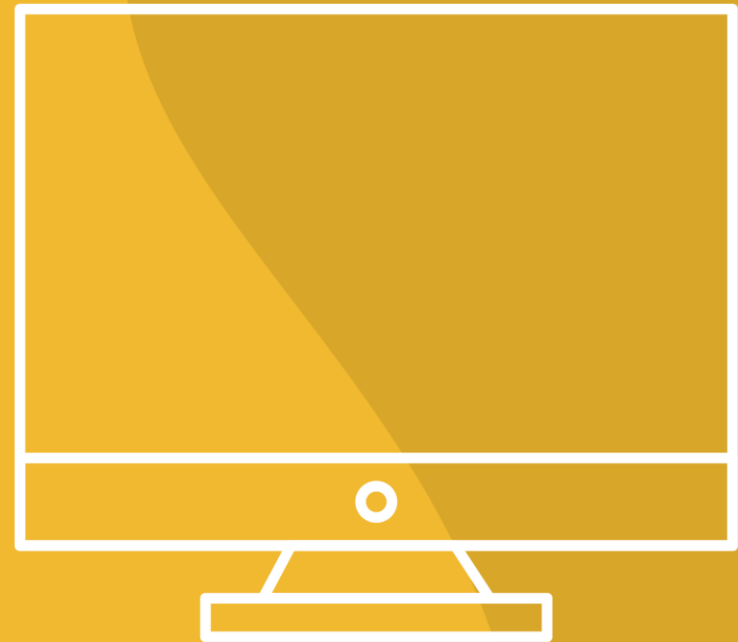




HAWKSWORTH WOOD
PRIMARY SCHOOL



Computing

Curriculum Document

Computing at Hawksworth Wood Primary School

At Hawksworth Wood Primary School, we aim to prepare our pupils for the future by giving them the opportunities to gain knowledge and develop skills that will equip them for an ever-changing digital world. Knowledge and understanding of Computing is of increasing importance for children's future both at home and for employment. Our Computing curriculum focuses on a progression of skills in digital literacy, computer science and information technology to ensure that children become competent in safely using, as well as understanding, technology. These strands are taught discretely through a range of units during children's time in school to ensure the learning is embedded and skills are successfully developed. Our intention is that Computing also supports children's creativity and cross curricular learning to engage children and enrich their experiences in school.

| Key Areas | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|----------------------|---|--------|--------|--|--------|--------|
| Key Knowledge | <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 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. | | | <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, how search results are selected and ranked. Use search technologies effectively. 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 to accomplish given goals, including collecting, analysing, evaluating, and presenting data and information. Understand the opportunities networks can offer for communication and collaboration. Be discerning in evaluating digital content. Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | | |



Key Skills

What is a computer?

Use different digital devices.

Recognise that you can access content on a digital device.

Use a mouse, touchscreen or appropriate access device to target and select options on screen.

Recognise a selection of digital devices.
Recognise the basic parts of a computer,
- e.g. mouse, screen, keyboard.

What is a computer?

Recognise a range of digital devices.

Select a digital device to fulfil a specific task, e.g. to take a photo.

Name a range of digital devices, e.g. laptop, phone, games console.

Log on to the school computer / unlock the school tablet with support.

Identify the basic parts of a computer,
- e.g. mouse, keyboard, screen.

Use a suitable access device (mouse, keyboard, touchscreen, switch) to access and control an activity on a computer.

Open key applications independently.

Save and open files with support.

Add an image to a document from a given folder/source with support.

What is a computer?

Recognise what a computer is (input > process > output).

Recognise that a range of digital devices contain computers,
- e.g. phone, games console, smart speaker.

Explain what the basic parts of a computer are used for.

Identify and use input devices,
- e.g. mouse, keyboard; and output devices,
- e.g. speakers, screen.
- Open key applications independently.
- Save and open files to/from a given folder.

Add an image to a document from a given folder/source.

Resize an image in a document.
Highlight text and use arrow keys.

What is a computer?

Describe what a computer is (input > process > output).

- Explain the difference between input and output devices on a computer.

Know where to save and open files (e.g. in shared folder).

Save files with appropriate names.

Use a keyboard effectively to type in text.

Use left-, right- and double-click on the mouse.

Add an image to a document from the internet.

Resize and move an image in a document.

Use a search engine to find simple information.

Recognise that school

What is a computer?

Recognise that you can organise files using folders.

- Explain what a good file name would look like.

Delete and move files.

Use key parts of a keyboard effectively, e.g. shift, arrow keys, delete).

Know how to copy and paste text or images in a document.

Crop an image and apply simple filters.

