# Hazelbury Bryan Primary School
# Computing Disciplinary Knowledge Progression

| Computing progress across the school | | | | | | |
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| To be achieved by: | Key Stage 1 | | Lower Key Stage 2 | | Upper Key Stage 2 | |
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| **Algorithms** | Give simple instructions to everyday devices to make things happen | Recognise what algorithms are, how they are implemented as programs on digital devices and that programs execute by following a sequence of instructions | Use logical reasoning to explain how a simple algorithm works | Detect and correct errors in algorithms and programs (debug) | With support begin to produce algorithms by using logical and appropriate structures to organise data and create precise and accurate sequences of instructions | Produce algorithms independently using logical and appropriate structures to organise and record data |
| **Computational thinking** | Make choices to control simple models or simulations | Write and test simple programs | Use sequence, selection and repetition in programs | Test programs using models and simulations. Design and write programs that accomplish specific goals, working with variables for input and output | Use flowcharts and other diagrams to follow how a process or model works | Create flowcharts and other diagrams to explain how a process or model works |
| **Problem solving** | Solve a problem using ICT | Use logical reasoning to predict the behaviour of simple programs | Analyse and tackle problems by decomposing into smaller parts | Use logical reasoning to detect problems make changes and find out what happens as a result | Use logical reasoning to solve problems and model situations and processes Predict what will happen when variables and rues within a model are changed | Independently problem solve and model situations and processes by understanding and explaining the impact of changing variables and rules within a model |
| **Networks- Knowledge and understanding** | Discuss and share how and when they use ICT in everyday life | Explain why digital folders are used | Demonstrate a knowledge of computer systems and hardware by describing input and output devices used in everyday life | Demonstrate knowledge and understanding of computer hardware including input , output and storage | Demonstrate knowledge and understanding of computer systems and hardware by identifying and defining the functions of the processor, memory backing storage and peripherals in a typical desktop computer | Demonstrate knowledge and understanding of how networks work by describing the types of service offered e.g. through email, www, ftp and video conferencing |
| **Networks- using and applying** | Complete simple tasks on a computer by following instructions | Organise work into digital folders | Use software or search engines effectively | Create programs to control physical systems. Discuss opportunities for online communication and collaboration. | Select, use and combine a variety of software including internet services on a range of digital devices explaining how email and online discussion areas are used for communication and collaboration | Design and create/use a range of programs to accomplish given goals |
| **Digital Literacy-** | Show an awareness of information in different formats | Recognise common uses of ICT beyond school | Become discerning in evaluating digital content | Evaluate the quality and success of their solutions. Check the plausibility and | Recognise the need for accuracy when searching for and selecting | Take account of accuracy and potential bias when |

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| **knowledge and understanding** | | | | usefulness of information they find. | information Use different sources to double check information found | searching for and selecting information |
| **Digital Literacy- using and applying** | Make decisions about whether or not statements or images found on line are likely to be true | Organise, store, manipulate and retrieve data in a range of digital formats | Identify and select appropriate information using straightforward lines of enquiry. Use different approaches to search and retrieve digital information including the browser address bar and shortcuts | Use and combine a variety of software and internet services on a range of digital devices to accomplish given goals including collecting, analysing, evaluating and presenting data and information | Prepare and present information in a range of forms, using ICT safely and responsibly | Evaluate and improve presentations in the light of discussion, marking and audience response |
| **E-Safety- Personal knowledge and understanding** | Identify different devices that can go online and separate those that do not | Identify obviously false information in a variety of contexts. Identify personal information that should be kept private | Identify ways to keep safe when using ICT. Think before sending and suggest consequences of sending /posting | Recognise social networking sites and social networking features, built into other things such as online games and handheld games consoles. Make judgements in order to stay safe whilst communicating with others online | Judge what sort of privacy settings might be relevant for reducing different risks Judge when to answer a question online and when not to | Find, report and flag buttons in commonly used sites and name sources of help e.g. ChildLine and cyber mentors Find a Click CEOP button and explain to parents what it is for |
| **E-safety- responsibilities** | Understand rules around e-safety and know who to tell if something concerns them online | Communicate safely, respecting and considering other people's feelings online | Recognise online behaviours that would be unfair. Show respect for individuals and intellectual property | Know who to tell if anything worries them online. Identify potential risks when presented with scenarios, including social networking profiles. Use ICT responsibly, securely and safely | Be a good online citizen and friend. Articulate what constitutes good behaviour online. Find and cite the web address for any information or resource found online | Discuss scenarios involving online risk. State the source of information found online. Act as a role model for younger children |
| **Data- Knowledge and understanding** | Explain that images give information. Say what a pictogram is showing them | Explain how a branching diagram or tree works | Identify how to select information to put into a data table. Recognise which information is suitable for their topic | Describe how to sort and organise information to use in a database | Describe how to check for and spot inaccurate data. Know which formulas to use to change a spreadsheet model | Explain that changing the numerical data affects a calculation |
| **Data- using and applying** | Put data into a program (pictogram)› Sort objects and pictures in lists or simple tables | Place objects and pictures in a list or a simple table. Make a simple Yes/No tree diagram or sort information | Design a questionnaire to collect information | Create a branching database from information they have collected and sorted | Create data collection forms and enter data from these accurately. Make graphs from the calculations on their own spreadsheet | Create data collection forms and enter data from these accurately. Make graphs from the calculations on their spreadsheet. Sort and filter information. |