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| Etchells Skills and Knowledge Progression  Subject: Computing | | | | | | | | |
|  | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| ICT Beyond School | Knowledge  Talk about technology that is used at home, in school and in the world around them. | | Knowledge  Recognise that a range of digital devices and products can be considered computers.  Recognise the ways in which technology is used in their homes and community.  Understand that computers have no intelligence and can be nothing without being programmed. | Knowledge  Explain why they use technology in the classroom, in their homes and in the community.  Identify a computer by knowing that it has inputs, a processor and outputs.  Can identify parts of a computer including what an input and output is. | Knowledge  I can say ways you can communicate with people online.  Know how to navigate the web responsibly.  Think about whether you can use images that you find online in your work. | Knowledge  Understand the difference between the Internet and online services such as the World Wide Web, the school network and their own work.  Understand whether a resource they are using is from the World Wide Web, the school network and their own work.  Show an awareness of a range of Internet services such as the World Wide Web, email and instant messaging. | Knowledge  Understand how search results are selected and ranked and the algorithms that they use.  Recognise and evaluate the different types of information that is found on the World Wide Web.  Think and consider the reliability of information that you read on the World Wide Web or other internet services (Fake News.) | Knowledge  Explain the Internet services they need to use for different purposes.  Describe the different parts of a web page  Understand how to construct a website using basic HTML tags.  Explain what copyright is and acknowledge the sources of information that are found online.  Understand how data is transmitted across a network.  Understand what IP is and how it’s used. |
| Skills  Use a safe part of the internet to explore, play and learn. | | Skills  Begin to identify some of the benefits of using technology. | Skills  Identify the benefits of using technology, such as creating content and communication effectively. | Skills  Save and retrieve work online, on the school network and their own device.    Carry out effective web searches to collect digital content. | Skills  Identify key words to use when searching safely online.  Explain how to check who owns photos, text and clipart. | Skills  Use different online tools for different purposes.  Use a search engine effectively to find appropriate information and check the reliability of the website. | Skills  Explain how networks use the Internet to send and receive data. |
| Information technology | Knowledge  Discuss different kinds of information such as pictures, videos, text and sound. | | Knowledge  Discuss the different ways in which information can be shown.  Understand some of the basic functions on a keyboard (Backspace, Caps Lock, Enter) | Knowledge  Discuss data that is shown in your chart or graph.  Explain how investigating data can be used to answer a question.  Discuss the different ways to use technology to collect information including a camera or sound recorder.  Discuss an online tool that will help them to share their ideas with other people. | Knowledge  Understand the difference between data and information.  Discuss the different ways data can be converted into information. | Knowledge  Discuss other people’s work and give them constructive feedback to help them improve their work. | Knowledge  Discuss errors in data and suggest how it could be checked.  Acknowledge sources of information appropriately. | Knowledge |
| Skills  Use a mouse and touch screen to move objects on a screen.  Create shapes and text on a screen. | | Skills  Use technology to collect information including photos, videos and sound.  Sort different kinds of information and present it to others.  Add information to a pictogram and talk about their findings.  Use software with support, to create, store and edit digital content using appropriate file and folder names.  Use the keyboard or a word bank on a device to enter text into a program.  Save information in a specific place and retrieve it again. | Skills  Create a graph or chart using data collected on a specific topic area.  Use a variety of software to manipulate and present digital content with increasing independence.  Use the keyboard on their device to add, delete, edit and format text.  Save and open files on the device they use from a specific file location. | Skills  Search a ready-made database to answer specific questions.  Collect data to help answer questions about a specific topic of theme.  Add and edit an existing database.  Combine a mixture of text, graphics, and sound to share ideas and learning.  Use appropriate keyboard commands to amend text.  Use a spell checker effectively.  Evaluate their work and improve its effectiveness.  Use an appropriate tool to share your work online. | Skills  Demonstrate the different ways data can be organised.  Demonstrate the different ways data can be converted into information.  Make a branching database.  Collect data and identify where it could be inaccurate.  Plan, create and search a database.  Select the best way to present data to a specific audience.  Log data using a device.  Use photos, video and sound to create an atmosphere when presenting to different audiences.  Be confident to explore new media to extend what they can achieve.  Change the appearance of text to increase its effectiveness depending on audience and mood.  Create, modify and present documents for a particular audience and purpose.  Use a keyboard confidently and make use of a spellchecker to write and review their work.  Use an appropriate tool to share their work and collaborate online. | Skills  Choose an appropriate tool to help them collect data.  Present data in an appropriate way depending on the theme and audience.  Use a spreadsheet and database to collect, record and evaluate data.  Search a database using different operators to refine a search.  Use text, photo, sound and video editing tools to evaluate and refine your work.  Use a variety of familiar and unfamiliar software by using a pre-existing skill set.  Select, use and combine the appropriate technology tools to create effects in media.  Select an appropriate online or offline tool to create and share ideas.  Evaluate and improve their own work and support others in improving their work. | Skills  Select the most effective tool to collect data for their investigation.  Check the data you collect for accuracy and plausibility.  Plan the process needed to investigate a set environment or setting.  Interpret and present the data collected.  Use the skills developed to interrogate a database.  use a range of strategies to increase the accuracy of keyword searches.  Talk about audience, atmosphere and structure when planning a particular media outcome.  Combine a range of media, recognising the contribution of each to achieve a particular outcome.  Confidently identify the potential of unfamiliar technology and how it can be used effectively.  Explain why they select a particular online tool for a specific purpose.  Be digitally discerning when evaluating the effectiveness of their own work and the work of others.  Recognise the importance of copyright and how to acknowledge the sources of information. |
