

Welcome to the Computing Curriculum map for Year 4

Curriculum Overview

YEAR 4	Text & Multimedia	Digital Media (Graphics & Sound)	Digital Research	Data Logging	Programming & Control	Simulations & Modelling	Communication & Collaboration
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Key stage 2

Pupils should be taught to:

- design, write and debug 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
- use logical reasoning to explain how some simple algorithms work 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
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- 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.

Please see below for specific computing modules.

Year 4 Computing- Autumn 1
'Text & Multimedia'

COMPUTING ELEMENT	SKILLS	SOFTWARE TOOLS	CROSS-CURRICULAR LINKS/NOTES
<p>Multimedia & Word Processing</p> <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> I can evaluate a range of electronic multimedia, appropriate to task e.g website, photostory, leaflet, and recognise key features of layout and design With support, I can plan the structure and layout of document/ presentation. I can select and import graphics from digital cameras, graphics packages and other sources and prepare it for processing using ICT. (e.g. cropping, resizing and editing). I can select and import sounds (eg own recording, sound effects bank created by teacher and video/ visual effects into a multimedia presentation). Through peer assessment and self evaluation, I can evaluate work both during and after completion, and make suitable improvements. I can create for a particular audience. <p>When word processing children should:</p> <ul style="list-style-type: none"> I can choose freely from a range of text styles, to suit a particular audience. I can hold two hands over different halves of the keyboard I can use more than two fingers to enter text. I can Use appropriate editing tools to ensure their work is clear and error free, e.g., spell checker, thesaurus, find and replace. 	<p>Multimedia Packages:</p> <p>Powerpoint</p> <ul style="list-style-type: none"> Create slides and add pictures, text, WordArt, Video. <p>Word processing Packages:</p> <ul style="list-style-type: none"> Microsoft Word <p>Microsoft Photostory (as whole class)</p> <ul style="list-style-type: none"> Combines photos into a slideshow and allows sound, voice commentary and titles to be added. <p>Touch Typing Course:</p> <ul style="list-style-type: none"> BBC Dance Mat Typing (www.bbc.co.uk/schools/typing) 2type <p>Teachers Resources:</p> <p>LGFL Audio Network (bank of sounds).</p>	<p><u>CURRICULUM LINKS</u></p> <p>ENGLISH</p> <ul style="list-style-type: none"> Practise writing for different audiences. Use word processing to support the writing of stories, play scripts, poetry and non-fiction genres such as letters and chronological reports.

Year 4 Computing- Autumn 2
'Digital Media (Capturing & Editing Images and Video)'

COMPUTING ELEMENT	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
<p>DIGITAL MEDIA (Capturing & editing images and video) ANIMATION <u>National Curriculum</u></p> <ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> • I can begin to understand how images from different sources (stills, video, graphics, animation) are used to enhance a presentation or communicate an idea. • I understand the need for caution when using the internet to search for images and what to do if I find unsuitable images (See school's Acceptable Use Policy/E-Safety Policy). <p><u>Capturing Images& Video</u></p> <ul style="list-style-type: none"> • I can independently take photographs, taking into account the audience and/or purpose for the image. • I can independently capture video, taking into account the audience and/or purpose for the image. • I can discuss and evaluate the quality of my own and others' captured images and make decisions whether to keep, delete or change them. <p><u>PROJECT</u> 'The Thing That Moved' (manipulating an object so that it looks like it moves by itself)</p> <p><u>Using images and video for a purpose</u> (V.IMPORTANT - To be considered along the capturing and editing process)</p> <ul style="list-style-type: none"> • I understand that planning is a vital part of the design process. • I can plan my animation, then use captured images to create a short animated sequence which communicates a specific idea. • I understand that evaluation and improvement are vital 	<p><u>Capturing images & video</u></p> <ul style="list-style-type: none"> - Digital microscopes - Webcams (at top of computer screen) - cameras - digiblu <p><u>Editing Images & Video for a purpose</u></p> <ul style="list-style-type: none"> - Windows live photo gallery - j2spotlight (accessible through my.uso.im) <p><i>capture images with a webcam which can be edited and have sound added.</i></p> <p><u>J2E (my.uso.im)</u> You could publish the finished work onto our school blog for children and staff to comment on.</p> <p><u>Fun Stuff</u> www.bomomo.com</p>	<p><u>CURRICULUM LINKS</u></p> <p>ENGLISH</p> <ul style="list-style-type: none"> • Create a narrative for 'The Thing that Moved' project. • Create a story board for the story. <p>MATHS</p> <ul style="list-style-type: none"> • Describe the position of a picture. • Rotate image a given number of degrees. • Complete a simple symmetric figure with respect to a specific line of symmetry. <p>SCIENCE</p> <ul style="list-style-type: none"> • The story could link to 'skeletons'

