



# Audlem St James C of E Primary School

## Progression in Computing under the 2014 National Curriculum

### 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 a sequence of instructions
- write and test simple programs
- use logical reasoning to predict the behaviour of simple programs
- organise, store, manipulate and retrieve data in a range of digital formats
- communicate safely and respectfully online, keeping personal information private, and recognise common uses of information technology beyond school

### E-Safety in Key Stage 1

#### Knowledge & understanding

- Understand the different methods of communication (e.g. email, online forums, etc.)
- Know you should only open email from a known source
- Know the difference between email and communication systems such as blogs and wikis
- Know that websites sometimes include pop-ups that take them away from the main site
- Know that bookmarking is a way to find safe sites again quickly
- Begin to evaluate websites and know that everything on the internet is not true
- Know that it is not always possible to copy some text and pictures from the internet

#### Skills

- Follow the school's safer internet rules
- Use the search engines agreed by the school
- Act if they find something inappropriate online or something they are unsure of (including identifying people who can help; minimising screen; online reporting using school system, etc.)
- Use the internet for learning and communicating with others, making choices when navigating through sites
- Send and receive email as a class
- Recognise advertising on websites and learn to ignore it
- Use a password to access the secure network

## Key Stage 2

### Pupils should be taught to:

- design and write programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output; generate appropriate inputs and predicted outputs to test programs
- use logical reasoning to explain how a simple algorithm works and to detect and correct errors in algorithms and programs
- 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
- describe how internet search engines find and store data; use search engines effectively; be discerning in evaluating digital content; respect individuals and intellectual property; use technology responsibly, securely and safely
- select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information

## E-Safety in Key Stage 2

### Knowledge & understanding

- Discuss the positive and negative impacts of the use of ICT in their own lives and those of their peers and family
- Understand the potential risk of providing personal information online
- Recognise why people may publish content that is not accurate and understand the need to be critical evaluators of content
- Understand that some websites and/or pop-ups have commercial interests that may affect the way the information is presented
- Recognise the potential risks of using internet communication tools and understand how to minimise those risks (including scams and phishing)
- Understand that some material on the internet is copyrighted and may not be copied or downloaded
- Understand that some messages may be malicious and know how to deal with this
- Understand that online environments have security settings, which can be altered, to protect the user
- Understand the benefits of developing a 'nickname' for online use.

### Skills

- Follow the school's safer internet rules
- Make safe choices about use of technology
- Use technology in ways which minimises risk, e.g. responsible use of online discussions, etc.
- Create strong passwords and manage them so that they remain strong
- Independently, and with regard for e-safety, select and use appropriate communication tools to solve problems by collaborating and communicating with others within and beyond school
- Competently use the internet as a search tool
- Reference information sources
- Use appropriate strategies for finding, critically evaluating, validating and verifying information, e.g. using different keywords, skim reading to check relevance of information, cross checking with different websites or other not ICT resources
- Use knowledge of the meaning of different domain names and common website extensions (e.g. .co.uk; .com; .ac; .sch; .org; .gov; .net) to support validation of information

**COMPUTING**  
**Key Stage 1 - Progressive Statements**

YEAR 1	To Code	To Connect		To Communicate		To Collect	
	<ul style="list-style-type: none"> <li>I understand that computers need precise instructions.</li> <li>I can create a simple program by specifying direction of travel and number of steps needed.</li> </ul>	<ul style="list-style-type: none"> <li>I can find content from the world wide web using a web browser with support.</li> <li>I can understand that some sites are for adults only and are unsuitable for children.</li> <li>I know the importance of communicating safely and respectfully online, and the need for keeping personal information private.</li> <li>I know who to contact if I see something I don't like.</li> </ul>		<ul style="list-style-type: none"> <li>I can use software under the control of the teacher to create, store and edit digital content including text and images.</li> <li>I know that people interact with computers.</li> <li>I can share my use of technology in school.</li> <li>I know common uses of information technology beyond the classroom.</li> <li>I can talk about my work and make changes to improve it.</li> </ul>		<ul style="list-style-type: none"> <li>I know that digital content can be represented in many forms.</li> <li>I know the difference between some of these digital forms and can explain the different ways that they communicate information.</li> <li>I can handle data using simple graphing software.</li> </ul>	
<b>Term</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>
<b>Suggested software / teaching ideas:</b>	<i>We Do 2 project speed</i>	<a href="http://www.google.com">www.google.com</a> <i>eSafety – ask an adult / keep info private / CEOP</i>		<i>Topic Book Contents Page (Word)</i>		<i>Class poster –individual speech bubbles sharing opinions</i> <i>Excel-produced pie charts (children to interpret data)</i>	

