

Primary Specification



Computing



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- **Summary of Subject Content**
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Trust Level

Children are matched against 'stage descriptors' (in other words what pupils are expected to know and be able to do in computing for their year group or phase) when being assessed by their teachers in their computing lessons. Where appropriate, teachers will provide opportunities for children to apply computing knowledge and skills in other curriculum areas and may use this information as part of their assessments. Teachers use this information to form an overall picture for each child, to determine whether they have met the stage descriptors for the end of their year group or phase.

School Level

Assessments may be administered in different ways depending on the school. E.g. gradings offered, end of unit mini assessments, knowledge review weeks, termly or half termly assessment periods etc.

Schools will assess pupils informally in accordance with the school's guidelines. At school level the specification document for each subject will be supported by the school own planning documents/ portals which also include LTPs, MTPs, schemes of work and associated resources.

Long Term Plans provide leaders, teachers, students and parents with the overview of the learning journey that occurs yearly. These are available on the school website.

Medium Term Plans map the learning for each of the learning focusses of each half term in each year group. These provide more detailed information into the steps to facilitate a differentiated approach ensuring that knowledge and skills are covered. The number of activities / objectives covered may vary dependent on the length of a half term and the frequency of lessons in a given subject.

Schemes of Work may vary from subject to subject allowing the specialists in schools to develop suitable activities and topics ensuring ownership of planning for progress. Please note that no external schemes are followed to the book and when used, are merely a starting point. This allows schools the freedom to adapt to the needs of their pupils.

SOW – Guiding Principles

- Knowledge and skills based
- Form part of the 'big picture' e.g. show progression over the 6 years in school
- Provide suggested resources
- Allow for teacher ownership and/or creativity of lessons
- Allow for appropriate differentiation

KS1/KS2 NC Objectives & Subject Intent, Impact and Implementation

The national curriculum for Computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

OBJECTIVES

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|------------|--|
| KS1 | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • 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. |
| KS2 | <p>Pupils should be taught to:</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 • 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. |

INTENT

Our Computing Curriculum enables our pupils to become digitally literate, able to use technology to communicate and express themselves safely.

A Growth Mindset is encouraged when problem solving, to allow them to develop into independent adults.

We aim to provide a wide range of learning experiences, incorporating a progression of skills, to prepare our children for an ever-changing digital world.

IMPLEMENTATION

Computer Science is taught across school over two half terms. Software and experiences have been specially selected, to allow for a progression of skills across the year groups and to offer a wide range of hands-on experiences. In Key Stage 1, learning builds on the exploration of Beebots in Reception, progressing to using the Beebot app and 2Go software in Year 1, before developing their own programs on 2Go and 2Logo by the end of Key Stage 1. Purple Mash 2Code is introduced in LKS2, with a progression of skills taught and supplemented by the apps: A.L.E.X and Lightbot. By UKS2, pupils are able to apply their knowledge to increasingly complex programming and designing tasks using 2Code and 2DIY in Y5 and Scratch and Python in Y6.

The use of Information Technology is inter-woven throughout our curriculum, allowing pupils to apply the skills they have acquired in Computing, to a variety of learning experiences. In addition to this, IT is taught as a stand-alone unit for 4 half-terms per year from Y1-6. iLearn2 offers our pupils access to a range of stimulating learning experience. Beginning in Reception, children explore Googlemaps to recognise where they live and they begin to select technology for different purposes. By Year 1 we introduce the important skills of using a mouse and keyboard and how to incorporate text and images. In Year 2, pupils experience an introduction to animation and data handling. By LKS2, children at Farington learn to edit documents and videos, research and 3D design. Our older pupils have the opportunity to develop their skills using Excel spreadsheets and designing an app in Y5, and image editing and web design by Y6.

With our nurturing ethos continually at our core, we aim to respond to the ever-changing digital world in order to keep our pupils safe. The teaching of E-Safety links to our PSHE 1Decision Scheme across Y1-6 and National E-Safety Day is recognised each year. In addition, Digital Literacy is reinforced each half term, through a varied selection of age-appropriate activities. Teacher's use story books from Class R to Y3 to spark discussions about staying safe online. Reception and KS1 explore the Hector's World, Digi-Duck, Jessie and Friends and Lee and Kim schemes, with Y2 writing emails. In LKS2, pupils learn through Kara, Winston and the Smart Crew and Think U Know activities. UKS2 discuss the NSPCC Share Aware resources, progressing to Interland and HTML by Y6.

