Whole school curriculum coverage map by subject: Computing

<table>
<tr><td rowspan="2">On- going skills</td><td><u>Key Stage 1</u></td><td colspan="2"><u>Key Stage 2</u></td></tr>
<tr><td>• understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
• create and debug simple programs
• use logical reasoning to predict the behaviour of simple programs
• use technology purposefully to create, organise, store, manipulate and retrieve digital content
• recognise common uses of information technology beyond school
• 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.</td><td colspan="2">• 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</td></tr>
<tr><td colspan="2"><u>By the end of Year 2…</u>
• <u>E-safety</u>
○ To use technology safely and respectfully, keeping personal information private.
○ To identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.
• <u>Basic mouse skills</u>
○ Use a mouse to make choices, drag and drop, double click and free exploration.
• <u>Basic keyboard skills</u></td><td><u>By the end of Year 4…</u>
• <u>E-safety</u>
○ Recognise that there are a variety of potentially harmful online interactions including behaviour that could be perceived as bullying, harmful attachments, micro-transactions and ad pop-ups.
○ Recognise a variety of ways of reporting concerns about content or contact, including online safety measures and responsible adults.</td><td><u>By the end of Year 6…</u>
• <u>E-safety</u>
○ Identify a range of ways to report concerns about content out of school, including tablets and phones.
○ Be aware of the possible implications of sharing or downloading copyrighted materials, the effect of online comments, the potential risks of your digital footprint and what happens to personal data and how to protect it, including protecting other people’s personal data.</td></tr>
</table>

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○ Use a keyboard to log on, use upper and lower case and type simple sentences. Alter text, select font size, style, colour, bold, italics and underline functions. ○ Open a file from a program and save independently. ○ Select, copy and paste a picture, resizing and rotating if necessary. ○ Use a paint programme to draw a simple picture. • **Data handling** ○ Use data handling software to sort, handle and compare sets of their own data. Present this data in a variety of different ways such as block graphs and pictograms. • **Coding** ○ Understand what an algorithm is. ○ Control motion by specifying the number of steps to travel, direction and turn. ○ Enter a series of precise and unambiguous instructions to make an object move and turn including the repeat key. ○ Consider a series of instructions and make logical predications on outcome. Recognise how to correct/fix mistakes in this program. • **How computers / the internet works**	○ Use technology safely, respectfully and responsibly and consider how their online actions impact other people. ○ To use search engines discerningly e.g. using multiple sources and questioning the reliability of sources. • **Basic keyboard skills** ○ Save and open work from a network. ○ Use keyboard shortcuts for word processing and presentation software. ○ Use a paint program, rotate, resize, edit and save as a jpeg. Use stamps to create a repeating pattern. ○ Import from input devices, such as digital cameras. Manipulate this content for a given goal: e.g. to create an audio/visual presentation. ○ Using word processing software, justify text using alignment icons, print preview icon, bullet and number points function, spell check and thesaurus facility and to use header/footer, find/replace function. • **Data handling** ○ Design and construct a database to collect, analyse, evaluate and present data using a data logging device e.g. recording sound levels using iPad. • **Coding** ○ Use reasoning to correct errors and debug programmes while recognising that a program can be split into component sections to assist with the debugging programmes. ○ Design and create a sprite and stage, move it using repeat and forever loops.	○ Collaborate safely online • **Basic keyboard skills** ○ Use keyboard shortcuts for a variety of programs, including internet browsers. ○ Use video editing software to import and edit video for a given goal. ○ Combine different forms of multimedia in an overall presentation (e.g. narration, sound effects, music). ○ Send and receive emails including attachments. • **Data handling** ○ Use search engines, using filters, 'and', 'or' and 'not'. ○ Understand how simple networks are set up. ○ Enter data and formulae into cells, modify the data and formula, make predictions and check results in a spreadsheet software package. Present results using a combination of software to achieve a given goal. • **Coding** ○ Use variables to design and create programs for a range of purposes. These should include: IF THEN ELSE conditions, specified degrees of rotations, changed position of objects between screen layers (send to back, bring to front), uploaded and edited sound. Control events using the broadcast function.

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			• **Multi media** • **How the internet works** ○ Understand that the internet is a large network of computers and that information can be shared between computers e.g. understanding what the school network is and how the servers work. ○ Understand how search engines select and rank results.			
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Whole school: Hour of Code week (December). **Use code.org, followed by assembly**					
	Whole school: Safer internet day 6th February.					
E-safety	Smartie the Penguin- tell someone	Smartie the Penguin- tell someone Hector's World	https://www.youtube.com/watch?v=-nMUbHuffO8 https://www.youtube.com/watch?v=XUAXS3P9sDE Keeping personal information safe	Kim and Lee video SID videos. Keeping personal information private. https://www.thinkuknow.co.uk/professionals/resources/lee-and-kim/ **Sending and receiving email**: http://primaryemail.co.uk/mcwizard/	Copyright and plagiarism https://www.stem.org.uk/resources/community/collection/362373/ks2-digital-literacy **Email- sending and receiving using Gmail.**	https://www.childnet.com/resources/know-it-all-secondary-toolkits/lower-secondary-toolkit/perfect-passwords **Email- sending and receiving using Gmail.**