Use a search engine to find - specific information.

Recognise that school computers are connected together on a network.

What is a computer?

Type using fingers on both hands.

Use common keyboard shortcuts, e.g. ctrl C (copy), ctrl V (paste).

Explain what makes a strong password.
Use folders to organise files.

Know how to mute and unmute audio on a computer or tablet.

Recognise that there is more than one search engine, and they may produce different results.

Use a search engine effectively to find information and images.

Know how to search for an application on a computer/tablet.

What is a computer?

Type efficiently using both hands.

Use a range of keyboard shortcuts.

Recognise that different devices may have different operating systems.

Organise files effectively using folders and file names.

Use the advanced search tools when using a search engine to find specific information and images.

Explain the basic function of an operating system.

Recognise common file types and extensions e.g. jpeg, png, doc, wav

Recognise a range of Internet services, e.g. email, VOIP



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| | | | Capture media independently (e.g. take photos, record audio). | computers are connected. | | | (e.g. Skype, FaceTime), World Wide Web, and what they do. |
| | Presenting Information and Multimedia | Presenting Information and Multimedia | Presenting Information and Multimedia | Presenting Information and Multimedia | Presenting Information and Multimedia | Presenting Information and Multimedia | Presenting Information and Multimedia |
| | Use technology to explore and access digital content. Operate a digital device with support to fulfil a task. Create simple digital content, e.g. digital art. Choose media to | Create digital content, e.g. digital art. Choose media from a selection (e.g. images, video, sound) to present information on a topic. Recognise that you | Create simple digital content for a purpose, e.g. digital art. Recognise that we can use technology to record and playback audio or take and view photographs. | Present ideas and information by combining media independently, e.g. text and images. Design and create simple digital content for a purpose/ | Collect, organise and present Information using a range of media. Design and create digital content for a specific purpose, e.g. poster, animation. | Identify and use appropriate hardware and software to fulfil a specific task. Remix and edit a range of existing and their own media to create content. | Select, combine and remix a range of media to create original content. Consider all steps of the design process when creating content (e.g. identify problem, plan, |



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| | <p>convey information, e.g. image for a poster.</p> | <p>can find out information from a website.</p> <p>Recognise that you can edit digital content to change its appearance.</p> <p>Select basic tools/options to change the appearance of digital content, e.g. filter on an image / font / size of paintbrush.</p> <p>Combine media with support to present information, e.g. text and images.</p> | <p>Apply edits to digital content to achieve a particular effect, e.g. emphasise part of a text.</p> <p>Present ideas and information by combining media, e.g. text and images.</p> <p>Explain that you can search for information on the internet.</p> <p>Plan out digital content, e.g. a simple sketch or storyboard.</p> <p>Identify the common features of digital content, e.g. title, images.</p> <p>Recognise that we can use different types of media to convey information, e.g. text, image, audio, video.</p> | <p>audience, e.g. poster.</p> <p>Edit digital content to improve it, e.g. resize text.</p> <p>Identify the features of a good piece of digital content.</p> <p>Explain why we use technology to create digital content.</p> <p>Recognise why we use different types of media to convey information, e.g. text, image, audio, video.</p> | <p>- Edit digital content to improve it according to feedback.</p> <p>Identify the features of a good piece of digital content and apply these in own design. Explain the benefits of using technology to present information</p> <p>Know where to find copyright-free content, e.g. creative commons images.</p> <p>Collaborate with peers using online tools, e.g. blogs, Google Drive, Office365, if available.</p> | <p>Consider the audience when designing and creating digital content.</p> <p>Recognise the benefits of using technology to collaborate with others</p> <p>Identify success criteria for creating digital content for a given purpose and audience.</p> <p>Evaluate their own content against success criteria and make improvements accordingly.</p> | <p>create, evaluate, share.)</p> <p>Identify the most effective tools to</p> <p>Present information for a specific purpose.</p> <p>Explain the benefits of using technology to collaborate with others.</p> <p>Evaluate existing digital content in terms of effectiveness and design.</p> |
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| Data | Data | Data | Data | Data | Data | Data |
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| <p>Access content in a range of formats, - e.g. image, video, audio.</p> <p>Answer basic questions about information displayed in images - e.g. more or less.</p> | <p>Recognise different forms of digital content, i.e. text, image, video and audio.</p> <p>Collect simple data (e.g. likes/dislikes) on a topic.</p> <p>Present simple data using images, e.g. number of animals.</p> <p>Recognise charts and pictograms and why we use them.</p> <p>Explain information shown in a simple chart or pictogram.</p> <p>Modify simple charts/pictograms, e.g. add title, item or labels.</p> <p>Identify the key features of a chart or pictogram.</p> <p>Collect data on a topic (eye colour, pets etc.) and present in a pictogram or chart.</p> | <p>Identify different forms of digital content, i.e. text, image, video and audio.</p> <p>Recognise charts, pictograms and branching databases, and why we use them.</p> <p>Identify an object using a branching database</p> <p>Recognise an error in a branching database.</p> <p>Create a branching database using pre-prepared images and questions</p> <p>Identify the features of a good question in a branching database.</p> <p>Independently plan out and create a branching database. Evaluate a given branching database and suggest improvements.</p> | <p>Recognise charts, pictograms and databases, and why we use them.</p> <p>Present information using a suitable chart</p> <p>Explore a record card database to find out information.</p> <p>Use filters in a database to find out specific information.</p> <p>Name the key parts of a database, e.g. record, field, search.</p> <p>Answer questions about information in a database.</p> <p>Name some benefits of using a computer to create charts and databases.</p> <p>Recognise that search engines store information in databases.</p> | <p>Draw conclusions from information stored in a database, chart or table.</p> <p>Design a questionnaire and collect a range of data on a theme.</p> <p>Choose appropriate formats to present data to convey information.</p> <p>Recognise that school computers are connected together on a network. Recognise that the Internet is made up of computers and other digital devices connected together all around the world.</p> <p>Know that you use a web browser to access information stored on the internet.</p> <p>Appreciate that you need to use specific software to work with</p> | <p>Explain the difference between data and information.</p> <p>- Appreciate that different programs work with different types of data, e.g. text, number, video.</p> <p>Explain the difference between the Internet and the World Wide Web.</p> <p>Know the difference between a search engine and a web browser.</p> <p>Explain the basics of how search engines work, and that different search engines may give different results.</p> <p>Perform complex searches for information using advanced settings in search engines.</p> <p>Recognise the benefits and risks</p> | <p>Recognise what a spreadsheet is and what it is used for.</p> <p>Explain the difference between physical, mobile and wireless networks. Use simple formulae in a spreadsheet to find out information from a set of data.</p> <p>Collect data for a purpose and plan out a spreadsheet to present it effectively, using relevant formulae.</p> <p>Produce graphs from data in a spreadsheet to answer a question.</p> <p>Analyse and evaluate data and information in a spreadsheet, chart or database.</p> <p>Recognise that poor quality data leads to unreliable results.</p> |



