AVANTI HOUSE

EXCELLENCE · VIRTUE · DEVOTION

Curriculum Progression Map

Subject: Computing

Subject intent:

At Avanti House 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	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Key knowledge	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.			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 Appreciate 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 that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Understand the opportunities [networks] 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.		

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Key Skills	What is a computer?	What is a computer?	What is a computer?	What is a computer?	What is a computer?	What is a computer?	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. - Select a digital device to fulfil a specific task, e.g. to take a photo. **Presenting Information and Multimedia**	- 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.	- 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.	- 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.	- 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.	- 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.	- 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 files 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.

	- 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 convey information, e.g. image for a poster. **Data** - Access content in a range of formats, e.g. image, video, audio. - Answer basic questions about information displayed in images e.g. more or less. **Programming and Algorithms** - Explore technology.	- Open key applications independently. - Save and open files with support. - Add an image to a document from a given folder/source with support. **Presenting Information and Multimedia** - 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 can find out information from a website. - Recognise that you can edit digital content to change its appearance. - Select basic	- Resize an image in a document. - Highlight text and use arrow keys. - Capture media independently (e.g. take photos, record audio). **Presenting Information and Multimedia** - 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. - Apply edits to digital content to achieve a particular effect, e.g. emphasise part of a	- Resize and move an image in a document. - Use a search engine to find simple information. - Recognise that school computers are connected. **Presenting Information and Multimedia** - Present ideas and information by combining media independently, e.g. text and images. - Design and create simple digital content for a purpose/audience, e.g. poster. - Edit digital content to improve it, e.g. resize text.	- Recognise that school computers are connected together on a network. **Presenting Information and Multimedia** - Collect, organise and present information using a range of media. - Design and create digital content for a specific purpose, e.g. poster, animation. - Edit digital content to improve it according to feedback. - 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.	- Know how to search for an application on a computer/tablet. **Presenting Information and Multimedia** - 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. - Consider the audience when designing and creating digital content. - Recognise the benefits of using technology to collaborate with others - Identify success criteria for creating digital content for a	- Recognise common file types and extensions e.g. jpeg, png, doc, wav - Recognise a range of Internet services, e.g. email, VOIP (e.g. Skype, FaceTime), World Wide Web, and what they do. **Presenting Information and Multimedia** - 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, create, evaluate, share.) - Identify the most effective tools to

	- Repeat an action with technology to trigger a specific outcome. - Recognise the success or failure of an action. - Follow simple instructions to control a digital device. - Recognise that we control computers. - Input a short sequence of instructions to control a device. **Digital Literacy** - Are aware that some online content is inappropriate. - Are aware that information can be public or private. - Know to tell an appropriate adult if they see something on the computer	tools/options to change the appearance of digital content, e.g. filter on an image / font / size of paintbrush. - Combine media with support to present information, e.g. text and images. **Data** - Recognise different forms of digital content, i.e. text, image, video and audio. - Collect simple data (e.g. likes/dislikes) on a topic. - Present simple data using images, e.g. number of animals. - Recognise charts and pictograms and why we use them. - Explain information shown in a simple chart or pictogram.	text. - Present ideas and information by combining media, e.g. text and images. - Explain that you can search for information on the internet. - Plan out digital content, e.g. a simple sketch or storyboard. - Identify the common features of digital content, e.g. title, images. - Recognise that we can use different types of media to convey information, e.g. text, image, audio, video. **Data**	- Identify the features of a good piece of digital content. - Explain why we use technology to create digital content. - Recognise why we use different types of media to convey information, e.g. text, image, audio, video. **Data** - Recognise charts, pictograms and databases, and why we use them. - Present information using a suitable chart - Explore a record card database to find out information. - Use filters in a database to find out specific information.	- Know where to find copyright-free content, e.g. creative commons images. - Collaborate with peers using online tools, e.g. blogs, Google Drive, Office 365, if available. **Data** - Draw conclusions from information stored in a database, chart or table. - Design a questionnaire and collect a range of data on a theme. - Choose appropriate formats to present data to convey information. - Recognise that school computers are connected together on a network. - Recognise that the Internet is made up of computers and	given purpose and audience. - Evaluate their own content against success criteria and make improvements accordingly. **Data** Explain the difference between data and information. - Appreciate that different programs work with different types of data, e.g. text, number, video. - Explain the difference between the Internet and the World Wide Web. - Know the difference between a search engine and a web browser. - Explain the basics of how search engines work, and that different search engines may	present information for a specific purpose. - Explain the benefits of using technology to collaborate with others. - Evaluate existing digital content in terms of effectiveness and design. **Data** - Recognise what a spreadsheet is and what it is used for. - Explain the difference between physical, mobile and wireless networks. - Use simple formulae in a spreadsheet to find out information from a set of data. - Collect data for a purpose and plan