	<p>parts of the design process and ICT allows changes to be made quickly and efficiently.</p> <p><u>Editing Images and Video</u></p> <ul style="list-style-type: none">• I can import music, stills or video into video editing software for a specific project. <p>Images</p> <ul style="list-style-type: none">• I can use basic tools in a software package to change images to suit a particular purpose. (eg resizing/adding an effect). <p>Video</p> <ul style="list-style-type: none">• I can arrange, trim and cut clips to create a short film that conveys meaning.• I can add simple titles, credits and special effects, e.g., transitions.		
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Year 4 Computing- Spring 1 (Week 1-2)
'Digital Research'

COMPUTING ELEMENT	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
<p><u>Digital Research National Curriculum</u></p> <ul style="list-style-type: none"> use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<p>Using the Internet for Research</p> <ul style="list-style-type: none"> I can use a range of child friendly search engines to locate different media, e.g., text, images, sounds or videos. I can develop key questions and key words to search for specific information to answer a problem, e.g., a question such as 'Where could we go on holiday?' would become a search for 'holiday destinations'. I can use appropriate tools to save and retrieve accessed information, e.g., through the use of favourites, history, copy/paste and save as. <p>E-Safety</p> <ul style="list-style-type: none"> I can begin to recognise that anyone can author on the internet and sometimes web content is inaccurate or even offensive. I know that provision is made in schools to filter internet content, recognising this is possibly not the case on computers used at home. I can begin understand the concept of copyright, e.g., what images, videos or sounds are legal and safe to use in their own work. I am aware that copying text directly from websites or non-digital resources is equivalent to stealing other people's work (plagiarism). I understand the need to ignore unwanted advertising or pop-ups as they can inadvertently introduce viruses or spyware onto a computer system. 	<p>Child-friendly search engines</p> <p>Talk about how google can produce sometimes irrelevant and inappropriate content.</p> <p>www.swiggle.org.uk www.kidrex.org</p> <p><i>*Have a specific topic/theme that the children need to research.</i></p> <p>Clicker6</p> <p>Text can be imported and Clicker6 will read it. Key words can be identified and a dictionary feature is available.</p>	<p>CURRICULUM LINKS</p> <p>ENGLISH</p> <ul style="list-style-type: none"> Analysing different genres of writing. Pupils could use their research to help them write persuasive arguments, reports or an information book. Summarising information in their own words. <p>MATHS</p> <ul style="list-style-type: none"> Reading and understanding data/mathematical language (where appropriate). Rounding research results to the nearest 100 or 1000. <p>SCIENCE</p> <ul style="list-style-type: none"> Research different habitats. <p>HISTORY</p> <ul style="list-style-type: none"> Research crime and punishment through the ages. Identify accurate information and reliable sources.

