

## Computing - Lower Key Stage Two

<u>Pupils should be taught to:</u>	<u>How we do this in Y3</u>	<u>How we do this in Y4</u>	<u>Apps/Software</u>	<u>Vocabulary</u>	<u>Notes and resources</u>
<p>design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p>	<p>Y3 pupils will build on their knowledge from KS1 and use online coding to strengthen their algorithm and debugging skills. We will do this by:</p> <ul style="list-style-type: none"> <li>• Debugging sessions, where the children will use everyday and computing skills to debug a series of items (both computing related and everyday occurrences)</li> <li>• Children will use programming to make their vehicles move in any direction and be able to explain how they succeeded to do so.</li> </ul>	<p>This is made more challenging in Y4 by introducing different ways to program interaction. We do this by:</p> <ul style="list-style-type: none"> <li>• Children will strengthen their skills from Y3 by incorporating if/else statements and using a timer to manipulate characters. This links well with input and output.</li> </ul>	<p><b>Yr3</b> Scratch</p> <p><b>Yr4</b> Scratch Turtle Academy</p>	<p>Linked Vocabulary that both year groups should know:</p> <ul style="list-style-type: none"> <li>• Object</li> <li>• Action</li> <li>• Input</li> <li>• Output</li> <li>• Control</li> <li>• Event</li> <li>• Variable</li> </ul> <p>Children should be encouraged to use the above vocabulary during computing lessons, particularly during their logical reasoning.</p>	<p>Differentiation is by outcome. Some children will produce a game in its simplest form. A more able child will produce a more complex game, relying on excellent programming skills.</p> <p>Links for teaching:  <a href="#">BBC what is an Algorithm</a>  <a href="#">BBC What is decomposition?</a></p>

<p>use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p>	<p>Y3 pupils will meet this learning objective through their lessons on algorithms (see above for guidance). This will also be met by:</p> <ul style="list-style-type: none"> <li>• Children will be expected to be able to use more than, less than and equal to in order to input numbers and data, using variables to enhance skillset.</li> <li>• When pupils design and test their coding/game, pupils are testing through input that there is the desired output.</li> </ul>	<p>Y4 pupils will meet this learning objective through their lessons on algorithms (see above for guidance). This will also be met by:</p> <ul style="list-style-type: none"> <li>• Y4 pupils will be inputting various variable data, creating graphs to showcase results.</li> <li>• Children will be testing their own coding by testing output through input. Y4 children are expected to use reasoning to explain result.</li> </ul>	<p><b>Yr3</b> Scratch iMotion app</p> <p><b>Yr4</b> Scratch Audacity</p>	<p><b>Yr 3</b> Numbers, data, more than, less than, variables, coding, input, output.</p> <p><b>Yr 4</b> Variable data, graphs, results, input, output, logical reasoning, analyse.</p>	<p>Teaching staff should ensure that children have the chance to explore the effect of variables as much as possible, allowing them to test the impact by analysing the output.</p> <p>Examples of how this could be done during spreadsheets and coding could be:</p> <ul style="list-style-type: none"> <li>• When the user is asked a question, IE their age, occupation, favourite colour.</li> <li>• The sprite being set at different speeds or different sized.</li> </ul>
<p>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and</p>	<p>This gives Y3 pupils the chance to enhance their reasoning skills and think computationally. We do this by:</p> <ul style="list-style-type: none"> <li>• Pupils explaining the coding process and</li> </ul>	<p>This gives Y4 pupils the chance to enhance their reasoning skills and think computationally. We do this by:</p> <ul style="list-style-type: none"> <li>• Pupils explaining the coding process and</li> </ul>	<p><b>YR3</b> Microsoft word Scratch J2e.com</p> <p><b>YR4</b> Microsoft word</p>	<p><b>Yr 3</b> Coding, process, algorithms, errors, programs.</p> <p><b>Yr4</b> Creation,</p>	<p>Teachers should encourage children to use computing vocabulary during their answers, and be reflective. Pupils should reflect on their end result, as well as the whole coding process.</p> <p>Possible questions teachers could ask: What do you like about your creation?</p>