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Key board / mouse skills	**Log on with class username and password** https://www.poissonrouge.com/ http://www.abcya.com/: Mouse control- Double click to start activity, clicking to make choices. Dragging, change stamp size. going back, free exploration. Mark making. **Dazzle paint: pictures and text** Keyboard skills, upper/ lower case. Type name. Altering text size, colour and font style	**Log on with class username and password.** **http://keyseeker.parkfieldprimary.com/** **Dazzle paint: pictures and text:** Create pictures of themselves and type text in dazzle. Use the shift key for capital letters. Save/ open files. Use pictures to create chart. **Counting objects mouse control** http://www.hbschool.com/activity/counting_objects/				

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Data handling	**Flexitree/ 2Simple data handling** Select and sort objects **Fuzzbugs** http://www.abcya.com/counting_sorting_comparing.htm	**Data handling activity- sorting, handling, comparing.** http://www.abcya.com/counting_sorting_comparing.htm http://www.crickweb.co.uk/Key-Stage-1.html **Collecting data- Data sweet:** Collect and record data about ourselves. Make a class database.	**Data sweet** **Ourselves-** Collect and record data about ourselves. Make a class database. Make and analyse bar charts and pie charts. **Infant encyclopaedia:** **http://infant.parkfieldprimary.com/**	**Bookworms** Write a PP review of their favourite book. Use a database to collect and analyse data about favoutire books (most least, x more than; y less than.) Search- use a shopping website to find out how much favourite book titles cost. Complete Excel spreadsheets with autosum. **Search engines:** https://swiggle.org.uk/	Sensing temperature **(linked to) Properties and changes of materials** Using databases to research and record data for melting / boiling points. Pair, research. Enter results into database make **LINE** graphs for one material.	**Data detectives** Digital footprints Protecting personal data What is data? How is it stored? Database- fields and records. **Explore large database**. Design a themepark Profit and loss Enter formulae, format cells, fill down, fill series. Devlop own formulae Pie charts and bar charts Analysis **Scientists** Science investigation- use heart rate monitor to record and measure data. Present findings as a booklet in Publisher. (Arrange text boxes, duplex printing). Enter data into a spreadsheet. Formulae- sum Create and interpret bar charts. Print set-up, two sided print.

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Coding	**Robo-car- control** Introduction to Robocar Control Robocar using Fd and Bk. Explore lines and turning. Gridwork on carpet. http://literacycenter.net/play_learn/english-language-games.php	**Code.org** Introductory unit **Giving instructions (algorithms), making predictions.** What is an algorithm? Robo-car debugging? **Code.org** Course 1 #4 maze **Code.org** #5 maze debuggining **Code.org** #7 bee **Code.org**- Artist 8 sequence and #10 shapes	**Code.org** Unit A Repeating commands Gridwork on repeat Maze loops **Algorhythms-** crazy character Artist #8 sequence and #9 shapes Artist 10/10 draw anything **Scratch introduction** Sprite and stage Scratch- tell a story.	**Code.org** Unit B **Algorthyms** **Scratch** Knock knock joke using sprites and say. Moving sprites using repeat and forever loop. Colour game using then and if when colours touch.	**Code.org** Unit C Repetition, maze loops, X and Y axis. Go to (0,0) **Scratch** Variables Maze game- if then/ touching Colour and touching sprite	**Code.org** Unit D **Scratch and programming** Variables Scratch- counting game Dice game project Scratch counting game Scratch voting game Broadcasting Make blocks Draw shapes Socrative quiz https://www.socrative.com/
Multi media	**Linked to key board skills** **Dazzle paint: pictures and text:** Create pictures of themselves and type name in dazzle. Use the shift key for capital letters.	http://www.abcya.com/kindergarten_computers.htm Choose pictures, resize/ rotate.	**Animation- pivot** https://pivotanimator.net/ Create a simple stickman figure and animate, review, display. **Pictures and text- Dazzle** Rotate, resize and edit. Save/ load work and type sentences. Develop shapes in a paint programme- line, shape, fill, copy paste. Type text and insert picture to create a PowerPoint slide.	**Graphic design** Create pictures in paint programme and, using copy/ paste, save as JPEG. Keyboard shortcuts. Create Christmas cards in Publisher	**Animators** MS Paint- copy, flip, rotate Image sizes- video, how data is stored. https://www.bbc.com/bitesize/clips/z3s3r82 Object based graphics using PowerPoint (copy/ paste/ rotate/ flip/ group)	**Moviemaker** (clips, titles, music, scrolling, credits) Creating documentaries- movie maker, video editing software. Audio recording.

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How computers / the internet works		**Infant encyclopaedia** **http://infant.parkfieldprimary.com/** Bonfire night		**Input and output devices** https://wordwall.net/resource/74289/computing/input-or-output **Sending and receiving email** http://primaryemail.co.uk/mcwizard/		**What's inside a computer?** Socrative Quiz How does data travel? Effective searching http://resources.hwb.wales.gov.uk/VTC/Phase2delivery/Wales/IT01/Keystage2/Usingadatabase/Representingand/Introduction/pop.htm