Year 4 Computing- Spring 1 (Week 3-6)
'Data Logging'

COMPUTING ELEMENT	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
<p><u>Data Logging</u> <u>National Curriculum</u></p> <ul style="list-style-type: none"> 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 	<p><u>Introduction to Data Logging</u></p> <ul style="list-style-type: none"> I know that technology can be used to capture data. I can give some examples of real-life situations where sensors are used. I understand that data loggers can be used to sense external and physical changes and collect data. <p><u>Experiment/Project</u></p> <ul style="list-style-type: none"> I can use a datalogger to capture information from a light, sound or temperature sensor. I can import data from a logbox to a computer. I can analyse data continuously over time, including sound, temperature and light. 	<p><u>Logbox</u> Use the logbox unit to capture data. Upload data from the logbox onto the computer for analysis</p> <p><u>IDEAS</u> <i>When is Year 4 loudest/quietest during the day?</i> <i>How does the temperature of the Year 4 classroom change throughout the day?</i> <i>What makes a good insulator?</i> <i>How long is it light for?</i> <i>How much light is in different areas of the school?</i></p>	<p><u>CURRICULUM LINKS</u></p> <p>ENGLISH</p> <ul style="list-style-type: none"> Write a report based on the results of the data collected. Write up the experiment. <p>MATHS</p> <ul style="list-style-type: none"> Rounding data to the nearest 100 or 1000. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. Interpret and present discrete and continuous data using appropriate graphical methods, including barcharts and time graphs. <p>SCIENCE</p> <ul style="list-style-type: none"> Taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions <p><i>You will need to think of an experiment that will make use of a light, temperature or sound sensor.</i></p>

Year 4 Computing– Spring 2 'Programming & Control'

NATIONAL CURRICULUM LINK	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
<p><u>National Curriculum</u></p> <ul style="list-style-type: none"> design, write and debug 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 use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 	<p><u>Introduction to 'Programming & Control'</u></p> <p><u>Lesson 1</u></p> <ul style="list-style-type: none"> I know that an 'algorithm' is a specific set of instructions used to control a function. I can follow a simple algorithm. I know that algorithms have to be accurate in order to work properly. <p><u>Lesson 2</u></p> <ul style="list-style-type: none"> I know that my actions can move an object on screen. I can program a sprite to move around a set course based on my predictions. I can begin to understand how computers process commands. (look at text algorithm at side of screen). I can 'debug' my programming to achieve a goal. <p><u>Lesson 3</u> Experimenting with logo software and creating a 'logo language' glossary.</p> <ul style="list-style-type: none"> I know that my actions can move an object on screen. I can begin to understand how computers process commands. I know that 'Logo' is a computer language. I can control a turtle using coding language. <p><u>Lesson 4</u> Modifying a ready-made logo code (Level 2).</p>	<p><u>Lesson 1</u> <i>Non-computer based.</i> <i>Experiment with giving/receiving instructions in order to successfully carry out a task.</i></p> <p><u>Lesson 2</u> Chrome</p> <ul style="list-style-type: none"> Go to my.uso.im > j2e.com JiT Turtle (select an adventure) <p><u>Lesson 3 +</u></p> <ul style="list-style-type: none"> Go to my.uso.im > j2e.com J2code Logo (Level 2 then 3) 	<p><u>CURRICULUM LINKS</u></p> <p>ENGLISH</p> <ul style="list-style-type: none"> Accurately giving oral instructions, written instructions and understanding instructions. <p>MATHS</p> <ul style="list-style-type: none"> Knowing that information can be held as numbers. Solve one-step and two-step questions. Accurately inputting numbers. Identifying and using angles. Describe movements between positions as translations. Estimate and calculate different measures.

Polygons

- I understand that *prediction, trial and error are important* when controlling devices to achieve a specific outcome.

Creating given shapes

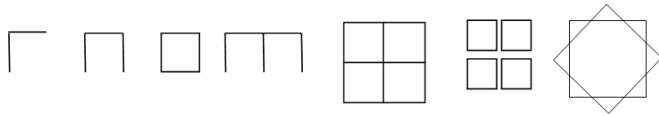
- I can program a turtle to achieve a specific outcome.
- I can design, write and debug programs that accomplish specific goals.

Lesson 5

- I understand the concept and advantages of using a REPEAT command (or LOOP)
- I can use REPEATS / LOOPS in appropriate places in algorithms.

Throughout

I can use logical reasoning to explain how some simple algorithms work.