| Computer Science | Knowledge  Understand what happens when you click a button or touch an icon. | | Knowledge  Understand what an algorithm is and be able to create a simple algorithm.  Understand and explain how algorithms are used in every day life. | Knowledge  Understand what an algorithm is and demonstrate simple linear algorithms.  Explain the order needed to do things to make something happen and to talk about it as an algorithm. | Knowledge  Understand how an algorithm is implemented using a sequence of precise instructions.  Understand what inputs and outputs are and how they can be used. | Knowledge  Understand how to sequence, using inputs and repetition in programs and the specific effects it has on the output. | Knowledge | Knowledge  Understand the importance of planning, testing and correcting algorithms.  Under why sequence and patterns are important when creating simple algorithms that are part of a more complex program.  Understand and develop more complex flow charts. |
| Skills  Be able to give a floor robot instruction to make it move.  Use simple software and explain what you are doing. | | Skills  Give instructions for a friend to follow and follow their instructions to move around a space.  Describe what happens when buttons are pressed on a robot or device.  Press buttons in the correct order to make a robot follow a short sequence.  Predict what will happen for a short sequence of instructions.  Use different software or applications to create movement and patterns on a screen.  Use the word debug to correct an algorithm that doesn’t work in the way it is intended. | Skills  Programme a robot or software to do a particular task.  Look at a basic program and explain what will happen.  Use programming software and applications to make objects move.  Use logical reasoning to predict and debug more complex programs.  Create and debug with improve confidence and efficiency.  Begin to program using simple block code. | Skills  Predict the outcome of a sequence of precise instructions.  Repeatedly test a program and recognise when they need to debug it.  Detect a problem in an algorithm, which could result in a different outcome to the one intended.  Provide examples of how to use inputs and outputs effectively.  Design, write, execute and debug programs of increasing complexity that accomplish a specific goal.  Use logical reasoning to predict and debug more complex programs including inputs and outputs. | Skills  Design simple algorithms using loops and repeats, whilst detecting and correcting errors.  Write and execute an efficient program, using loops such as forever, repeat and repeat until commands.  Decompose a problem into smaller parts with some verbal reasoning.  Recognise that an algorithm will help to sequence more complex problems.  Use logical reasoning to predict and debug more complex programs including loops and repeats. | Skills  Program a condition that uses a sensor to detect a change, which can select an action with a program.  Decompose more open-ended problems into smaller parts, providing some reasoning for their choices.  Approach a range of problems using computationally thinking concepts, helping them to design other algorithms for other specific outcomes.  Design, write and execute an efficient program, including selection (IF…THEN) command.  Change an input to a program to achieve a different output.  Use logical reasoning to predict and debug more complex programs including selection.  Uses programs linked to physical systems e.g. the alarm goes off when the sensor is triggered.  Design, write and execute an efficient program, which demonstrates an understanding of the difference between, and appropriate use of IF…THEN, IF…THEN…ELSE, and nested IF statements. | Skills  Demonstrate a range of different strategies to solve a problem including: abstraction, decomposition, logic and evaluation.  Give reasoning for each step within algorithms and apply them to a program.  Use a variable to increase programming possibilities.  Use a variable and relational operators within a loop to stop a program.  Evaluate the effectiveness and efficiency of an algorithm while continually testing the programming of that program.  Use different inputs to control a device or onscreen action and predict what will happen.  Use logical reasoning to predict and debug more complex programs including: selection, variables and operators. |
| Digital Literacy | Knowledge  Identify a device that uses technology | | Knowledge  Understand why we need passwords  Understand that we must keep passwords private  Understand that we must keep personal information private.  Know what to do when concerned about online content.  Know what to do if someone tries to contact you online. | Knowledge  Understand the need to keep a password private  Understand the need to keep personal information private.  Know how to report inappropriate content and contact online | Knowledge  Understand that all the media that they see online can be altered.  Understand how to use a search engine responsibly and safely. | Knowledge  Understand that media can be edited online for advertising and other purposes.  Recongise what is acceptable and unacceptable behaviour when using technology and online services.  Understand how effective a strong password is and what a strong password looks like. | Knowledge  Be aware of their digital footprint.  Understand the dangers of building online relationships. | Knowledge  Understand what fake news is and how to dissect it.  Understand the difference between misinformation and disinformation.  Understand what Copywriting is and using someone else’s work responsibly. |
| Skills  Ask permission before using the internet.  Tell an adult if something worrying or unexpected happens whilst using technology. | | Skills  Explain what personal information is.  Communicate safely and respectfully online. | Skills  Demonstrate the use of technology responsibly in terms of how we use it and the time we spend using it. | Skills  Consider their responsibilities and actions to others online. | Skills | Skills  Explain what the consequences might be to using technology inappropriately or accessing inappropriate content intentionally. | Skills  Manage their conduct and contact appropriately and safely when using technology and online services. |