IMPACT

Children at Farington will be equipped with a skill-set for life in modern Britain. They will be able to use a range of software to communicate, research and express themselves.

Children will apply a Growth Mindset and display resilience when problem solving (debugging,) allowing them to become independent and confident young adults.

Children are able to use technology safely, respectfully and responsibly. They can identify dangers and know how to report concerns.

Summary of Subject Content

All Unit Summary

Year 1

| Predominant Area of Computing* | | |
|--------------------------------|------------------------|--|
| | Computer Science | |
| | Information Technology | |
| | Digital Literacy | |

*Most units will include aspects of all strands.

| | Unit 1.1 | Unit 1.2 | Unit 1.3 | Unit 1.4 | Unit 1.5 | Unit 1.6 | Unit 1.7 | Unit 1.8 | Unit 1.9 |
|-------------------|---------------------------------------|--------------------|------------|---------------|----------------|----------------------|----------|--------------|---------------------------|
| | Online Safety & Exploring Purple Mash | Grouping & Sorting | Pictograms | Lego Builders | Maze Explorers | Animated Story Books | Coding | Spreadsheets | Technology outside school |
| Number of lessons | 4 | 2 | 3 | 3 | 3 | 5 | 6 | 3 | 2 |
| Main tool | | | 2Count | | 2Go | 2Create A Story | 2Code | 2Calculate | |

Year 2

| | Unit 2.1 | Unit 2.2 | Unit 2.3 | Unit 2.4 | Unit 2.5 | Unit 2.6 | Unit 2.7 | Unit 2.8 |
|-------------------|----------|---------------|--------------|---------------------------|---------------------|-------------------|--------------|------------------|
| | Coding | Online Safety | Spreadsheets | Questioning | Effective Searching | Creating Pictures | Making Music | Presenting Ideas |
| Number of lessons | 5 | 3 | 4 | 5 | 3 | 5 | 3 | 4 |
| Main tool | 2Code | | 2Calculate | 2Question 2Investigate | | 2Paint A Picture | 2Sequence | |

Year 3

| | Unit 3.1 | Unit 3.2 | Unit 3.3 | Unit 3.4 | Unit 3.5 | Unit 3.6 | Unit 3.7 | Unit 3.8 | Unit 3.9 |
|-------------------|----------|---------------|---------------------------------|--------------|---------------------------|---------------------|-------------|----------|-----------------------------|
| | Coding | Online safety | Spreadsheets | Touch Typing | Email (inc. email safety) | Branching Databases | Simulations | Graphing | Presenting |
| Number of lessons | 6 | 3 | 3 4 lessons for Crash Course | 4 | 6 | 4 | 3 | 3 | 5\6* |
| Main tool | 2Code | | 2Calculate | 2Type | 2Email | 2Question | 2Simulate | 2Graph | PowerPoint or Google Slides |

*Platform dependent

Year 4

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|--------------------------|-----------------|-----------------|-------------------|---------------------------------|-----------------|-----------------|---------------------|------------------------|-------------------|
| | Unit 4.1 | Unit 4.2 | Unit 4.3 | Unit 4.4 | Unit 4.5 | Unit 4.6 | Unit 4.7 | Unit 4.8 | Unit 4.9 |
| | Coding | Online Safety | Spreadsheets | Writing for Different Audiences | Logo | Animation | Effective Searching | Hardware Investigators | Making Music |
| Number of lessons | 6 | 4 | 6 | 5 | 4 | 3 | 3 | 2 | 4 |
| Main tool | 2Code | | 2Calculate | | 2Logo | 2Animate | | | Busy Beats |

