Progression in to Secondary School

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At Firs, we have carefully broken down the objectives of the National Curriculum from year 1 to year 6 in to 5 separate strands: Technology in Our Lives, Programming, Multi-Media, Handling Data and E-Safety. This allows for the computing curriculum to be taught in depth throughout a child's time at Firs primary school. We have also mapped the UKS2 computing objectives to the KS3 National Curriculum Objectives to ensure that our primary curriculum prepares children effectively for their learning in KS3 and progression to seamlessly continues building upon their prior knowledge and experiences. Without ensuring this progression and planning for the opportunity to prepare pupils well for secondary school, this may lead to children having gaps in their computing knowledge and not make continuous progress in KS3 as elements of their skills, knowledge and understanding of computing will be missing. Prior knowledge and experiences is highlighted as a great importance especially in "programming units - where concepts and skills rely on prior knowledge and experiences" (Teach Computing, https://teachcomputing.org/curriculum/key-stage-3)

National Curriculum:
https://www.gov.uk/government/publications/national-curriculum-in-england-computing-programmes-of-study/national-curriculum-in-england-computing-programmes-of-study#key-stage-3

Key Stage 2 National Curriculum
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

UKS2

Firs Computing Curriculum: Technology in Our Lives

- Create specific searches using "" and or in a search engine
- Discuss how results are ranked
- Know how chatrooms and social media and connect people from long distances
- Take part in a forum including responding with text and media
- Begin to discuss how the internet works including networks and IP addresses
- Know how to check for reliability of a website *(Also covered in E-Safety)*
- Label parts of a webpage

- Know how being able to connect with people from long distances can enhance collaboration
- Compare two websites that given information on the same topic. Which is the most reliable? *(Also covered in E-Safety)*
- Use other sources to check reliability of information. *(Also covered in E-Safety)*
- Discuss the many uses for the internet
- Know how information is transported on the internet including understanding networks and IP addresses
- Understand copyright and how this effects images and information I find on the internet *(Also covered in E-Safety)*

Key Stage 3 National Curriculum

- understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems
- understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits

Key Stage 2 National Curriculum

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

UKS2

Firs Computing Curriculum: Programming

- Begin to think logically to analyse a simple game and discuss what the different algorithms should instruct.
- I can predict what will happen when discussing different algorithms,
- Understand how breaking things down into different events may make it easier to debug, edit and improve.
- Begin to create a simple game between two sprites
- Create movements using co-ordinates and rotations (with degrees)
- Create drawings using pen shades, directions and angles.
- Create an animation with speech and sensing between at least 2 characters.
- Use 'IF' to control objects and create variables
- Control the sprites movement using the keyboard

- Show logical thinking when creating a complicated algorithm,
- Sort algorithms between what will and won't work and explain why by breaking it into smaller parts and explaining why. Test the algorithms to support this.
- Starting to find more than 1 way to debug and solve a problem.
- Create a game that uses a range of commands including sensing, movement, variables and IF THEN. https://simonhaughton.typepad.com/main/2013/02/scratch-20-resources-and-planning.html
- Create a story or animation using a range of commands and shows creativity and imagination.

Key Stage 3 National Curriculum

- design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
- understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem
- use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions
- understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]

<table>
<tr><td colspan="2">Key Stage 2 National Curriculum
elect, 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</td><td rowspan="5">Key Stage 3 National Curriculum
• undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users
• create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</td></tr>
<tr><td colspan="2">UKS2
Firs Computing Curriculum: Multi-Media</td></tr>
<tr><td>• Design in response to a given criteria
• Create simple hyperlinks and buttons in a presentation
• Insert videos into a presentation
• Begin to use two hands when typing
• Evaluate websites and current publications in terms of colour, font, pictures and use this to inform their own work
• To create a stop frame animation with two objects including movement and speech.</td><td>• Create a presentation using timings, auto play and more complicated hyperlinks
• Type confidently with two hands
• Edit their presentation in response to peer feedback and considering the audience
• Insert text boxes and use columns to create a more interesting layout
• To create a stop frame animation with two objects and a background/set.</td></tr>
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<tr><td colspan="2">UKS2
Firs Computing Curriculum: Handling Data</td></tr>
<tr><td>• Choose an appropriate programme to represent information
• To know what a data logger can be used for
• To create an investigation to use the data logger to record information
• To begin to link the data logger components to variables in science</td><td>• To know when a database might be useful
• Use and interpret information from a data logger
• To use computing programmes linked with the data logger
• To choose how to record and represent information from a data logger using a computer
• Create a database that enables you to search through entries using field</td></tr>
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Key Stage 2 National Curriculum

use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Firs Computing Curriculum: E-Safety

• I can explain how identity online can be copied, modified or altered. • I can demonstrate how to make responsible choices about having an online identity, depending on context.	• I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. • I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline. • I can explain the importance of asking until I get the help needed.
• I can search for information about an individual online and summarise the information found • I can describe ways that information about anyone online can be used by others to make judgements about an individual, and why these may be incorrect.	• I can explain the ways in which anyone can develop a positive online reputation • I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.
• I can give examples of technology specific forms of communication (e.g. emojis, memes and GIFS) • I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my/our fault. • I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions (e.g. gaming communities or social media groups)	• I can explain how sharing something online may have an impact either positively or negatively. • I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not. • I can describe how things shared privately online can have unintended consequences for others (e.g. screen grabs).
• I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences. • I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. • I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult. • I can identify a range of ways to report concerns and access support both in school and at home about online bullying. • I can explain how to block abusive users. • I can describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).	• I can describe how to capture bullying content as evidence (e.g. screen grab, URL, profile) to share with others who can help me. • I can explain how someone would report online bullying in different contexts.
• I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. I can explain how some technology can limit the information I aim presented with e.g. voice-activated searching giving one result. • I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'.	• I can explain how search engines work and how results are selected and ranked. • I can explain how to use search technologies effectively. • I can describe how some online information can be opinion and can offer examples. • I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal.

Key Stage 3 National Curriculum

understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns

• I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results. • I can explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence. • I can identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads. • I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, influencers). • I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others. • I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful. • I can explain what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share.	• I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news). • I understand the concept of persuasive design and how it can be used to influences peoples' choices. • I can demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important. • I can explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this. • I can describe the difference between online misinformation and dis-information. • I can explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of misinformation or disinformation). • I can identify, flag and report inappropriate content	
• I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. • I can describe some strategies, tips or advice to promote health and wellbeing with regards to technology. • I recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals. • I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing.	• I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. • I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this. • I can recognise features of persuasive design and how they are used to keep users engaged (current and future use). • I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).	
• I can explain what a strong password is and demonstrate how to create one. • I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. • I can explain what app permissions are and can give some examples.	• I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). • I can explain what to do if a password is shared, lost or stolen. • I can describe how and why people should keep their software and apps up to date, e.g. auto updates. • I can describe simple ways to increase privacy on apps and services that provide privacy settings. • I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing). • I know that online services have terms and conditions that govern their use.	
• I can assess and justify when it is acceptable to use the work of others. • I can give examples of content that is permitted to be reused and know how this content can be found online.	• I can demonstrate the use of search tools to find and access online content which can be reused by others. • I can demonstrate how to make references to and acknowledge sources I have used from the internet.	