Clee Hill Community Academy Progression in Computing

These progression statements are designed to complement the National Curriculum for Computing in England and are based on the resources from Cambridgeshire Computing. More detailed guidance for both **subject leaders** and **class teachers** can be found at www.theictservice.org.uk/primary-computing

Declarative knowledge (sometimes known as conceptual knowledge) refers to rules, factsv or principles and the relationship between them. Know how to be described as 'knowing that.'

Procedural knowledge is the knowledge of methods or processes that know how to be performed, often described as 'knowing how.'

	Understanding Technology	Programming	Digital Literacy	Online Safety
Nursery	Compare amounts, saying ' lots', 'more', 'same' and noting changes. To express their own thoughts and ideas with increasing confidence	Listen to and understand simple instructions and questions including who, what and where. Copying and following a beat. Begin to talk about patterns around them (like stripes in rugs, all paper design etc) Begin to recognise and create ABABAB patterns To make links between ideas and preserve when things get tricky.	Choosing and using the correct equipment for a chosen activity/ task. Have an understanding of sizes and spaces. Explore and experiment how things work	Interact with age-appropriate technology.
Reception – Class 1	They are able to make their own decisions, come up with their own ideas and try to involve other's ideas.	Using copy and repeat actions and leading and following movements both individually and with a partner. Use accompanying instruments following the beat confidently. Begin to recognise and create more complex patterns (colour, number, shapes).	Choose and safely use the resources they need to make their creations and discuss them, explaining their choices and any further adaptations. To persevere and begin to change and adapt ideas when things don't work. Begin to share ideas, resources and skills to collaboratively develop creations.	Stay safe online, learning through stories. Know that it is important to keep personal information private. Choose and safely use the resources they need to make their creations and discuss them, explaining their choices and any further adaptations.
Class 2	**Computer Systems & Networks – Technology Around Us** . Recognising technology in school and using it responsibly -Name 3 types of technology (computer, iPad, traffic lights, laptop, heating system). -Locate the on switch of a desktop PC. -Know that the shift key creates a capital letters **Information around us** name the main parts of a computer - use a mouse to click and drag - type my name on a computer - save my work to a file and open it again	**Moving A Robot** -Program a 'robot' -Follow a set of simple instructions -Debug my program -Use 4 commands in a sequence including forwards/backwards/left turn/right turn. -Know when and how to debug programs. -Know a series of instructions (usually on a computer) is called an Algorithm **Programming Animations** -Change the outcome of a sequence of commands -Decide which blocks to use to meet the design -Debug my program -Show that a series of commands can be joined together. - Identify the effect of changing a value. -Explain that each sprite has a set of its own instructions.	**Creating Media – Digital Painting & photography** Explain what I did to capture a digital photo -Explain why a photo looks better in portrait or landscape format -Use a tool to achieve a desired effect -Use the shape and line tools effectively -Choose appropriate paint tools and colours -Change the colour and brush sizes **Data and information – Pictograms & grouping data** -Record data in a tally chart -Use pictograms to answer simple questions about objects -Explain what the pictogram shows Use a computer to write, add/remove text. -Alter font including size and style. -Name a group of objects using a label according to property (including size, shape or colour) **Creating Media – Digital Writing** Know that the space key makes a space and backspace deletes text. -Know that where the font and size icons are and what they change font style and make it bigger or smaller. **Digital Music** -Show how music is made from a series of notes. -Create music for a purpose, review and refine computer work.	Recognise that there may be people online who could make me feel sad, embarrassed or upset. Know when I should ask an adult for help with things online that upset me Describe what information I should not put online without asking a trusted adult first. Describe how to behave online in ways that do not upset others and can give examples. Understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke. Explain how passwords are used to protect information, accounts and devices -Explain what bullying is, how people may bully others and how bullying can make someone feel. Project Evolve: Explain why some information I find online may not be true. Describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). -describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).
Class 3	**Connecting computers** Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks. -Identify at least 2 networked devices around	**Programming quizzes** Designing algorithms and programs that use events to trigger sequences of code /quiz. -Change the outcome of a sequence of commands -Decide which blocks to use to meet the design	**Sequencing sounds** -Create a sequence of connected commands -Combine sound commands -Implement my algorithm as code **Creating Media – Digital Painting**	Explain ways in which and why I might change my identity depending on what I am doing online (e.g. gaming; using an avatar; social media) -Explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it