Year 5

| | | | | | | | | |
|--------------------------|-----------------|-----------------|-------------------|---------------------|-----------------|---------------------------|-----------------|-------------------------------|
| | Unit 5.1 | Unit 5.2 | Unit 5.3 | Unit 5.4 | Unit 5.5 | Unit 5.6 | Unit 5.7 | Unit 5.8 |
| | Coding | Online Safety | Spreadsheets | Databases | Game Creator | 3D Modelling | Concept Maps | Word Processing |
| Number of lessons | 6 | 3 | 6 | 4 | 5 | 4 | 4 | 8 |
| Main tool | 2Code | | 2Calculate | 2Investigate | 2DIY 3D | 2Design & Make | 2Connect | MS Word or Google Docs |

Year 6

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|--------------------------|-----------------|-----------------|-------------------|-----------------|-----------------|-----------------|-----------------|----------------------|-------------------------------|
| | Unit 6.1 | Unit 6.2 | Unit 6.3 | Unit 6.4 | Unit 6.5 | Unit 6.6 | Unit 6.7 | Unit 6.8 | 6.9 |
| | Coding | Online Safety | Spreadsheets | Blogging | Text Adventures | Networks | Quizzing | Understanding Binary | Spreadsheets |
| Number of lessons | 6 | 2 | 5 | 4 | 5 | 3 | 6 | 4 | 8 |
| Main tool | 2Code | | 2Calculate | 2Blog | | | 2Quiz | | Excel or Google Sheets |

STAGE DESCRIPTORS

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|---------------|---|
| EYFS | <p><u>E-Safety</u> Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you. Play appropriate games on the Internet. Talk about good and bad choices when using websites – being kind, telling a grown up. if something upsets us & keeping ourselves safe by keeping information private.</p> <p><u>Programming</u> Help adults operate equipment around the school, independently operating simple equipment. Use simple software to make things happen. Press buttons on a floor robot and talk about the movements. Explore options and make choices with toys, software and websites.</p> <p><u>Multimedia</u> Use a mouse to rearrange objects and pictures on a screen. Recognise text, images and sound when using ICT. Use a camera or sound recorder to collect photos or sound. Use paint programs to create pictures. Begin to use a keyboard see programming. Develop an interest in ICT by using age appropriate websites or programs.</p> <p><u>Technology in Our Lives</u> Recognise purposes for using technology in school and at home Understand that things they create belong to them and can be shared with others using technology. Recognise that they can use the Internet to play and learn.</p> <p><u>Data Handling</u> Collect information as photos or sound files.</p> |
| YEAR 1 | <p><u>Computer Science</u> Explain that an algorithm is a set of instructions. Know that an algorithm written for a computer is called a program. Work out what is wrong when the steps are out of order in instructions. Say if something does not work how it should because my code is incorrect. Try and fix my code if it isn't working properly. Make good guesses of what is going to happen in a program. For example, where the turtle might go.</p> <p><u>Information Technology</u> Sort sound, pictures and text. Add sound, pictures and text to a program such as 2Create a story. Change content on a file such as text, sound and images. Name my work. Save my work. Find my work.</p> <p><u>Digital Literacy</u> Say what technology is. Say what examples of technology are in school. Say what examples of technology are at home. Know that a chair uses old technology and a smart phone uses new technology. Keep my login information safe. Save my work in a safe place such as 'My Work' folder.</p> |
| YEAR 2 | <p><u>Computer Science</u> Explain an algorithm is a set of instructions to complete a task. Know I need to carefully plan my algorithm so it will work when I make it into code. Design a simple program using 2Code that achieves a purpose. Find and correct some errors in my program. Say what will happen in a program. Spot something in a program that has an action or effect (does something).</p> <p><u>Information Technology</u> Organise data – for example, using a database such as 2Investigate. Find data using specific searches – for example, using 2Investigate. Use several programs to organise information – for example, using binary trees such as 2Question or spreadsheets such as 2Calculate. Edit digital data such as data in music composition software like 2Sequence. Name, save and find my work. Include photos, text and sound in my creations.</p> <p><u>Digital Literacy</u> Find information I need using a search engine. Know the consequences of not searching online safely. Share work and communicate electronically – for example using 2Email or the display boards. Report unkind behaviour and things that upset me online, to a trusted adult. See where technology is used at school such as in the office or canteen. Understand that my creations such as programs in 2Code, need similar skills to the adult world. e.g. The program used for collecting money for school trips.</p> |