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| | | | | | video, images, audio etc. | ofsharing data online. | |
| | Programming and Algorithms | Programming and Algorithms | Programming and Algorithms | Programming and Algorithms | Programming and Algorithms | Programming and Algorithms | Programming and Algorithms |
| | <p>Explore technology.</p> <p>Repeat an action with technology to trigger a specific outcome.</p> <p>Recognise the success or failure of an action.</p> <p>Follow simple instructions to control a digital device.</p> <p>Recognise that we control computers.</p> <p>Input a short sequence of instructions to control a device.</p> | <p>Recognise that computers don't have a brain.</p> <p>Explain that we control computers by giving them instructions.</p> <p>Create a simple program e.g. to control a floor robot.</p> <p>Create a simple algorithm.</p> <p>Predict the outcome of a simple algorithm or program.</p> <p>Explain what an algorithm is – a sequence of instructions to make something happen.</p> <p>Recognise that the order of instructions in an algorithm is important.</p> <p>Debug an error in a simple algorithm or program e.g. for a</p> | <p>Explain that computers have no intelligence and we have to program them to do things.</p> <p>Create a program with multiple steps e.g. to control a floor robot.</p> <p>Predict the outcome of an algorithm or program with multiple steps.</p> <p>Recognise that the instructions in an algorithm need to be clear and unambiguous.</p> <p>Identify and correct errors in a given algorithm or program and recognise the term debugging.</p> <p>Explain what an algorithm is, and</p> | <p>Predict the outcome of a block or text-based program (Scratch/Logo).</p> <p>Successfully modify an existing program, e.g. change background, number of times things happen.</p> <p>Identify repeated steps in a program or algorithm.</p> <p>Create examples of algorithms containing count-controlled loops.</p> <p>Use a count-controlled loop (e.g. repeat 3 times) to make a program more efficient.</p> <p>Recognise that we can create an algorithm to help</p> | <p>Create a program using a range of events/inputs to control what happens.</p> <p>Recognise that we can decompose a problem into smaller parts to help solve it</p> <p>Explain when to use forever loops and count-controlled loops, and use them in programs.</p> <p>Recognise selection in a program or algorithm.</p> <p>Use selection in algorithms in programs to alter what happens when a condition changes, e.g. if...then...</p> | <p>Name a range of sensors in physical systems.</p> <p>Recognise that different solutions may exist for the same problem. Predict what will happen in a program or algorithm when the input changes (e.g. sensor, data or event).</p> <ul style="list-style-type: none"> - Use two-way selection in programs and algorithms, i.e. if...then...else... <p>Recognise variables in a program and what they do.</p> <p>Create programs including repeat until loops.</p> <p>Create and use simple variables,</p> | <p>Design and Program a physical computing system that uses sensors.</p> <p>Recognise and use procedures (sub-routines) in programs.</p> <p>Plan out a program in detail, including task, algorithm, code and execution level.</p> <p>Explain common errors in programs and how to fix them.</p> <p>Use nested selection statements in a program or algorithm effectively.</p> <p>Combine a variable with relational operators (< = >)</p> |



