


# Computing at St Vigor and St John Primary School

Intent:

At St Vigor and St John, we understand the importance of equipping children with the knowledge to be able to participate in and navigate themselves in a rapidly changing world where much of day to day life is becoming transformed by technology. Consequently, we want to model and educate our pupils on how to use technology positively, responsibly and safely so they are able to thrive in their future and achieve life success. We want our pupils to be active, **adventurous, ethical** and **connected** participants in the digital world and our broad curriculum encompassing computer science, information technology and digital literacy reflects this.

At St Vigor and St John, we are guided by the National Curriculum for Computing (2014).

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.

We also encourage staff to try and embed computing across the whole curriculum to make learning creative and accessible. We want our pupils to be fluent with a range of tools to best express their understanding and hope by Upper Key Stage 2, children have the independence and confidence to choose the best tool to fulfil the task and challenge set by teachers.

**Implementation:**

Computing at St Vigor and St John is taught in a number of ways, aiming to help pupils to become **connected** with the world around them. We have three class sets of Chrome Books and one class set of iPads to ensure that all year groups have the opportunity to use a range of devices and programs for many purposes across the wider curriculum, as well as in discrete computing lessons.

In the Early Years, Computing is taught through cross-curricular learning with an emphasis on hands-on experiences and is assessed through the Understanding the World, Early Learning Goal. Teaching is through context-based and role play experiences using many resources such as iPads and programmable toys. From Year One upwards, we use Purple Mash as a cohesive scheme of work addressing the statutory aspects of the National Curriculum. Purple Mash provides the tools that allow teachers to deliver **unique** and creative lessons linked to not only the Computing strands of the curriculum, but it also offers activities and resources for all other areas of the curriculum, from Art to Science and everything in between. Learners have their own, personalised learning space that can be accessed at school and at home. Purple Mash provides a safe learning space that does not require downloading or online interaction with anyone other than school staff and peers.




# Computing at St Vigor and St John Primary School

Whilst our discrete Computing lessons use Purple Mash as a foundation for teaching, we also enjoy the flexibility of using Computing to enhance our lessons and further engage the pupils in leading their own learning. They are able to use technology imaginatively and creatively whilst also becoming efficient learners and critical thinkers. Cross-curricular teaching helps enthuse and equip children with the capability to use technology throughout their lives. We believe that this transference of skills can aid in teaching pupils the strategies and knowledge necessary to enable them to reap the benefits of the online world, whilst being able to minimise risk to themselves or others.

**Impact:**

The implementation of this Computing curriculum at St Vigor and St John school ensures an engaging, enjoyable and high quality computing education. Children are **connected** to the wider world and are able to effectively use the internet for a range of purposes and have an astute knowledge of e-safety. They will have developed skills to safely express the **uniqueness** of themselves and be creative in using digital media and be equipped to apply their skills in Computing to different challenges going forward.




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# Computing Curriculum Overview

| | | Term 1 | Term 2 | Term 3 | Term 4 | Term 5 | Term 6 |
|---|---|---|---|---|---|---|---|
| KS1 | Year 1 | Unit 1.1 - Online Safety | Unit 1.2 - Grouping & Sorting<br>Unit 1.3 - Pictograms | Unit 1.4 - Lego Builders<br>Unit 1.5 - Maze Explorers | Unit 1.6 - Animated Stories | Unit 1.7 - Coding | Unit 1.8 - Spreadsheets<br>Unit 1.9 - Tech Outside School |
| | Year 2 | Unit 2.2 - Online Safety | Unit 2.1 - Coding | Unit 2.3 - Spreadsheets<br>Unit 2.5 - Effective Searching | Unit 2.4 - Questioning | Unit 2.6 - Creating Pictures | Unit 2.7 - Making Music<br>Unit 2.8 - Presenting Ideas |
| LKS2 | Year 3 | Unit 3.2 -Online Safety<br>Unit 3.4 - Touch Typing | Unit 3.1 - Coding | Unit 3.3 - Spreadsheets<br>Unit 3.6 - Branching Databases | Unit 3.5 - Email | Unit 3.7 - Simulations<br>Unit 3.8 - Graphing | Unit 3.9 - Presenting (Google Slides) |
| | Year 4 | Unit 4.2 - Online Safety<br>Unit 4.4 - Writing for Different Audiences | Unit 4.1 - Coding | Unit 4.3 - Spreadsheets | Unit 4.5 - Logo<br>Unit 4.6 - Animation | Unit 4.7 - Effective Searching<br>Unit 4.8 - Hardware Investigators | Unit 4.9 - Making Music |
| UKS2 | Year 5 | Unit 5.2 - Online Safety<br>Unit 5.4 - Databases | Unit 5.1 - Coding | Unit 5.3 - Spreadsheet | Unit 5.5 - Game Creator | Unit 5.6 - 3D Modelling<br>Unit 5.7 - Concept Maps | Unit 5.8 - Word Processing (Google) |