**COMPUTING**  
**Key Stage 1 - Progressive Statements**

YEAR 2	To Code	To Connect		To Communicate		To Collect	
	<ul style="list-style-type: none"> <li>I understand what an algorithm is (series of instructions) and that they run on digital devices as programs.</li> <li>I can draw simple linear (non-branching) algorithms.</li> <li>I know that programs run by following precise instructions.</li> <li>I can run, check and debug programs.</li> <li>I can use logical reasoning to predict the behaviour of programs.</li> </ul>	<ul style="list-style-type: none"> <li>I can navigate the web and can carry out simple web searches to collect digital content.</li> <li>I can show use of computers safely and responsibly.</li> <li>I know a range of ways to report unacceptable content and who to contact when online.</li> <li>I can understand that personal information should be kept private</li> <li>I can participate in class social media e.g. blog.</li> </ul>			<ul style="list-style-type: none"> <li>I can use technology with increasing independence to organise, manipulate and present digital content including text, images and sound using appropriate file and folder names.</li> <li>I can share my experiences of technology in school and beyond the classroom.</li> <li>I can talk about my work and make changes to improve it.</li> </ul>	<ul style="list-style-type: none"> <li>I can recognise different types of data: text, number.</li> <li>I appreciate that programs can work with different types of data. I can recognise that data can be structured in tables to make it useful.</li> <li>I can create my own graph using simple graphing software.</li> </ul>	
<b>Term</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>
<b>Suggested software / teaching ideas:</b>	<i>Lego We.Do.2</i>	<a href="http://www.google.com">www.google.com</a> <i>SeeSaw</i> <i>eSafety – how / who to report + keep info private</i>		<i>Topic Book Contents Page (Word)</i> <i>Presentation (PowerPoint)</i>		<i>Presentation (PowerPoint, Word, Publisher, Excel)</i> <i>Pie-charts (Excel, 2Graph)</i>	

**COMPUTING**  
**Key Stage 2 - Progressive Statements**

YEAR 3	To Code	To Connect		To Communicate		To Collect	
	<ul style="list-style-type: none"> <li>I can break an open ended problem up into smaller parts.</li> <li>I can put programming commands into a sequence to achieve a specific outcome.</li> <li>I keep testing my program and can recognise when I need to debug it.</li> <li>I can use repeat commands.</li> <li>I can describe the algorithm I will need for a simple task.</li> <li>I can detect a problem in an algorithm which could result in unsuccessful programming.</li> </ul>	<ul style="list-style-type: none"> <li>I can show an awareness of, and can use a range of internet services e.g. <b>Skype</b>.</li> <li>I know what is acceptable and unacceptable behaviour when using technologies and online services.</li> <li>I can use key words effectively to carry out web searches.</li> <li>I can save and retrieve work on the Internet, the school network or my own device.</li> <li>I can talk about the parts of a computer.</li> </ul>			<ul style="list-style-type: none"> <li>I can recognise the features of good page design in multimedia presentations and consider how these meet the needs of the audience e.g. poster, news paper, menu, instructions.</li> <li>I can compare and contrast the impact of using different words and images from a variety of electronic sources.</li> <li>I can select suitable text and graphics from other electronic sources and import into own work.</li> </ul>	<ul style="list-style-type: none"> <li>I can design a method of collecting and presenting data to others.</li> <li>I can talk about the different ways data can be organised.</li> </ul>	
<b>Term</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>3</b>
<b>Suggested software / teaching ideas:</b>	<i>Lego We.Do.2</i>	<a href="http://www.google.com">www.google.com</a> <i>SeeSaw</i> <i>Saving documents on PupilShare</i> <i>Start of Boolean searching (if, and, not etc)</i> <i>Saving of docs on PupilShare</i> <i>Identify peripheral devices (monitor, keyboard, mouse, screen, printer etc)</i>		<i>Topic Book Contents Page (Word)</i> <i>Presentation (PowerPoint)</i> <i>Poster (Publisher)</i>		<i>Presentation (PowerPoint)</i> <i>Video recording (iPad)</i> <i>VLog post</i>	