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| | | floor robot. | that when inputted on a computer it is called a program. Plan out a program by creating an algorithm and evaluate its success. | plan out a program. Recognise a foreverloop in a program or algorithm. Use a forever loop in a program to keepsomething happening. Identify errors in a block or text-based program and correct them. Recognise that different inputs can be used to control aprogram. | Design a program for a purpose. Decompose into parts and create analgorithm for each one. Recognise commonmistakes in programsand how to correct them. | e.g. to keep score. Evaluate a program and make improvements to the code or design accordingly. Create an algorithm for a physical system containing a sensor | to determine when a program changes, e.g. if score > 5, say "welldone". Recognise key concepts (sequence, repetition and variables) in a range of languagesand contexts. |
| | Digital Literacy | Digital Literacy | Digital Literacy | Digital Literacy | Digital Literacy | Digital Literacy | Digital Literacy |
| | Are aware that some online contentis inappropriate. Are aware that information can be public or private. Know to tell an appropriate adult if they see something on the computer that upsets them. | Use a simple password when logging on, whererelevant. Explain why we use passwords. Recognise examples of personal information e.g. name, image. Know who to tell if concerned about content or contact online. Recognise that | Remember a simple password to log ontothe computer or a website. Identify rules for acceptable use of technology in school. Recognise what personal informationis and the need to keep it private. Recognise that spending a lot oftime in front of ascreen can be unhealthy. | Explain why we need to keep our password safe. Recognise that digital content belongs to the person who first created it, but we can give permissionfor others to use it. Recognise when toshare personal information and when not to. Recognise that | Remember and use an individual password. Recognise what kinds of websites aretrustworthy sources of information. Recognise the benefits and risks ofdifferent apps and websites. Recognise that themedia can portray groups of people | Know where to find copyright free images and audio,and why this is important. Critically evaluate websites for reliability of information and authenticity. Demonstrate responsible use of aonline services, andknow a range of ways | Explain what makes a strong password and whythis is important at school and in the wider world. Explain how algorithms are used to track online activities with a view to targeting advertising and information. |



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| | | digital content belongs to the person who created it. Talk about their use of technology at home. | Recognise that some information found online may not be true | some people lie about who they are online. Are aware that games and films have age ratings. | differently. Can rate a game or film they have made and explain their rating. | to report concerns. | Know that there are laws around the purchase of games; the production, sending and storage of images; what is written online; and around online gambling. |
| Key Vocabulary | What is a computer? Technology Share Create Internet | What is a computer? Purpose Online tools Communicate | What is a computer? Information sources Communication Purposes Website content | What is a computer? School network Devices Computer parts Collaborate Appropriate online communication Search tools Appropriate websites Owner | What is a computer? Different networks Information collection Reliability Owners | What is a computer? Computing devices Internet parts Collaboration Responsibility Searching strategies Webpages | What is a computer? Information movement Connecting devices Different audiences Research strategies Search result rankings Acknowledge resources |
| | Presenting Information and Multimedia Screen Mouse Images Keyboard Paint | Presenting Information and Multimedia Videos Camera stills Sounds Image bank Word bank Space bar | Presenting Information and Multimedia Paint effects Templates Animation Documents Index finger typing Enter/return Caps lock Backspace | Presenting Information and Multimedia Multimedia Presentations Alignment Brush size Repeats Reflections Green screening Amend | Presenting Information and Multimedia Creating + modifying Specific purpose Photo modifying Keyboard shortcuts Bullet points Spell check Constructive | Presenting Information and Multimedia Online sharing Multimedia effects Multimedia modification Transitions Hyperlinks Editing tools Refining Online sharing | Presenting Information and Multimedia Appropriate online tools Audience Atmosphere Structure Copyright Information Collection HTML code |