# Computing Curriculum Overview

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Year 6 | Unit 6.2 Online Safety<br>Unit 6.4 Blogging | Unit 6.1 Coding | Unit 6.3 Spreadsheets<br>Unit 6.5 Text Adventures | Unit 6.8 Binary<br>Unit 6.6 Networks | Unit 6.7 Quizzing | Unit 6.9 Spreadsheets (Google Sheets) |

# Computing Knowledge Progression: Basic Skills

| Progression in basic skills and knowledge as a computer user | | | | | | |
|---|---|---|---|---|---|---|
| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| **Logging in**<br>• Begin to use passcode on a tablet and log in on laptop/PC with support.<br>• Begin to use home button on a tablet with support. | **Logging in**<br>Use passcode on a tablet and log in on laptop/PC.<br><br>Use home button on a tablet | **Logging in**<br><br>Use personal log in for online resources | **Logging in**<br><br>Navigate public drive to save and retrieve files. | **Logging in**<br><br>Securely log on to tablet, laptop and PC devices | **Logging in**<br><br>Use a secure personal log in for a variety of online resources | **Logging in**<br><br>Securely access a variety of devices and online resources |
| **Basic use of devices**<br><br>Begin to develop coordination and motor skills in operating a mouse or roller pad on a laptop or PC.<br><br>Open appropriate App. Take a photo. | **Basic use of devices**<br><br>Develop coordination and motor skills in operation a mouse or roller pad on a laptop or PC.<br><br>Open a document or other file on a laptop or PC.<br><br>Open appropriate App or Home screen link on a tablet.<br><br>Take a photo and open camera roll on a tablet. | **Basic use of devices**<br><br>Open Apps and software<br><br>Save and Open files and images.<br><br>Insert images within apps and software | **Basic use of devices**<br><br>Connect peripheral devices using USB lead<br><br>Use images saved to camera roll within a variety of Apps.<br><br>Use Save and Save As on laptops and PCs.<br><br>Copy and rename files to edit on tablets | **Basic use of devices**<br><br>Rename documents and other files<br><br>Browse to a specified website<br><br>Create hyperlink to a website<br><br>Recognise appropriate online sources for clipart and images | **Basic use of devices**<br><br>Combine appropriate apps through the use of the camera roll on a tablet<br><br>Combine software to achieve effective outcomes.<br><br>Work collaboratively on documents and presentations<br><br>Create hyperlinks within and between documents | **Basic use of devices**<br><br>Store documents and videos online where they can be accessed by themselves and shared with others<br><br>Use knowledge of software and apps to combine technologies to support my learning<br><br>Recognise file types for text, image and video files |

# Computing Knowledge Progression: Basic Skills

| | | | | | | |
|---|---|---|---|---|---|---|
| | Follow a hyperlinked image to a website using a laptop or PC. | | | | | |
| **Research**<br><br>Follow a hyperlinked image to a website.<br><br>Use a QR code (with an image) to go to a website. | **Research**<br><br>Follow links to find information | **Research**<br><br>Use simple children's search engine eg Kiddle | **Research**<br><br>Use safe search engine eg Primary ICT / Swiggle | **Research**<br><br>Acknowledge source of information / images | **Research**<br><br>Identify three online sources to check information | **Research**<br><br>Use a range of search filters e.g. +, -, or, info: advanced searching, file type. |
| **Keyboard**<br><br>Use keyboard to find the letters of name or basic spellings. | **Keyboard**<br><br>Use keyboard to find the letters of your name or basic spellings. (Encourage use of left and right hands.)<br><br>Use shift key for a capital letter.<br><br>Use space bar between words. | **Keyboard**<br><br>Use keyboard to enter text (index fingers left and right hand).<br><br>Know when and how to use the RETURN/ENTER key.<br><br>Use SHIFT and CAPS LOCK to enter capital letters. Use DELETE and BACKSPACE buttons to correct text. | **Keyboard**<br><br>Use individual fingers to input text and use SHIFT key to type characters.<br><br>Amend text by highlighting and using SELECT/DELETE and COPY/PASTE.<br><br>Swap between letters and symbol input on a tablet<br><br>Add shapes and word art to documents and presentations | **Keyboard**<br><br>Use a keyboard effectively, including the use of numbers<br><br>Know how to use a spellcheck<br><br>Be aware of keyboard shortcuts on laptops and PCs.<br><br>Change font sizes and colour of text<br><br>Use appropriate screen capture and insert in document or presentation | **Keyboard**<br><br>Use keyboard to confidently input text, characters and numbers<br><br>Use bullet points<br><br>Add text boxes<br>Move, resize and rotate shapes, text and pictures<br><br>Use common keyboard shortcuts on laptops and PCs | **Keyboard**<br><br>Effectively use right click menu within documents and presentations<br><br>Save as a particular file type<br><br>Select menu options within a variety of apps<br><br>Create tables<br><br>Use find and replace when editing documents |

