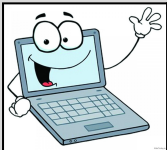




Computing knowledge sequencing



| Computing understanding, knowledge and skills objectives. | |
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| Intent | Our intent is that children at Camblesforth Primary Academy are competent, responsible and equipped to use computational thinking to understand and change the world. At Camblesforth Primary Academy, children are offered a wide range of technologies and applications so that their knowledge of e-safety, control systems, information technology and digital literacy is developed. We believe that Computing is key in allowing children to become active participants in a digital world, lessons are taught by class teachers and the school uses the G-Suite for Education, which provides children access to their own files and applications. All children in Key Stage 1 and 2 have access to Chromebooks on a daily basis. This versatile tool is used across all subjects in the curriculum and enhances learning through interactive approaches to learning. |
| Substantive knowledge in Computing | Children will know how different technologies are used and their knowledge of digital literacy will have developed. They will have an understanding of how control systems work and will be well-equipped with the knowledge of how to stay safe online. |
| Disciplinary knowledge in Computing | At Camblesforth, digital literacy is developed through the use of Chromebooks across the curriculum and children will be able to use G-Suite to create slides, docs and forms. Their learning will be enhanced through the use of applications such as SeeSaw, Number Gym and FlipGrid. The children are provided with BeeBots and BBC Micro-Bits which allow them to explore ideas using real code and provides practical computer knowledge. Children are prepared to engage and discuss the importance of staying safe when using technology. |

| | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|--|---|---|--------|---|--------|--|--------|
| Control systems  | <ul style="list-style-type: none"> *Knows how to operate simple equipment *Know how to use different technological toys *Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movement or a new image | <ul style="list-style-type: none"> *Show good control and co-ordination in large and small movements *Use directional language to move around the room/playground to a specific place *Experiment with programming a Bee Bot to complete a simple task | <ul style="list-style-type: none"> *Understand what algorithms are *Understand that algorithms are implemented as programs on digital devices *Understand that programs run by following precise instructions *Create and debug simple programs. *Use logical reasoning to predict the behaviour of programs | | <ul style="list-style-type: none"> *Design, write and debug programs that perform specific goals *Use sequence, selection and repetition in programs: work with variables *Understand what computer networks are e.g. the internet *Predict what will happen accurately | | <ul style="list-style-type: none"> *Combine sequences of instructions to turn a device on and off *Use logical reasoning to detect errors in algorithms *Combine a variable with relational operators (<=>) to determine when a program changes, e.g. if score >5 say "well done" *Explore "what if?" questions by planning different scenarios for controlled devices *Design computing systems that use sensors such as flowchart *Refine a program based on user feedback *Understand what computer networks are e.g. the internet and the opportunities they offer for communication and collaboration | |
| Information Technology  | <ul style="list-style-type: none"> *Shows an interest in technological toys *Use IT hardware to interact with age-appropriate computer software | <ul style="list-style-type: none"> *Begin to use a mouse/pad to navigate a computer *Know how to use a keyboard and a mouse effectively | <ul style="list-style-type: none"> *Use technology purposefully to create and organise digital content *Use a mouse or trackpad effectively *Save and reopen work on a digital device *Use technology to find and amend images, as well as crop and recolour *Take digital photographs and record *Use software to explore sound and musical phrases *Use IT to organise, present and understand data, such as graph | | <ul style="list-style-type: none"> *Select and use software to fulfil a goal *Collect and present data in different ways *Use technology to collaborate *Use IT to compose sound or melodies *Edit and enhance media for particular effect *Create digital content for a purpose *Evaluate and analyse digital content | | <ul style="list-style-type: none"> *Use search technologies effectively *Appreciate how results are selected and ranked *Combine software on a range of devices *Generate, amend and combine visual media from different sources for a specific task or audience *Use filters in a database to find out specific information *Capture different images considering lighting, position and angle *Select and use software / hardware to produce multimedia soundtrack *Create and modify graphs and charts appropriate to the data being used and | |

