

# Computing

## Key Skills Progression Map

Year Group	Computer Science	Creative use of Information Technology	E-Safety and Digital Literacy
1	<ul style="list-style-type: none"><li>• Begin to understand algorithms as a sequence of instructions in everyday contexts.</li><li>• Able to give and follow instructions physically.</li><li>• Program floor turtles using sequences of instructions to implement as an algorithm.</li><li>• Begin to use software to create movement and patterns on a screen.</li><li>• Begin to identify an algorithm to achieve a specific purpose.</li><li>• Begin to use the word debug.</li><li>• Begin to predict what will happen for a short sequence of instructions in a program.</li></ul>	<ul style="list-style-type: none"><li>• Work with others and possibly with support to contribute to a digital class resource which includes text, and graphics.</li><li>• Record own voices and play back to an audience.</li><li>• Use an iPad to record an activity.</li><li>• Create sounds and simple music phrases using ICT tools.</li><li>• Use index fingers (left and right hand) on a keyboard to build words.</li></ul>	<ul style="list-style-type: none"><li>• Understand the importance of keeping passwords private.</li><li>• Understand what personal information is.</li><li>• Know to tell a trusted adult when they see something unexpected or worrying online.</li><li>• Able to talk about why it's important to be kind and polite online.</li><li>• To login and out safely.</li><li>• Understand that information on the internet can be seen by others.</li><li>• Children to understand what is meant by 'technology'.</li></ul>

		<ul style="list-style-type: none"> <li>• Know how to use the space bar to make spaces between words.</li> <li>• Introduce copy and paste.</li> <li>• Use pictograms and basic spreadsheets to record information in Computing.</li> </ul>	<ul style="list-style-type: none"> <li>• Children have considered types of technology used in school and out of school.</li> <li>• Children can record four examples of where technology is used away from school.</li> <li>• Able to show awareness of how IT is used for communication beyond school. (Social media, email and online greeting cards).</li> </ul>
<p style="text-align: center; font-size: 2em; font-weight: bold;">2</p>	<ul style="list-style-type: none"> <li>• Showing independence of their understanding of what an algorithm is.</li> <li>• Independently understands the commands forward, backwards, left and right.</li> <li>• Begins to understand the terms clockwise, anticlockwise and right angle turn.</li> <li>• Execute an algorithm to achieve a purpose.</li> <li>• Plan and enter a sequence of instructions to achieve an algorithm with a robot.</li> <li>• Understand the term debug and can debug problems in a program.</li> <li>• Predict what will happen in a program and test results.</li> </ul>	<ul style="list-style-type: none"> <li>• Create own work (possibly with support) combining graphics, text and sound using an increasing variety of tools and effects in Paint programs.</li> <li>• Present information using different mediums such as slides and leaflets.</li> <li>• Use keyboard to enter text using index fingers.</li> </ul>	<ul style="list-style-type: none"> <li>• Can keep safe and show respect to others while using digital technology.</li> <li>• Know how to use filtered SafeSearch when looking for images or information on the web. Link with understanding what the internet is and what it can be used for.</li> <li>• Consider not everything on the internet is accurate or true.</li> </ul>

- Able to give logical explanations for what they think a program will do.

#### Scratch Junior

- Moving in steps.
- Use direction and turn.
- Use text.
- Show and hide.
- Change features of an object.

- Know how to use the return and enter key.
- Use the shift and caps lock keys to enter capital letters.
- Use delete and backspace keys to correct text.
- Create sentences, save, retrieve and save work independently.
- Become more independent in using the copy and paste facility.
- Use multi-entry spreadsheets and basic databases in various area across the curriculum.

- Begin to understand the use of email and collaborate in an email activity as a class.
- Observe age restrictions when playing games out of school.
- Ask before taking photos of others.
- Know what to do if they encounter inappropriate content online.
- Acknowledge the source of information they use.
- Check that it is safe to open files attached to emails and to respond to emails.
- Can understand that they should not share personal information online.
- The child should understand that personal information should be kept private.
- Personal information should not be posted online to a public audience and should only be shared privately with