# Computing Knowledge Progression: Programming

Knowledge Skills: Programming

| | | Plan | Do | Review |
|---|---|---|---|---|
| EYFS Vocabulary: app, control, information, instruction, internet, program, swipe, tap | | | | |
| EYFS | | • Learn to make a floor robot move.<br>• Learning to use simple software.<br>• Learning to make choices about the buttons and icons I press, touch or click on. | • Make something happen to a floor robot | • To be able to talk about some of the steps needed to make a floor robot move |
| KS1 Vocabulary: action, algorithm, background, bug, data, debug, error, search, selection, sequence, input, loop, output, repeat, software, world wide web | | | | |
| KS1 | Year 1 | • Describe what actions I will need to do to make something happen and begin to use the word algorithm.<br>• Begin to predict what will happen for a short sequence of instructions.<br>• Begin to use software/apps to create movement and patterns on a screen. | • Press the buttons in the correct order to make my robot do what I want.<br>• Use the word debug when correcting mistakes when programming | • Describe what happens when I press buttons on a robot. |
| | Year 2 | • Give instructions (using forward, backward and turn) and physically follow their instructions.<br>• Explain the order needed to do things to make something happen and talk about this as an algorithm. | • Program a robot or software to do a particular task.<br>• Use programming software to make objects move. Watch program execute and spot where it goes wrong so that I can debug it. | • Look at a friend's program and tell you what will happen. |
| LKS2 Vocabulary: block, blocks palette, command, control block, repetition, simulation, sprite, stage, logical reasoning, scripts, scripts area | | | | |
| LKS2 | Year 3 | • Put programming commands into a sequence to achieve a specific outcome. | • Test a program and recognise when it needs debugging.<br>• Use repeat commands. Detect a problem in an algorithm which could result in unsuccessful programming. | • Describe the algorithm needed for a simple task.<br>• Break open-ended problems into smaller parts. |
| | Year 4 | • Use an efficient procedure to simplify a program.<br>• Use a sensor to detect a change which can select an action within my program.<br>• Know to keep testing a program whilst putting it together.<br>• Use a variety of tools to create a program. | • Recognise an error in a program and debug it.<br>• Recognise that an algorithm will help me to sequence more complex programs. | • Use logical thinking to solve an open-ended problem by breaking it up into smaller parts.<br>• Recognise that using algorithms will also help solve problems in other learning such as Maths, Science and Design and Technology. |

# Computing Knowledge Progression: Programming

| | | | | | |
|---|---|---|---|---|---|
| | UKS2 Vocabulary: variables, pixel, object, sensors | | | | |
| | UKS2 | Year 5 | • Decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program.<br>• Refine a procedure using repeat commands to improve a program.<br>• Use a variable to increase programming possibilities.<br>• Change an input to a program to achieve a different output.<br>• Use 'if' and 'then' commands to select an action.<br>• about a physical system. | • Use logical reasoning to detect and debug mistakes in a program. | • Use logical thinking, imagination and creativity to extend a program.<br>• Talk about how a computer model can provide information |
| | | Year 6 | • Deconstruct a problem into smaller steps, recognising similarities to solutions used before.<br>• Explain and program each of the steps in my algorithm.<br>• Recognise when I need to use a variable to achieve a required output. | • Use logical reasoning to detect and correct errors in algorithms and programs.<br>• Use a variable and operators to stop a program<br>• Use different inputs (including sensors) to control a device or onscreen action and predict what will happen. | Evaluate the effectiveness and efficiency of an algorithm whilst continually testing the programming of that algorithm. |