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| | | | | Copy Paste | feedback | | Storing |
| | Data Collect Set of photos Count Organise | Data Photographs Video Sound Data Pictogram Digitally | Data Capturing moments Magnified images Questions Data collection Graphs Charts Save Retrieve | Data Questioning Database Construct Contribute Recording data Data logger Present data | Data Database creation Database searches Inaccurate data | Data Spreadsheets Complex searches (and/or: </>) Problem solving Present answers Analyse information Question data Interpret | Data Generate Process Interpret Store Present information Plausibility Appropriate data tool Interrogate Investigations |
| | Programming and Algorithms Equipment Buttons Movement | Programming and Algorithms Instructions Buttons Robots Patterns Program | Programming and Algorithms Forward Backward Right-angle turn Algorithm Sequence Debug Predict | Programming and Algorithms Sequence instructions Sequence debugging Test + improve Logo commands Sequence programming | Programming and Algorithms Type + edit logo commands Sensors Open-ended problems Bugs in programs Complex programming | Programming and Algorithms Explore procedures Refine procedures Variable Hardware + software control Change inputs Different outputs | Programming and Algorithms Predicting outputs Plan, program, test & review a program Program writing Control mimics + devices Sensors Measure input Create |



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| | | | | | | Articulate solutions Commands | variablesLink errors |
| | Digital Literacy Choices Internet Website | Digital Literacy Rules Online Private information Email | Digital Literacy Appropriate/ inappropriate sites Cyber-bullying Digital footprint Keyword searching | Digital Literacy E-safety rules Secure passwords Report abuse buttonGaming Blogs | Digital Literacy E-safety rules Secure passwords Report abuse button Gaming Blogs | Digital Literacy Responsible online communication Informed choices Virus threats Blogs Messaging | Digital Literacy Responsible online communication Informed choices Virus threats Blogs Messaging |



Computing Long-term Plan

| Year Group | Autumn | | Spring | | Summer | |
|-------------|--|--|---|--|--|---|
| | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| EYFS | Physical development: Gross motor, change direction when running | Physical development: Gross motor, change direction when moving in different ways | Number: position and direction. Forwards, backwards, left, right | Fine motor: hand eye co-ordination | Fine motor developing pincer | Prepositions |
| KS1 Year A | Y1: Use hardware when using a computer Y2: Identify information technology in real-life | Y1: Digital painting Y2: Editing digital photography | Y1: Programming algorithms Y2: Pictograms | Y1: Grouping data Y2: Problem-solving with algorithms | Y1: Digital writing Y2: Introduction to quizzes | Y1: Programming animations Y2: Making music |
| KS1 Year B | Y1: Use hardware when using a computer Y2: Identify information technology in real-life | Y1: Digital painting Y2: Editing digital photography | Y1: Programming algorithms Y2: Pictograms | Y1: Grouping data Y2: Problem-solving with algorithms | Y1: Digital writing Y2: Introduction to quizzes | Y1: Programming animations Y2: Making music |
| LKS2 Year A | Y3: Stop-frame Animation Y4: The Internet | Y3: Connecting Computers Y4: Audio Editing | Y3: Branching Databases Y4: Repetition in Shapes | Y3: Sequence in Music Y4: Data Logging | Y3: Events and Actions Y4: Photo Editing | Y3: Desktop Publishing Y4: Repetition in Games |
| LKS2 Year B | Y3: Stop-frame Animation Y4: The Internet | Y3: Connecting Computers Y4: Audio Editing | Y3: Branching Databases Y4: Repetition in Shapes | Y3: Sequence in Music Y4: Data Logging | Y3: Events and Actions Y4: Photo Editing | Y3: Desktop Publishing Y4: Repetition in Games |
| UKS2 Year A | Y5: Sharing Information Y6: Web Page Creation | Y5: Video Editing Y6: Communication | Y5: Selection in Physical Computing Y6: Introduction to Spreadsheets | Y5: Flat-file Databases Y6: Variables in Games | Y5: Vector Drawing Y6: Sensing | Y5: Selection in Quizzes Y6: 3D Modelling |



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| UKS2 Year B | Y5: Sharing Information Y6: Web Page Creation | Y5: Video Editing Y6: Communication | Y5: Selection in Physical Computing Y6: Introduction to Spreadsheets | Y5: Flat-file Databases Y6: Variables in Games | Y5: Vector Drawing Y6: Sensing | Y5: Selection in Quizzes Y6: 3D Modelling |
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