			<p>those who they (or their parents) would trust.</p> <ul style="list-style-type: none"><li>• Able to recognise that photos they take in school should not normally be posted to the open web.</li><li>• They should know that photos taken with smartphones often contain hidden information about where the photo was taken.</li><li>• Know what to do if they have concerns about content or contact online.</li><li>• The child should know to close the laptop lid click 'x', shutdown, tell an adult or turn an iPad over if they find content, such as inappropriate images, which might disturb them or other children.</li><li>• If someone makes inappropriate contact online or something upsets them. They should know to tell</li></ul>
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			<p>their teacher or their parents if this happens, and be aware that they could talk to another trusted adult or to ChildLine about this.</p> <ul style="list-style-type: none"> <li>• The child can name a number of purposes for which IT is used beyond school.</li> </ul>
<p style="text-align: center; font-size: 2em; font-weight: bold;">3</p>	<ul style="list-style-type: none"> <li>• Can design and write a program using a block language.</li> <li>• Can explore simulations of physical systems on screen.</li> <li>• Can write a program to produce output on screen.</li> <li>• The child can use logical reasoning to detect errors in programs.</li> <li>• Use a specified set of co-ordinates to control movement.</li> <li>• Begin to solve problems by decomposing them into smaller parts.</li> <li>• Able to use sequence in programs- repeat etc.</li> <li>• Set the appearance of an object and create a change of look in their programme.</li> </ul>	<ul style="list-style-type: none"> <li>• Create and begin to edit presentation documents including text, font, size, colour, alignment etc for purpose.</li> <li>• Use a range of effects in art to include brush sizes.</li> <li>• Video a performance/ create a screencast.</li> <li>• Use shift key.</li> <li>• Amend text by highlighting - select-delete and copy/paste</li> <li>• Begin to use individual fingers to input text.</li> </ul>	<ul style="list-style-type: none"> <li>• Know how they need to keep themselves safe when using digital technology. Keep personal information private.</li> <li>• Understand they should show respect for others when filming and should not normally post videos online without understanding the rules concerned.</li> <li>• They should know to treat attachments in emails with caution.</li> <li>• Able to identify what would be unacceptable or inappropriate behaviour when using digital technology in a range of contexts.</li> </ul>

- Begin to create sounds of their own and adjust the volume.
- Control pen- colour, size shape and size.
- Begin to specify conditions to trigger events:- Begin to use IF THEN conditions to control an event or objects in a programme.
- Use the sensing facility. Proximity to a colour/line etc.
- Use variables to store information e.g. a scoring system.
- Use reporter code blocks.
- Know that email messages are sent and received through servers connected to the internet.
- The child can understand that computer networks transmit information in a digital (binary) format.

- Create basic tables/bar graphs.
- Find locations in spreadsheets and use basic branching databases in Maths, Science and Computing.

- Consider taking photos, videos, or publishing any of these. Playing games online. Social media.
- They should know what unacceptable use of email would be.
- Pupils should know how to report inappropriate behaviour when using technology in School to their teacher, the Network Manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in School.
- Able to form a judgement about whether a web page is appropriate for finding out the answer to a question they have or for a given purpose.
- When working as part of the class, the child can use email effectively.

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- Deconstruct a program.
- Use a series of conditions to trigger different events.
- Use a series of IF THEN conditions to control events.
- Use sensing proximity/user input.
- Variables - scoring system-set, change, show and hide to control variables.
- Set the appearance of an object and create a series of changes after a specified amount of time or user input.
- Create and test a range of coordinates to control movement.
- Change the shade of pen used considering the look it will create.
- Predict the behaviour of simple programs. Use the comment box in Scratch.
- () + ()
- () - ()
- () \* ()
- () / ()

- Show increased confidence in creating and modifying text and presentation documents for a purpose.
- Use online tools to modify photos/videos.
- Use bullet points.
- Use spell check.
- Use transitions and hyperlinks.
- Critique own work and work of others.
- Understand search engines rank pages according to relevance.
- Create tables, more advanced bar graphs, pie charts, basic line graphs and use

- Can use email independently.
- Consider copyright and anything you create, you own.
- Know who to talk to about concerns and inappropriate behaviour at home or in school.
- The child can understand the difference between acceptable and unacceptable behaviours when using digital technology.
- Able to plan a range of resources to help parents and children understand online safety.
- Identify key words to search for information.
- **HTML**
- Understand HTML forms basis of webpages.
- Can form web pages using text and images.
- Can create own web page.
- Can create own e-card in HTML.