	them (Network switch, server, wireless access point- - Explain that different devices have different purposes. (smartboard for teaching, iPad for researching). **Information around us** name the main parts of a computer - use a mouse to click and drag - type my name on a computer - save my work to a file and open it again	-Debug my program **Robot Algorithm** --Use 4 commands in a sequence including forwards/backwards/left turn/right turn. -Know when and how to debug programs. -Know a series of instructions (usually on a computer) is called an Algorithm **Events and actions in programs** Use codes to determine an outcome. -Evaluate and implement their designs	Explain what I did to capture a digital photo -Explain why a photo looks better in portrait or landscape format -Use a tool to achieve a desired effect **Data and information – Pictograms** -Record data in a tally chart -Use pictograms to answer simple questions about objects -Explain what the pictogram shows **Digital Music** -Show how music is made from a series of notes. -Create music for a purpose, review and refine computer work. **Desktop publishing** Creating documents by modifying text, images, and page layouts for a specified purpose. -Explain the difference between text and images. -Demonstrate how to change font size and colour on a desktop computer (through Word or Publisher). **Stop frame animating** -Explain that an animation is a sequence of pictures or images. -add other media to my animation **Branching databases** -To give an example of an open-ended question and a yes/no question. -Know that the objects in a branching database need to be split into similar sized groups.	is important to be careful about who to trust online including what information and content they are trusted with -Give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal -Give examples of how bullying behaviour could appear online and how someone can get support. Describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened. Describe simple strategies for creating and keeping passwords private. Explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.
Class 4	**The Internet** -Know that websites and their contents are created by people. -Know that information found online is not necessarily honest, accurate or legal. -Know what a URL address is and how to access a website. **Systems and searching** Explain that computers can be connected together to form IT systems Explain how someone can get help if they are having problems and identify when to tell a trusted adult	**Repetition in shapes** -Be able to identify patterns of repetition in real life (brushing teeth, dance). -Explain how to use the repeat block in Scratch **Selection in quizzes** Identify the condition and outcomes in an 'if… then… else…' statement -Show that a condition can direct program flow in one of two ways -Identify the outcome of user input in an algorithm. **Repetition in games** -Explain the uses of repetition in programming and link this with the drawing of various shapes. **Selection in physical computing** -Use a condition in an 'if…then…' statement to start an action -Create a condition-controlled loop	**Video Production** -Use different camera angles -Use trim and crop to edit a video -Identify videos can be improved through and reshooting or editing **Flat file databases** Outline how 'AND' and 'OR' can be used to refine data selection - Select an appropriate graph to visually compare data **Photo editing** -Explain the uses for gathered data. -Explain the different ways that data may be gathered **Audio Production** -Identify the uses for recorded audio (music, podcasts etc.). -Explain the ways that audio can be recorded and how to make it of high quality. **Data logging** -Choose a data set to answer a given question -Use data from a sensor to answer a given question -Identify the intervals used to collect data **Vector graphics** Duplicate objects using copy and paste -Recognise that vector images can be scaled without impact on quality	Explain that others online can pretend to besomeone else, including my friends, and can suggest reasons why they might do this. -Give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours -Understand that people may alter information or put untrue information about me online with or without my knowledge -Explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation) When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. -Know that my online identity can have an impact on others, both positively and negatively. -Describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect -Describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. -Evaluate digital content and can explain how to make choices about what is trustworthy -Explain what a strong password is and demonstrate how to create one. -Assess and justify when it is acceptable to use the work of others

Class 5	**Communication and collaboration** -Outline and evaluate methods of communicating and collaborating using the internet -Explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this. **Systems and searching** Explain that computers can be connected together to form IT systems Explain how someone can get help if they are having problems and identify when to tell a trusted adult **Sensing movement** Use the same variable in more than one location in a program	**Variables in games** -Define a 'variable' as something that is changeable - Experiment with the value of an existing variable **Selection in quizzes** Identify the condition and outcomes in an 'if… then… else…' statement – Show that a condition can direct program flow in one of two ways -Identify the outcome of user input in an algorithm.	**Video Production** -Use different camera angles -Use trim and crop to edit a video -Identify videos can be improved through and reshooting or editing **Flat file databases** Outline how 'AND' and 'OR' can be used to refine data selection - Select an appropriate graph to visually compare data **3D modelling** Use digital tools to modify 3D objects **Webpage creations** -Draw a web page layout that suits my purpose -Explain why I should use copyright-free images -Add content to my own web page **Vector graphics** -Duplicate objects using copy and paste -Recognise that vector images can be scaled without impact on quality **Introduction to spreadsheets** -Apply an appropriate format to a cell -Construct a formula in a spreadsheet -Identify that changing inputs changes outputs	Explain why it is important to challenge and reject inappropriate representations online -Explain strategies anyone can use to protect their 'digital personality' and online reputation -Explain how someone would report online bullying in different contexts. -Describe how some online information can be opinion and can offer examples. -Describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). Select content that is appropriate for reuse in my own work.