Year 4 Computing- Summer 1 'Simulations & Modelling'

NATIONAL CURRICULUM LINK	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
<p><u>National Curriculum</u></p> <ul style="list-style-type: none"> use technology purposefully to create, organise, store, manipulate and retrieve digital content select, use and combine a variety of software on a range of digital devices to design and create content that accomplish given goals, , including collecting, analysing, evaluating and presenting data and information be discerning in evaluating digital content 	<p><u>1-2 lessons – Simulations</u></p> <ul style="list-style-type: none"> I understand how computer simulations can represent real or imaginary situations and how these can help in the wider world. I can explore the effects of changing variables in models and simulations, asking 'What if?' questions. I can make and test predictions. <p><u>Modelling/Spreadsheets</u></p> <p><u>1-2 sessions</u></p> <ul style="list-style-type: none"> I can refer to specific cells by their column / row labels. (Cell refs) I understand that there are different types of data, e.g: numeric, , date, alphanumeric, currency etc. I understand that spreadsheets can automate functions, making it quicker to perform calculations I can begin to understand how those formula are constructed. <p><u>2-3 sessions</u></p> <ul style="list-style-type: none"> I understand that spreadsheets can automate functions, making it quicker to perform calculations 	<p><u>BBC Science Clips</u> Choose experiments based on your Science unit.</p> <p><u>Rising Stars Science Clips</u> Accessible through my.uso.im</p> <p><u>MS Excel</u> Use ready-made spreadsheets to support the activities. (Saved on network)</p>	<p><u>CURRICULUM LINKS</u></p> <p>ENGLISH</p> <ul style="list-style-type: none"> Could be linked to Tom's adventure holiday in 'Cliffhanger' by Jaqueline Wilson. <p>MATHS</p> <ul style="list-style-type: none"> Rounding data to the nearest 100 or 1000. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs Convert between different units of measure. Identify and represent numbers using different representations. Recognises the place value of each digit. <p>SCIENCE</p> <ul style="list-style-type: none"> Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.

**Year 4 Computing- Summer 2
'Communication & Collaboration'**

COMPUTING ELEMENT	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
<p><u>Communication & Collaboration</u> <u>National Curriculum</u></p> <ul style="list-style-type: none"> 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. use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<p><u>Recap E-Safety</u></p> <ul style="list-style-type: none"> I understand the need to keep personal information and passwords private in order to protect myself when communicating online. I know how to respond if asked for personal details or in the event of receiving unpleasant communications. I recognise that cyber bullying is unacceptable and will be sanctioned. I know how to report an incident of cyber bullying. <p><i>The following objectives will be developed for 2015-2016 due to children being already introduced to the school blog last year.</i></p> <p><u>Blogging (1-2 lessons)</u></p> <ul style="list-style-type: none"> I understand that messages can quickly be sent electronically over distances and that people can reply to them. I know what a 'blog' is. I can make purposeful contributions to a blog. I can make purposeful comments on a blog. 	<p><u>MUST USE CHROME</u></p> <p><u>J2Webby (Blogging)</u> (accessible through my.uso.im) Children 'upload their work to the school blog for others to look at and give feedback (verbal feedback will do)</p> <ul style="list-style-type: none"> You will need to teach them how click on the J2Webby button when they have finished to send it to a moderation area. A teacher must moderate each piece of work in the moderation area before publishing. (in J2Launch). <p><u>JiT/J2E5 (Accessible through my.uso.im)</u> Use these programs for creating work that can be published to the school blog. Encourage classes to collaborate so they can comment on eachother's blogs.</p> <p><i>Teachers must keep on top of moderating blog posts and comments so that the children do not lose interest.</i></p>	<p><u>CURRICULUM LINKS</u></p> <p>ENGLISH <i>Blogging is great for promoting writing.</i> Use the school blog to publish stories, poems, written arguments, debates, speeches etc.</p> <p>MATHS</p> <ul style="list-style-type: none"> Creating maths problems for peers to solve. <p>SCIENCE</p> <ul style="list-style-type: none"> Discussing/providing facts about living things and their habitats. <p>HISTORY/GEOGRAPHY Sharing research and information about the topics covered.</p>