	that upsets them.	- Modify simple charts/pictograms, e.g. add title, item or labels. - Identify the key features of a chart or pictogram. - Collect data on a topic (eye colour, pets etc.) and present in a pictogram or chart. **Programming and Algorithms** - Recognise that computers don't have a brain. - Explain that we control computers by giving them instructions. - Create a simple program e.g. to control a floor robot. - Create a simple algorithm.	-Identify different forms of digital content, i.e. text, image, video and audio. - Recognise charts, pictograms and branching databases, and why we use them. - Identify an object using a branching database - Recognise an error in a branching database. - Create a branching database using pre-prepared images and questions - Identify the features of a good question in a branching database. - Independently plan out and create a branching database. - Evaluate a given branching database	- Name the key parts of a database, e.g. record, field, search. - Answer questions about information in a database. - Name some benefits of using a computer to create charts and databases. - Recognise that search engines store information in databases. **Programming and Algorithms** - Predict the outcome of a block or text-based program (Scratch/Logo). - Successfully modify an existing program, e.g. change background, number of times things happen.	other digital devices connected together all around the world. - Know that you use a web browser to access information stored on the internet. - Appreciate that you need to use specific software to work with video, images, audio etc. **Programming and Algorithms** - Create a program using a range of events/inputs to control what happens. - Recognise that we can decompose a problem into smaller parts to help solve it. - Explain when to use forever loops and count-controlled loops, and use them in programs.	give different results. - Perform complex searches for information using advanced settings in search engines. - Recognise the benefits and risks of sharing data online. **Programming and Algorithms** - Name a range of sensors in physical systems. - 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). - Use two-way selection in programs	out a spreadsheet to present it effectively, using relevant formulae. - Produce graphs from data in a spreadsheet to answer a question. - Analyse and evaluate data and information in a spreadsheet, chart or database. - Recognise that poor quality data leads to unreliable results. **Programming and Algorithms** Design and program a physical computing system that uses sensors. - Recognise and use procedures (sub-routines) in programs.

		- Predict the outcome of a simple algorithm or program. - Explain what an algorithm is – a sequence of instructions to make something happen. - Recognise that the order of instructions in an algorithm is important. - Debug an error in a simple algorithm or program e.g. for a floor robot. **Digital Literacy** --Use a simple password when logging on, where relevant. - Explain why we use passwords. - Recognise examples of personal	and suggest improvements. **Programming and Algorithms** Explain that computers have no intelligence and we have to program them to do things. - Create a program with multiple steps e.g. to control a floor robot. - Predict the outcome of an algorithm or program with multiple steps. - Recognise that the instructions in an algorithm need to be clear and unambiguous. - Identify and correct errors in a given algorithm or program, and recognise the term debugging.	- Identify repeated steps in a program or algorithm. - Create examples of algorithms containing count-controlled loops. - Use a count-controlled loop (e.g. repeat 3 times) to make a program more efficient. - Recognise that we can create an algorithm to help plan out a program. - Recognise a forever loop in a program or algorithm. - Use a forever loop in a program to keep something happening. - Identify errors in a block or text-based program and correct them. - Recognise that different inputs can be	- Recognise selection in a program or algorithm. - Use selection in algorithms in programs to alter what happens when a condition changes, e.g. if…then… - Design a program for a purpose. - Decompose into parts and create an algorithm for each one. - Recognise common mistakes in programs and how to correct them. **Digital Literacy** - Remember and use an individual password. - Recognise what kinds of websites are trustworthy sources of information.	and algorithms, i.e. if…then…else… - Recognise variables in a program and what they do. - Create programs including repeat until loops. - Create and use simple variables, 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 **Digital Literacy** - Know where to find copyright free images and audio, and why this is important. - Critically evaluate websites for	- Plan out a program in detail, including task, algorithm, code and execution level. - Explain common errors in programs and how to fix them. - Use nested selection statements in a program or algorithm effectively. - Combine a variable with relational operators (< = >) to determine when a program changes, e.g. if score > 5, say “well done”. - Recognise key concepts (sequence, selection, repetition and variables) in a range of languages and contexts. **Digital Literacy** - Explain what