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| <p>YEAR 3</p> | <p>Computer Science Make a real-life situation into an algorithm for a program. Design an algorithm carefully, thinking about what I want it to do and how I can turn it into code. Identify an error in my program and fix it. Experiment with timers in my programs. Identify the difference in using between the effect of a timer or repeat command in my code. Know that a variable stores information while a program is running (executing). Identify 'If' statements, repetition and variables. Read programs with several steps and predict what it will do. Identify different ways that the internet can be used for communication. Use email such as 2Email to respond to others appropriately and attach files.</p> <p>Information Technology Carry out searches to find digital content on a range of online systems, such as within Purple Mash or on an internet search engine. Collect data and input it into software. Analyse data using features within software to help such as, formula in 2Calculate (spreadsheets). Present data and information using different software such as 2Question (branching database) or 2Graph (graphing tool). Consider what the most appropriate software to use when given a task by my teacher. Create purposeful (appropriate) content and attach this to emails.</p> <p>Digital Literacy Create a secure password. Explain the importance of having a secure password and not sharing it with others. Explain the negative consequences of not keeping passwords safe and secure. Understand the importance of keeping safe online and behaving respectfully. Use communication tools such as 2Email respectfully and use good etiquette. Report unacceptable content and contact online in more than one way to a trusted adult.</p> |
| <p>YEAR 4</p> | <p>Computer Science Turn a real-life situation to solve into an algorithm, using a design that shows how I can accomplish this in code. Use repetition in my code. For example, using a loop that continues until a condition is met such as the correct answer being entered. Use timers within my program designs more accurately to create repetition effects. For example, I can create a counting machine. Use selection (decision) in my programming. For example, using an 'if statement' for a question being asked and the program takes one of two paths. Use variables within my program and know how to change the value of variables. Use the user inputs and output features within my program, such as 'Print to screen'. Identify errors in my code by using different methods, such as stepping through lines of code and fixing them. Read programs that contain several steps and predict the outcomes with increasing accuracy. Recognise the main component parts of hardware which allow computers to join and form a network. Understand that network and communication components can be found in many different devices which allow them to join the internet.</p> <p>Information Technology Understand the purpose of a search engine and the main features within it. Can look at information on a webpage and make predictions about the accuracy of information contained within it. Can create and improve my solutions to a problem based on feedback. For example, create a program using 2Code. Can review solutions that others have created, using a checklist of criteria. Can work collaboratively to create content and solutions. Can share digital content using a variety of applications such as: 2Blog, 2Email and Display Boards.</p> <p>Digital Literacy Have a good understanding of the online safety rules we learn at school. Demonstrate how to use different online technologies safely. Demonstrate how to use a few different online services safely. Know I have a right to privacy both on and offline. Recognise that my wellbeing can be affected by how I use technology. Report with ease any concerns with content and contact online and know immediate strategies to keep safe.</p> |