# Computing Knowledge Progression: Data Handling

Knowledge Skills: Data Handling

| | | Plan | Do | Review |
|---|---|---|---|---|
| EYFS Vocabulary: program, image | | | | |
| EYFS | | • Learn about different kinds of information such as pictures, videos, text and sound | • Explore a range of information such as pictures, videos, text and sound | • Be able to talk about different kinds of information such as pictures, videos, text and sound |
| KS1 Vocabulary: open, present, display, format, pictograph, technology, file, save, data, database, graph, chart | | | | |
| KS1 | Year 1 | • Use technology to collect information, including photos, video and sound.<br>• Add information to a pictograph and talk about what I have found out. | • Sort different kinds of information and present it to others. | • Talk about the ways in which information can be shown. |
| KS1 | Year 2 | • Talk about the different ways technology can be used to collect information, including a camera, microscope or sound recorder.<br>• Explain what kind of information could be used to help investigate a question | • Make and save a chart or graph using the data collected. | • Talk about the data that is shown in my chart or graph.<br>• Start to understand a branching database. |
| LKS2 Vocabulary: variables, data logger, PageRank, Query | | | | |
| LKS2 | Year 3 | • Talk about the different ways data can be organised.<br>• Search a ready-made database to answer questions.<br>• Collect data help me answer a question.<br>• add to a database. | • Make a branching database.<br>• Use a data logger to monitor changes and can talk about the information collected | • Talk about the different ways data can be organised. |
| LKS2 | Year 4 | • Organise data in different ways.<br>• Plan, create and search a database to answer questions.<br>• Choose the best way to present data to my peers | • Use a data logger to record and share my readings with peers | • Collect data and identify where it could be inaccurate. |
| UKS2 Vocabulary: spreadsheet, field, entry, cell, row, column, results, conclusions | | | | |

# Computing Knowledge Progression: Data Handling

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|---|---|---|---|---|---|
| | UKS2 | Year 5 | • Use a spreadsheet and database to collect and record data.<br>• Choose an appropriate tool to help me collect data.<br>• Search a database using different operators to refine a search. | • Present data in an appropriate way. | • Talk about mistakes in data and suggest how it could be checked. |
| | | Year 6 | • Plan the process needed to investigate the world around me.<br>• Select the most effective tool to collect data for my investigation.<br>• Check the data collected for accuracy and plausibility | • Interpret the data collected.<br>• Present the data I collected in an appropriate way. | • Use the skills I have developed to interrogate a database. |

# Computing Knowledge Progression: Multimedia/Create

| Knowledge Skills: Multimedia/Create | | | Plan | Do | Review |
|---|---|---|---|---|---|
| | EYFS Vocabulary: e-safety, program, device, screen, technology, insert | | | | |
| | EYFS | | • Move objects on a screen. | • Create shapes and text on a screen. | • Use technology to show learning. |
| | KS1 Vocabulary: information, selection, sequence, tools, keyboard, save, file, digital, open, algorithm, debug, computer networks, input, output, software, world wide web, delete, font, word art | | | | |
| | KS1 | Year 1 | • Be creative with different technology tools.<br>• Use technology to create and present ideas. | • Use the keyboard or a word bank on a device to enter text. | • Save information in a special place and retrieve it again. |
| | | Year 2 | • Save and open files on the device used.<br>• Use the keyboard on a device to add, delete and space text for others to read. | • Use technology to organise and present ideas in different ways. | • Talk about an online tool that will help me to share my ideas with other people. |
| | LKS2 Vocabulary: hyperlink, media, spellchecker, graphics, shortcuts, evaluate, audience, online/offline, download, website, URL, social media, photos, videos, document, collaborate, constructive feedback | | | | |
| | LKS2 | Year 3 | • Create different effects with different technology tools.<br>• Combine a mixture of text, graphics and sound to share ideas and learning. | • Use appropriate keyboard commands to amend text on a device, including making use of a spellchecker.<br>• Use an appropriate tool to share my work online. | • Evaluate work and improve its effectiveness. |
| | | Year 4 | • Use photos, videos and sound to create an atmosphere when presenting to different audiences.<br>• Being confident to explore new media to extend what I can achieve.<br>• Change the appearance of text to increase its effectiveness. | • Create, modify and present documents for a particular purpose.<br>• Use an appropriate tool to share my work and collaborate online. | • Use a keyboard confidently and make use of a spellchecker to write and review my work.<br>• Give constructive feedback to my friends to help them improve their work and refine my own work. |