		information e.g. name, image. - Know who to tell if concerned about content or contact online. - Recognise that digital content belongs to the person who created it. - Talk about their use of technology at home.	- Explain what an algorithm is, and that when inputted on a computer it is called a program. - Plan out a program by creating an algorithm, and evaluate its success. **Digital Literacy** - Remember a simple password to log onto the computer or a website. - Identify rules for acceptable use of technology in school. - Recognise what personal information is and the need to keep it private. - Recognise that spending a lot of time in front of a screen can be unhealthy. - Recognise that some information found online may	used to control a program. **Digital Literacy** - 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 permission for others to use it. - Recognise when to share personal information and when not to. - Recognise that some people lie about who they are online. - Are aware that games and films have age ratings.	- Recognise the benefits and risks of different apps and websites. - Recognise that the media can portray groups of people differently. - Can rate a game or film they have made and explain their rating.	reliability of information and authenticity. - Demonstrate responsible use of a online services, and know a range of ways to report concerns.	makes a strong password and why this 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. - 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.

			not be true				
Key Vocabulary	**What is a computer?** Technology Share Create Internet **Presenting Information and Multimedia** Screen Mouse Images Keyboard Paint **Data** Collect Set of photos Count Organise **Programming and Algorithms** Equipment Buttons Movement **Digital Literacy**	**What is a computer?** Purpose Online tools Communicate **Presenting Information and Multimedia** Videos Camera stills Sounds Image bank Word bank Space bar **Data** Photographs Video Sound Data Pictogram Digitally **Programming and Algorithms** Instructions Buttons Robots	**What is a computer?** Information sources Communication Purposes Website content **Presenting Information and Multimedia** Paint effects Templates Animation Documents Index finger typing Enter/return Caps lock Backspace **Data** Capturing moments Magnified images Questions Data collection Graphs Charts Save Retrieve	**What is a computer?** School network Devices Computer parts Collaborate Appropriate online communication Search tools Appropriate websites Owner **Presenting Information and Multimedia** Multimedia Presentations Alignment Brush size Repeats Reflections Green screening Amend Copy Paste **Data** Questioning	**What is a computer?** Different networks Information collection Reliability Owners **Presenting Information and Multimedia** Creating + modifying Specific purpose Photo modifying Keyboard shortcuts Bullet points Spell check Constructive feedback **Data** Database creation Database searches Inaccurate data **Programming and Algorithms** Type + edit logo commands	**What is a computer?** Computing devices Internet parts Collaboration Responsibility Searching strategies Webpages **Presenting Information and Multimedia** Online sharing Multimedia effects Multimedia modification Transitions Hyperlinks Editing tools Refining Online sharing **Data** Spreadsheets Complex searches (and/or: </>) Problem solving Present answers	**What is a computer?** Information movement Connecting devices Different audiences Research strategies Search result rankings Acknowledge resources **Presenting Information and Multimedia** Appropriate online tools Audience Atmosphere Structure Copyright Information collection HTML code Storing

	Choices Internet Website	Patterns Program **Digital Literacy** Rules Online Private information Email	**Programming and Algorithms** Forward Backward Right-angle turn Algorithm Sequence Debug Predict **Digital Literacy** Appropriate/inappropriate sites Cyber-bullying Digital footprint Keyword searching	Database Construct Contribute Recording data Data logger Present data **Programming and Algorithms** Sequence instructions Sequence debugging Test + improve Logo commands Sequence programming **Digital Literacy** E-safety rules Secure passwords Report abuse button Gaming Blogs	Sensors Open-ended problems Bugs in programs Complex programming **Digital Literacy** E-safety rules Secure passwords Report abuse button Gaming Blogs	Analyse information Question data Interpret **Programming and Algorithms** Explore procedures Refine procedures Variable Hardware + software control Change inputs Different outputs Articulate solutions Commands **Digital Literacy** Responsible online communication Informed choices Virus threats Blogs Messaging	**Data** Generate Process Interpret Store Present information Plausibility Appropriate data tool Interrogate Investigations **Programming and Algorithms** Predicting outputs Plan, program, test & review a program Program writing Control mimics + devices Sensors Measure input Create variables Link errors **Digital Literacy** Responsible online communication Informed choices Virus threats Blogs Messaging