programs	reflecting on the strengths and weaknesses of their algorithms.	reflecting on the strengths and weaknesses of their algorithms.	Scratch	abstract, decomposed	What do you not like? What do you think would have happened if the variable was changed to x?
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<p>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</p>	<p>Pupils will be taught this by:</p> <ul style="list-style-type: none"> <li>• Computer Museum - Using the computer museum within the Computer Room to explore the components of a computer.</li> <li>• Children will investigate email as a form of communication, looking at strengths and weaknesses.</li> </ul>	<p><b>Y4</b> children will have a strong understanding of how a computer works, building on previous knowledge. We will do this by:</p> <ul style="list-style-type: none"> <li>• Children will tour the school to see internet cables, WIFI points routers and servers. Children will create an interactive/diagram map of the internet in school.</li> <li>• Creating a know-how leaflet for a specific audience, IE grandparents. It will include: hardware, software, how we access the internet and how we communicate.</li> </ul>	<p><b>YR3</b> Paintz.app</p> <p><b>YR4</b> Microsoft word Google.</p>	<p><b>Yr 3</b> Keyboard, space bar, communicate, email, node, method</p> <p><b>Yr 4</b> Components, peripherals, software, hardware,</p>	<p>Children need to have a strong understanding of how a computer works, not just how to use one. This LO enables children to delve into the components of the computer.</p> <p>Computing Museum - children can explore the main parts of a computer, looking at how they work. Children could be pushed to offer reasoning skills by teacher asking 'would the computer work if x was taken out? Why?'</p> <p>Tour of the school: this will offer the children the chance to see computing outside of the computer room, and look at how the connections work.</p> <p>Links for teaching:  <a href="https://my.matterport.com/show/?m=Vz8kCqGRjQA">https://my.matterport.com/show/?m=Vz8kCqGRjQA</a>  <a href="https://www.lifewire.com/tour-inside-a-desktop-pc-2624588">https://www.lifewire.com/tour-inside-a-desktop-pc-2624588</a>  <a href="#">BBC what is the WWW?</a>  <a href="#">The internet map</a>  <a href="#">The submarine cable map</a>  <a href="#">Map that shows connected devices - and Who has internet access?</a></p>
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<p>use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p> <p><b>These areas could mostly be covered in generic lesson time.</b></p>	<p>Children will be taught about search engines, including internet safety by:</p> <ul style="list-style-type: none"> <li>• Research during topic work. This will be done in classrooms on cohort iPads.</li> <li>• Internet safety sessions (See below for guidance).</li> <li>• Multimedia presentation in Summer1.</li> </ul>	<p>Children will be taught about search engines, including internet safety by:</p> <ul style="list-style-type: none"> <li>• Research during topic work. This will be done in classrooms on iPads.</li> <li>• Internet safety sessions (See below for guidance).</li> <li>• Multimedia presentation in Summer 1.</li> <li>• Comparing search engine results from different engines - Bing, Google, Ask.</li> </ul>	<p><b>YR3 and YR4</b> Internet.</p>	<p><b>Yr 3</b> Compare, search engine, results, relevance, presentation.</p> <p><b>Yr4</b> Uses, blog, vlogs, concept map, variables, links</p>	<p>Children should have opportunity to research independently, enabling them to familiarise themselves with search engines. Topic work is a good opportunity for this and can be done on iPads in KS2.</p> <p>Teachers should continually discuss internet safety and ensure their pupils know how to behave online.</p> <p>Possible questions: What is a search engine? How do they work? Would the results be any different if I removed this one word? How do I know the results are trustworthy? Do I believe everything I read?</p> <p>Links for teaching: <a href="#">BBC How do Search Engines work?</a></p>
<p>select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a</p>	<p>Children will have the opportunity to meet this learning objective by:</p> <ul style="list-style-type: none"> <li>• Creating documents as part of their topic work, IE Word processing (posters/fliers). Data handling charts</li> </ul>	<p>Children will have the opportunity to meet this learning objective by:</p> <ul style="list-style-type: none"> <li>• Creating documents as part of their topic work, IE Word processing (posters/fliers). Data handling charts</li> </ul>	<p><b>Y3/ Y4</b> <b>Software and Apps</b> Pages - Word processing Keynote - Slides Numbers - Graphs/data handling</p>	<p><b>Yr 3</b> Analyse, present, PPT, slides, charts, word processing, photos, multimedia</p> <p><b>Yr 4</b></p>	<p>This lends itself well to cross-curricular activities. Teachers could assess children's understanding of a topic by having them create an online document showcasing their information, while at the same time testing their computing fluency.</p> <p>Ideas:</p> <ul style="list-style-type: none"> <li>• Posters</li> <li>• Non-Chronological reports</li> </ul>

<p>range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information</p> <p><b>These areas could be covered in generic lesson time.</b></p>	<p>(maths). Presentation slides. Audio podcasts Videos.</p> <ul style="list-style-type: none"> <li>• Children will be creating a blog, including graphs, charts and photos.</li> <li>• Multimedia presentation - topic related, summer 1.</li> </ul>	<p>(maths). Presentation slides. Audio podcasts Videos.</p> <p>Y4 will manage this with a greater degree of control and with mixed media.</p> <p>For example slide shows could include additional video material generated in other apps such as iMovie and Explain Everything.</p> <p>Choices of font, colour and design will be more tuned for the target audience.</p>	<p>iMovie Video Adobe spark</p>	<p>Charts, graphs, word processing, mixed media, multimedia, slide shows, iMovie, font, colour.</p>	<ul style="list-style-type: none"> <li>• Newspaper article</li> <li>• Letters</li> <li>• Postcards</li> <li>• Interviews</li> </ul>
<p>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<p>Every first computing lesson of a half term will act as a refresher for the term ahead. Our children will be internet safe by:</p> <ul style="list-style-type: none"> <li>• Internet Safety assembly.</li> <li>• Pupil interviews and surveys.</li> </ul>	<p>Every first computing lesson of a half term will also act as a refresher for the term ahead. Our children will be internet safe by:</p> <ul style="list-style-type: none"> <li>• Internet Safety assembly.</li> <li>• Pupil interviews and surveys.</li> </ul> <p>Internet Safety will also link</p>	<p><b>Yr 3</b> NCCCE Online safety</p> <p><b>YR4</b> NCCCE online safety</p>	<p><b>Yr 3</b> Spoof, spam, fake, scam, mock up, webpage, hackers</p> <p><b>Yr4</b> Concern, scam, hackers, phishing, passwords, spoof, spam.</p>	<p>Each new unit will begin with a focus on internet safety.</p> <p>Internet safety is not to be taught only as stand-alone, it should be an ongoing focus and class teachers should look out for learning opportunities within lessons.</p> <p>IE: Mini plenaries - stopping the children and asking what the best thing child x could do in this situation, and why.</p>

	Internet Safety will also link to PSHE and general classroom rules. Children to be encouraged to be kind online and safe. Continually reinforcing the SMART rules.	to PSHE and general classroom rules. Children to be encouraged to be kind online and safe. Continually reinforcing the SMART rules.			Any concerns should be raised immediately.
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