**COMPUTING**  
**Key Stage 2 - Progressive Statements**

YEAR 4	To Code	To Connect	To Communicate	To Collect	
	<ul style="list-style-type: none"> <li>I can use an efficient procedure to simplify a program.</li> <li>I can use logical thinking to solve an open ended problem by breaking it up into smaller parts.</li> <li>I know that I need to keep testing my program while I am putting it together.</li> <li>I can use a variety of tools to create a program.</li> <li>I can recognise an error in a program and debug it.</li> <li>I recognise that an algorithm will help me to sequence more complex programs.</li> <li>I recognise that using algorithms will also help solve problems in other learning such as Maths, Science and Design and Technology.</li> </ul>	<ul style="list-style-type: none"> <li>I can show an awareness of, and can use a range of internet services</li> <li>I can give examples of the risks of online communication.</li> <li>I know who to report unsuitable content to when away from school.</li> <li>I understand that website can contain biased information.</li> <li>I can tell you whether a resource I am using is on the Internet, the school network or my own device.</li> </ul>	<ul style="list-style-type: none"> <li>I understand that planning, evaluation and improvement are vital parts of the design process.</li> <li>I understand that ICT allows changes to be made quickly and efficiently.</li> <li>I demonstrate this through editing my work.</li> <li>I recognise intended audience and suggest improvements to make my work more relevant to that audience.</li> <li>I understand that images, sounds and text can be subject to copyright and abide by copyright rules when creating a presentation.</li> </ul>	<ul style="list-style-type: none"> <li>I can organise data in different ways.</li> <li>I can analyse and evaluate data and information.</li> </ul>	
<b>Term</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>3</b>
<b>Suggested software / teaching ideas:</b>	<i>Lego We.Do.2</i>	<i><a href="http://www.google.com">www.google.com</a> + related searches / navigation</i> <i>Fact checking from search results</i> <i>eSafety sessions</i> <i>Biased information / propaganda (history link)</i>	<i>Topic Book Contents Page (Word)</i> <i>Presentation (PowerPoint)</i> <i>Poster (Publisher – edit &amp; evaluation)</i> <i>Copyright lesson</i>	<i>Excel</i>	

