Program-your-teacher-6416657/)Use a simple programming language to write an algorithm to instruct Sandwichbot 2000 to create a sandwich.
* [**Sorting algorithms**](http://www.tes.co.uk/teaching-resource/KS3-Computing-Sorting-Algorithms-6342624/)This teacher guide and activities for pupils cover sorting algorithms.
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| * 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
 | * [**How the internet works**](http://www.tes.co.uk/teaching-resource/How-the-Internet-works-6432256/)A short PowerPoint presentation showing how information is sent and received through the internet.
* [**Internet research: Fact or fiction**](http://www.tes.co.uk/teaching-resource/Internet-Research-Fact-or-Fiction-6233653/)Discuss how the internet can be used for research and publishing information.
* [**Understanding the internet**](http://www.tes.co.uk/teaching-resource/Understanding-the-internet-6390268/)Help pupils to gain an understanding of how the internet works.
* [**Blogging the classroom**](http://www.tes.co.uk/teaching-resource/Blogging-in-the-classroom-6387614/)A crib sheet for producing your own blog.
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| * use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
 | * [**Searching the internet**](http://www.tes.co.uk/teaching-resource/Searching-the-internet-6029371/)Activity sheet and guide for pupils to use as part of an internet search task.
* [**Internet research**](http://www.tes.co.uk/teaching-resource/Internet-Research-Activity-6031527/)Information and questions on the internet, parts of a URL and the benefits of internet research.
* [**Finding out**](http://www.tes.co.uk/teaching-resource/Finding-out-with-the-internet-6018127/)This lesson from *Hwb Welsh Government* gives instruction and advice on how to use the internet to find and evaluate information.
* [**Internet searching task**](http://www.tes.co.uk/teaching-resource/Web-browsers-and-searching-the-internet-task-6334733/)A set of questions on web browsing and finding information on the internet.
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| * 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
 | * [**Web design**](http://www.tes.co.uk/teaching-resource/Web-Design-Year-6-Google-Pages-6322901/)Pupils build a live web page based on their hobbies – looking at how a page is built, and what elements are needed for a successful site.
* [**Movie trailers**](http://www.tes.co.uk/teaching-resource/Creating-Movie-Trailers-using-Imovie-on-iPad-6329169/)A guide to creating movie trailers on iPads.
* [**Introduction to HTML**](http://www.tes.co.uk/teaching-resource/Introduction-to-HTML-6376042/)This lesson from *Codecademy* provides an introduction to HTML, CSS, jQuery, and Javascript.
* [**Introduction to databases**](http://www.tes.co.uk/teaching-resource/Introduction-to-Databases-6395095/)A set of activities and guides to introduce pupils to databases.
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| * use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
 | * [**Staying safe online**](http://www.tes.co.uk/teaching-resource/Staying-Safe-Online-Resources-for-Key-Stage-2-6400807/)Activities and resources from *Into Film* to teach pupils about being safe and responsible online.
* [**Safer internet activities**](http://www.tes.co.uk/teaching-resource/Safer-Internet-Day-Primary-Classroom-Activities-6374202/)Eight activities for lessons on internet safety.
* [**Using the internet safely and responsibly**](http://www.tes.co.uk/teaching-resource/Using-the-Internet-Safely-and-Responsibly-6029321/)A PowerPoint activity to help children understand the risks associated with different communication tools and how they can stay safe online.
* [**Cyberbullying lesson plan**](http://www.tes.co.uk/teaching-resource/Cyberbullying-Lesson-Plan-6061963/)Use this lesson plan to encourage young people to gain an understanding of cyberbullying and its consequences.
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