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| <p>YEAR 5</p> | <p>Computer Science Make more complex real-life problems into algorithms for a program. Test and debug my programs as I work. Convert (translate) algorithms that contain sequence, selection and repetition into code that works. Use sequence, selection, repetition, and some other coding structures in my code. Organise my code carefully for example, naming variables and using tabs. I know this will help me debug more efficiently. Use logical methods to identify the cause of any bug with support to identify the specific line of code. Know the importance of computer networks and how they help solve problems and enhance communication. Recognise the main dangers that can be perpetuated via computer networks. Explain what personal information is and know strategies for keeping this safe. Use the most appropriate form of online communication according to the digital content. For example, use 2Email, 2Blog and Display Boards.</p> <p>Information Technology Search precisely when using a search engine. For example, I know I can add additional words or removes words to help find better results. Explain in detail how accurate, safe and reliable the content is on a webpage. Make appropriate improvements to digital work I have created. Comment on how successful a digital solution is that I have created. For example, a program built in 2Code that sorts decimals numbers. Work collaboratively with others creating solutions to problems using appropriate software such as 2Code. Use collaborative modes such as within 2Connect to work with others and share it.</p> <p>Digital Literacy Have a secure knowledge of online safety rules taught at school. Demonstrate the safe and respectful use of different online technologies and online services. Always relate appropriate online behaviour to my right to have personal privacy. Know how to not let my mental wellbeing or others be affected by use of online technologies and services.</p> |
| <p>YEAR 6</p> | <p>Computer Science Turn a complex programming task into an algorithm. Identify the important aspects of a programming task (abstraction). Decompose important aspects of a programming task in a logical way, identifying appropriate coding structures that would work. Test and debug my program as I work on it and use logical methods to identify a cause of a bug. Identify a specific line of code that is causing a problem in my program and attempt a fix. Translate algorithms that include sequence, selection and repetition into code and nest these structures within each other. Use inputs and outputs within my coded programs such as sound, movement and buttons and represent the state of an object. Interpret (understand) a program in parts and can make logical attempts to put the separate parts together in an algorithm to explain the program as a whole. Explain the difference between the internet and the World Wide Web. Explain what a WAN and LAN is and describe the process of how access to the internet in school is possible.</p> <p>Information Technology Use filters when searching for digital content. Explain in detail how accurate and reliable a webpage and its content is. Compare a range of digital content sources and rate them in terms of content quality and accuracy. Consider the intended audience carefully when I design and make digital content. Design and create my own online blogs.</p> <p>Digital Literacy Demonstrate safe and respectful use of a range of different technologies and online services. Identify more discrete inappropriate behaviours online. For example, someone who may be trying to groom me or someone else. Use critical thinking to help me stay safe online. Know the value of protecting my privacy and others online.</p> |

Assessment Criteria

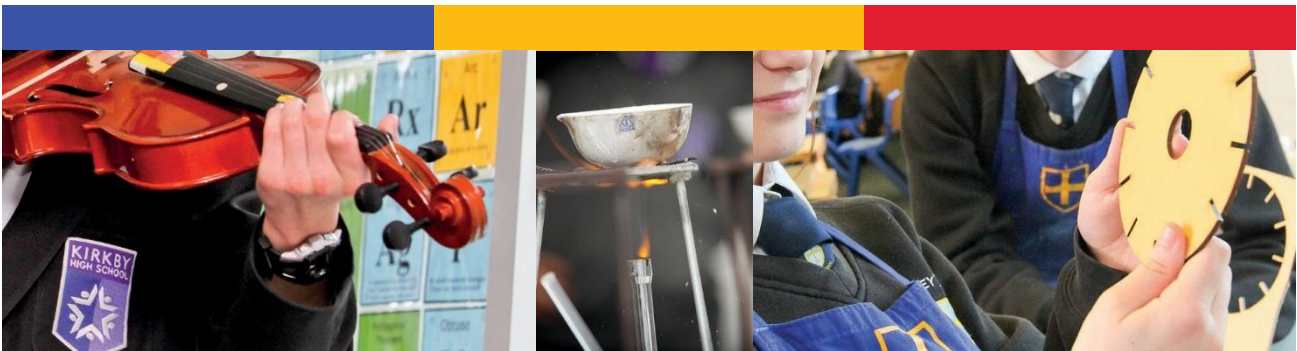


1. We implement an inclusive curriculum so that all children, including those with SEND, can make progress and demonstrate success in a range of ways.
2. We conduct baseline assessments, checking the pupils' existing knowledge and skill level.
3. We review and re-cap prior learning and link it to new and current study. We identify curriculum links so that learning can be applied and assessed in new contexts.
4. Teachers use a range of assessment activities in their class, including the review of knowledge organisers, mini assessments, sketch books, independent tasks, work in books, pupil chats in lessons. We incorporate longitudinal study where appropriate, including geography and history to assess long term knowledge retention.
5. To meet the expected standard, pupils should demonstrate a broad understanding of the key facts in the end points for that year (as outlined in the subject key specification document). In addition, they retain key knowledge from prior learning.
6. At the greater depth standard, pupils demonstrate knowledge and understanding of every aspect of the key specification to the highest degree.
7. We enter a mid-year and end of year attainment grade onto FFT. Subject leaders analyse the data and report to governors annually.
8. Bi-annual peer audits provide quality assurance, moderation of standards and training across trust schools.





Our logo was carefully chosen to represent the children, young people and adults in our learning community who strive for excellence through high aspiration and high expectation.



The Rowan Learning Trust

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