# Computing Knowledge Progression: Multimedia/Create

| | | | | | |
|---|---|---|---|---|---|
| | UKS2 Vocabulary: editing, evaluate, credible source, reliability | | | | |
| | UKS2 | Year 5 | • Use text, photo and video editing tools to refine my work.<br>• Select, use and combine the appropriate technology tools to create effects that will have an impact on others. | • Use pre-developed skills to create content using unfamiliar technology.<br>• Select an appropriate online or offline tool to create and share ideas. | • Review and improve my own work and support others to improve their work. |
| | | Year 6 | • Talk about atmosphere and structure when planning a particular outcome.<br>• Confidently identify the potential of unfamiliar technology to increase my creativity.<br>• Explain how to select a particular online tool for a specific purpose. | • Combine a range of media, recognising the contribution of each to achieve a particular outcome. | • Be digitally discerning when evaluating the effectiveness of my own work and the work of others. |




# Computing Knowledge Progression: Technology in our lives

Knowledge Skills: Technology in our lives

| | | Plan | Do | Review |
|---|---|---|---|---|
| EYFS Vocabulary: internet, equipment, Apps, privacy, settings, online, offline, log in, password, personal-information | | | | |
| EYFS | | • Talk about technology that is used at home and in school. | • Operate simple equipment. | • Use a safe part of the Internet to play and learn. |
| KS1 Vocabulary: operate, sources, hyperlink, search engine, digital content, messaging, index, email, forward, replay, send, carbon copy, attachments, recipient, notification, text, content, contact | | | | |
| KS1 | Year 1 | • Recognise the ways we use technology in our classroom.<br>Recognise ways that technology is used in my home and community. | • Use links to websites to find information | • Begin to identify some of the benefits of using technology. |
| KS1 | Year 2 | • Talk about why I use technology in the classroom.<br>• Explain why we use technology in my home and community.<br>• Start to understand that other people have created the information I use. | • Identify benefits of using technology including finding information, creating and communicating. | • Talk about the differences between the Internet and things in the physical world. |
| LKS2 Vocabulary: upload, download, copy, paste, share, skype, facetime, video chat, blog, pod-cast, copyright, pop-ups, cookies, creditable, reliable, bias | | | | |
| LKS2 | Year 3 | • Save and retrieve work on the Internet, the school network or my own device.<br>Talk about the parts of a computer.<br>Talk about ways to communicate with others online. Describe the World Wide Web as the part of the Internet that contains websites. | • Use search tools to find and use an appropriate website. | • Think about whether I can use images that I find online in my own work. |
| LKS2 | Year 4 | • Talk about whether a resource I am using is on the Internet, the school network or my own device.<br>• Identify key words to use when searching safely on the World Wide Web.<br>• Think about the reliability of information I read on the World Wide Web. | • Explain how to check who owns photos, text and clipart.<br>Create a hyperlink to a resource on the World Wide Web. | • Recognise that websites use different methods to advertise products. |

# Computing Knowledge Progression: Technology in our lives

| | | | | |
|---|---|---|---|---|
| | UKS2 Vocabulary: advertise, webpage, search engine, encrypt, re-post, tagging, plagiarism, referencing, cyber attack | | | |
| UKS2 | Year 5 | • Describe different parts of the Internet.<br>• Describe the different parts of a webpage.<br>• Find out who the information on a webpage belongs to | • Use different online communication tools for different purposes.<br>• Use a search engine to find appropriate information and check its reliability.<br>• Know which resources on the Internet I can download and use. | • Recognise and evaluate different types of information I find on the World Wide Web.<br>• Describe the ways in which websites advertise their products to me. |
| | Year 6 | • Talk about the internet services I need to use for different purposes.<br>• Describe how information is transported on the Internet.<br>• Talk about the way search results are selected and ranked. | • Select an appropriate tool to communicate and collaborate online.<br>• Check the reliability of a website. | • Know that websites can use my data to make money and target their advertising.<br>• Talk about copyright and acknowledge the sources of information that I find online. |

# Resources

***Purple Mash:*** https://www.purplemash.com/#tab/pm-home

## *Programming:*

- Beebot App (KS1)
- Coding Safari App (KS1)
- Blockly: https://blockly.games/?lang=en (KS1&2)
- Sprite Box: https://spritebox.com/hour.html (KS1&2)
- Lightbot: https://lightbot.com/ (KS2)
- Scratch: https://scratch.mit.edu/ (KS1&2)
- Kodu: https://www.kodugamelab.com/ (UKS2)

## *Technology in our lives:*

- Smartie the Penguin: https://www.childnet.com/resources/smartie-the-penguin (KS1 – Discussing the importance of being safe online)
- Safer internet: https://www.saferinternet.org.uk/safer-internet-day/2020 (KS1&2)