**COMPUTING**  
**Key Stage 2 - Progressive Statements**

YEAR 5	To Code	To Connect	To Communicate	To Collect	
	<ul style="list-style-type: none"> <li>I can decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program for a device or onscreen activity.</li> <li>I can use a variable to increase programming possibilities.</li> <li>I can change an input to a program to achieve a different output.</li> <li>I can use 'if' and 'then' commands to select an action.</li> <li>I can talk about how a computer model can provide information about a physical system.</li> <li>I can use logical reasoning to detect and debug mistakes in a program.</li> <li>I use logical thinking, imagination and creativity to extend a program.</li> </ul>	<ul style="list-style-type: none"> <li>I can show an awareness of, and can use a range of internet services e.g. <b>blog</b>.</li> <li>I understand that comments made online which are hurtful or offensive are the same as bullying.</li> <li>I know how search engines rank search results.</li> <li>I can describe different parts of the Internet.</li> </ul>	<ul style="list-style-type: none"> <li>I recognise the features of good design in different printed and electronic texts e.g. poster, website, presentation.</li> <li>I talk about design in the context of my own work.</li> <li>I can select, process and import images, video and sounds from a variety of sources to enhance presentations.</li> <li>I demonstrate awareness of intended audience in my work.</li> <li>I understand the importance of evaluation and adaptation of individual features to enhance an overall presentation.</li> </ul>	<ul style="list-style-type: none"> <li>I can use filters and sort to search for specific information.</li> <li>I can talk about mistakes in data and suggest how it could be checked.</li> </ul>	
<b>Term</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>3</b>
<b>Suggested software / teaching ideas:</b>	<i>Lego We.Do.2 Computer modelling – link to Rivers / weather</i>	<i><a href="http://www.google.com">www.google.com</a> + related searches / navigation Blog posts eSafety sessions + Online Citizenship Boolean search + advertising Parts of internet (<a href="https://quizlet.com/17330192/parts-of-the-internet-flash-cards/">https://quizlet.com/17330192/parts-of-the-internet-flash-cards/</a>)</i>	<i>Compare &amp; contrast digital communication (poster, website, PowerPoint) Import pictures, video, sounds to PowerPoint Edit &amp; Improve (SeeSaw)</i>	<i>Boolean searching Data entry (Excel) &amp; anomalous data</i>	

**COMPUTING**  
**Key Stage 2 - Progressive Statements**

YEAR 6	To Code	To Connect	To Communicate	To Collect	
	<ul style="list-style-type: none"> <li>I can deconstruct a problem into smaller steps, recognising similarities to solutions used before.</li> <li>I can explain and program each of the steps in my algorithm (for a device or on screen activity).</li> <li>I can evaluate the effectiveness and efficiency of my algorithm while I continually test the programming of that algorithm.</li> <li>I can recognise when I need to use a variable to achieve a required output.</li> <li>I can use a variable and operators to stop a program.</li> <li>I can use different inputs (including sensors) to control a device or onscreen action and predict what will happen.</li> <li>I can link errors in a program to a problem in the algorithm on which it is based.</li> </ul>	<ul style="list-style-type: none"> <li>I can show an awareness of, and can use a range of internet services e.g. <b>create my own website using Weebly.</b></li> <li>I understand the risks of online communities.</li> <li>I can explain and show how to minimise risk.</li> <li>I know how to construct static web pages using HTML.</li> <li>I know data transmission between digital computers over networks, including the internet i.e. IP addresses and packet switching.</li> <li>I can investigate bias and evaluate websites.</li> <li>I can describe how information is transported on the Internet.</li> </ul>	<ul style="list-style-type: none"> <li>I select the most appropriate ICT tools for their intended purpose and audience.</li> <li>I understand the potential of multimedia to inform or persuade.</li> <li>I know how to integrate words, images and sounds imaginatively for different audiences and purposes.</li> <li>I routinely evaluate presentations and make improvements, through peer and self assessment.</li> </ul>	<ul style="list-style-type: none"> <li>I can select the most effective tool to collect data for my investigation.</li> <li>I can check the data I collect for accuracy and plausibility.</li> <li>I can interpret the data I collect.</li> <li>I can present the data I collect in an appropriate way.</li> </ul>	
<b>Term</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>3</b>
<b>Suggested software / teaching ideas:</b>	<i>Lego We.Do.2</i>	<i><a href="http://www.google.com">www.google.com</a> + related searches / navigation</i> <i>html page creation (<a href="http://www.wordpress.com">www.wordpress.com</a>)</i> <i>eSafety sessions + Online Citizenship</i> <i>Boolean search + advertising</i> <i>Parts of internet (devices – map from computer to webpage inc. switches etc)</i> <i>Biased information / propaganda (WW2 history link)</i>	<i>Open-ended creation task (word, excel, publisher, access, PowerPoint)</i>	<i>Excel data collation &amp; publication (Science link)</i>	