	<p><b><u>Hardware Investigation</u></b></p> <ul style="list-style-type: none"> <li>• Able to name the different parts of a desktop computer.</li> <li>• Know what the function of the different part of a computer is.</li> <li>• Understand the differences between the web and the internet.</li> <li>• Understand differences between software and hardware.</li> <li>• Understand what a network is.</li> </ul>	<p>formula to generate spreadsheets.</p> <ul style="list-style-type: none"> <li>• Use data logger to record and compare readings.</li> </ul>	
<p><b>5</b></p>	<ul style="list-style-type: none"> <li>• Able to independently deconstruct code to predict their action and errors. Fix the errors.</li> <li>• Use IF code to alter rotation of an object.</li> <li>• Begin to change the position of an object considering the look it gives their programme.</li> <li>• Combine pen and movement to add interesting effects.</li> <li>• Use broadcasted text to trigger different events.</li> <li>• Use IF, THEN, ELSE conditions to control events.</li> <li>• Use a range of sensing tools (proximity /mouse position) to control events.</li> </ul>	<ul style="list-style-type: none"> <li>• Can use and combine a range of programs on multiple devices.</li> <li>• Can independently select, use and combine a variety of software to accomplish given goals, including collecting, presenting data and information.</li> <li>• Able to design and create programs on a computer in response to a given goal.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand the importance of keeping personal information safe.</li> <li>• The child can demonstrate that they can act responsibly when using the internet.</li> <li>• Understand use of strong passwords to protect identity online.</li> <li>• Able to discuss the consequences of behaviours when using digital technology.</li> <li>• Know how to report concerns and inappropriate behaviour in a range of contexts.</li> </ul>

- Use a list to create a set of variables.

Be able to use the following:-

() < ()

() = ()

() > ()

() and ()

() or ()

Not ()

- Can understand how data routing works on the internet.

- Can analyse and evaluate information.
- Select appropriate use of a data logger for an investigation and interpret findings.
- The child can use filters to make more effective use of a standard search engine.
- Can understand that search engines use a cached copy of the crawled web to select and rank results.
- Able to talk about different elements on a web page.

- Able to decide whether digital content is reliable and unbiased.
- Choose appropriate tools for communication and collaboration (Blogging).

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- Be able to identify bugs and debug as necessary.
- Able to improve and modify code to increase performance of a program.
- Use IF code blocks to alter co-ordinates and rotation of an object.
- Know how to use the screen layers facility-background/foreground.
- Pens and movement- series of different shades and areas of the screen used for drawing.
- Use broadcast text and other inputs to trigger different events.
- Use IF THEN ELSE conditions to control several events.
- Use a range of sensing tools to control events. Use lists of variables to enhance program.

In addition to using previous year group operators can now use  
Random () to ()  
Join () ()

- Able to discuss audience, atmosphere and structure of a presentation or video.
- Collect information and media from a range of sources (considering copyright) into a presentation.
- Use sound, text, transitions, hyperlinks and HTML code in a presentation. (Network project)
- Evaluate the effectiveness of their own work and work of others.
- Able to analyse, evaluate and present data.
- Able to interrogate a database, refining

- Understand how domain names are converted into IP addresses on the internet.
- Understand the importance of keeping personal information safe.
- (The child can identify some principles underpinning acceptable behaviour when using technologies in a range of contexts. Contexts could include smartphone or tablet use; the use of online project management tools; online surveys and recording of interviews; creating and sharing digital content).
- Know a range of ways to report concerns and inappropriate behaviour in a variety of contexts.
- Pupils should know how to report inappropriate behaviour when using technology in school;

		<p>searches to answer questions.</p> <ul style="list-style-type: none"><li>• Plan investigations using outcomes from a data logger to show findings.</li><li>• Able to make use of a range of search engines appropriate to finding information that is required.</li><li>• Can appreciate that search engines rank pages based on the number and quality of in-bound links.</li></ul>	<p>preferably this will be to their teacher, the network manager or another trusted adult. They should know how to report any concerns over, or inappropriate behaviour with, digital technology at home. Preferably this would be through discussion with their parents, with you or with another trusted adult. Pupils should also know how to report inappropriate behaviour to those running websites which they regularly use, and to ChildLine, CEOP or the police.</p> <ul style="list-style-type: none"><li>• Able to form an opinion about the effectiveness of digital content.</li></ul>
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