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| | | | | | <p>analyse the results</p> <ul style="list-style-type: none"> *Discuss and explore the use of ICT to sort, organise and classify objects based on their properties *Understand copyright issues when sourcing images, video and sound |
| <p>Digital Literacy</p>  | <ul style="list-style-type: none"> *Use the computer to complete a simple task | <ul style="list-style-type: none"> *Use a dominant hand *Recall and explain some personal information that they should keep safe when online | <ul style="list-style-type: none"> *Log onto a computer *Understand how to keep personal information private *Recognise common uses of information technology beyond school. *Use technology safely *Know where to go for help when they have concerns about content on the internet | <ul style="list-style-type: none"> *Use technology safely and respectfully *Recognise acceptable and unacceptable behaviour *Identify a range of ways to report concerns about content or contact on the internet *Know the benefits about different apps and websites *Understand the importance of a good password *Understand the importance of regular screen breaks *Compose an email *Be discerning in evaluating digital content | <ul style="list-style-type: none"> *Use technology safely, respectfully and responsibly *Recognise acceptable and unacceptable behaviour *Identify a range of ways to report concerns about content or contact on the internet *Know where to find copyright images and audios *Understand which images are appropriate to share online and which are not *Discuss the benefits and dangers of communicating online *Recognise different viewpoints and the impact of incorrect data *Share and exchange ideas via email *Understand that everything online can leave a digital footprint that can last forever *Know the meaning of common website extensions (.org .gov etc) *Know how to identify secure servers (padlock such as internet banking) |

Computing Progression – Substantive Knowledge

| | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---------|--|-----------|--|--------|---|--------|---|--------|
| CYCLE A | Digital Literacy Information Technology Control Systems | | Digital Literacy Information Technology Control Systems | | Digital Literacy Information Technology Control Systems | | Digital Literacy Information Technology Control Systems | |
| | Digital Literacy *Know that the internet is not always safe. | | Digital Literacy *Understand why we should keep personal information private *Understand what is appropriate online content and how to report it to a trusted adult. | | Digital Literacy *Understand how to use safely, respectfully and responsibly. *Understand that there are a range of ways to report concerns online about content and contact. | | Digital Literacy *Understand what a digital footprint is and how it can impact your life. *Understand that algorithms are used to track online activity in order to influence us (e.g cookies = advertising). | |
| | Information Technology *Begin to talk about how we use technology and what it is used for. *Show resilience when beginning to use technology in the classroom. | | Information Technology *Understand how information technology beyond school can help us. *Understand how and why digital content can be changed. | | Information Technology *Understand how software can be used to collect and present data. *Understand how to use search technologies effectively. | | Information Technology *Understand how software can be used to analyse and evaluate data. *Understand how we can evaluate digital content based on reliability and authenticity. | |
| | Control Systems *Follow rules and understand why they are important. | | Control Systems *Understand what algorithms are and how they are implemented on a digital device. *Understand the programs need precise instructions. | | Control Systems *Understand how programs can be run using various forms of input and output (e.g. Beebots or BBC Micro Bits). *Understand how programs are used to control everyday devices (e.g toys, drones, traffic lights etc). | | Control Systems *Understand how sequencing can be used within programs. *Understand how repetition (loops) can be used within programs. | |
| CYCLE B | Digital Literacy Information Technology Control Systems | | Digital Literacy Information Technology Control Systems | | Digital Literacy Information Technology Control Systems | | Digital Literacy Information Technology Control Systems | |
| | Digital Literacy *Explore and use a range of technological devices to express | | Digital Literacy *Understand what usernames and passwords are and why they are | | Digital Literacy *Understand what is acceptable and unacceptable online. | | Digital Literacy *Understand what plagiarism and plagiarism means and its impact. | |

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| | <p>feelings and ideas.</p> | <p>important. *Understand we can respond to inappropriate online content in different ways.</p> | <p>*Understand what scams, spams and hackers are and the corresponding dangers.</p> | <p>*Understand that we are all digital citizens and how we can impact and influence the wider world.</p> |
| | <p>Information Technology *Talk about how we use technology and what it is used for. *Explore how things work such as Beebots, ipads, chromebooks and interactive whiteboards.</p> | <p>Information Technology *Understand how information technology is used within school to help us. *Understand how we can use technology to create, organise, store and retrieve digital information.</p> | <p>Information Technology *Understand how the internet and world wide web can provide opportunities for collaboration and communication. *To appreciate how results are selected and ranked using search technologies.</p> | <p>Information Technology *Understand the difference between the internet and the world wide web and what they do. *Understand what databases are and how they are used to store information.</p> |
| | <p>Control Systems *Use the touch screen smart board and iPads for simple games. *Explain the reason for rules.</p> | <p>Control Systems *Understand how we can use logical reasoning to predict the behaviour of a simple program. *Understand what debugging is and how it affects how a program runs.</p> | <p>Control Systems *Understand how to break programs down into smaller parts (decomposition) and why that is useful. *Understand how to detect and correct errors in algorithms and programs (for various purposes).</p> | <p>Control Systems *Understand how variables can impact programs. *Understand how selection can impact a program.</p> |