



## Dunton Bassett & Claybrooke Primary: Computing Curriculum Framework

'It is important to view knowledge as sort of a semantic tree - make sure you understand the fundamental principles, i.e. the trunk and big branches, before you get into the leaves (details) or there is nothing for them to hang to.' Elon Musk

Curriculum designers take account of big ideas and pertinent threshold concepts to plan a coherent, 'spiral' curriculum for Computing which secures mastery and progression in conceptual understanding and builds knowledge from 'novice' to 'expert'.  
Teachers take account of big ideas and related threshold concepts in their Computing planning for Computing lessons to secure mastery of subject knowledge, year on year and over time.

Capital		e-Safety	Programming	Handling Data	Multimedia	Technology in our Lives
Threshold Concepts ('service stations')	Y6	<ul style="list-style-type: none"> <li>· I protect my password and other personal information.</li> <li>· I can explain the consequences of sharing too much about myself online.</li> <li>· I support my friends to protect themselves and make good choices online, including reporting concerns to an adult.</li> <li>· I can explain the consequences of spending too much time online or on a game.</li> <li>· I can explain the consequences to myself and others of not communicating kindly and respectfully.</li> <li>· I protect my computer or device from harm on the Internet.</li> </ul>	<ul style="list-style-type: none"> <li>· I can deconstruct a problem into smaller steps, recognising similarities to solutions used before.</li> <li>· I can explain and program each of the steps in my algorithm.</li> <li>· I can evaluate the effectiveness and efficiency of my algorithm while I continually test the programming of that algorithm.</li> <li>· I can recognise when I need to use a variable to achieve a required output.</li> <li>· I can use a variable and operators to stop a program.</li> <li>· I can use different inputs (including sensors) to control a device or onscreen action and predict what will happen.</li> <li>· I can use logical reasoning to detect and correct errors in a algorithms and programs.</li> </ul>	<ul style="list-style-type: none"> <li>· I can plan the process needed to investigate the world around me.</li> <li>· I can select the most effective tool to collect data for my investigation.</li> <li>· I can check the data I collect for accuracy and plausibility.</li> <li>· I can interpret the data I collect.</li> <li>· I can present the data I collect in an appropriate way.</li> <li>· I use the skills I have developed to interrogate a database.</li> </ul>	<ul style="list-style-type: none"> <li>· I can talk about audience, atmosphere and structure when planning a particular outcome.</li> <li>· I can confidently identify the potential of unfamiliar technology to increase my creativity.</li> <li>· I can combine a range of media, recognising the contribution of each to achieve a particular outcome.</li> <li>· I can tell you why I select a particular online tool for a specific purpose.</li> <li>· I can be digitally discerning when evaluating the effectiveness of my own work and the work of others.</li> </ul>	<ul style="list-style-type: none"> <li>· I can tell you the Internet services I need to use for different purposes.</li> <li>· I can describe how information is transported on the Internet.</li> <li>· I can select an appropriate tool to communicate and collaborate online.</li> <li>· I can talk about the way search results are selected and ranked.</li> <li>· I can check the reliability of a website.</li> <li>· I can tell you about copyright and acknowledge the sources of information that I find online.</li> </ul>

	Y5	<ul style="list-style-type: none"> <li>· I protect my password and other personal information.</li> <li>· I can explain why I need to protect myself and my friends and the best ways to do this, including reporting concerns to an adult.</li> <li>· I know that anything I post online can be seen, used and may affect others.</li> <li>· I can talk about the dangers of spending too long online or playing a game.</li> <li>· I can explain the importance of communicating kindly and respectfully.</li> <li>· I can discuss the importance of choosing an age-appropriate website or game.</li> <li>· I can explain why I need to protect my computer or device from harm.</li> <li>· I know which resources on the Internet I can download and use.</li> </ul>	<ul style="list-style-type: none"> <li>· I can decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program.</li> <li>· I can refine a procedure using repeat commands to improve a program.</li> <li>· I can use a variable to increase programming possibilities.</li> <li>· I can change an input to a program to achieve a different output.</li> <li>· I can use 'if' and 'then' commands to select an action.</li> <li>· I can talk about how a computer model can provide information about a physical system.</li> <li>· I can use logical reasoning to detect and debug mistakes in a program.</li> <li>· I use logical thinking, imagination and creativity to extend a program.</li> </ul>	<ul style="list-style-type: none"> <li>· I can use a spreadsheet and database to collect and record data.</li> <li>· I can choose an appropriate tool to help me collect data..</li> <li>· I can present data in an appropriate way.</li> <li>· I can search a database using different operators to refine my search.</li> <li>· I can talk about mistakes in data and suggest how it could be checked.</li> </ul>	<ul style="list-style-type: none"> <li>· I can use text, photo, sound and video editing tools to refine my work.</li> <li>· I can use the skills I have already developed to create content using unfamiliar technology.</li> <li>· I can select, use and combine the appropriate technology tools to create effects that will have an impact on others.</li> <li>· I can select an appropriate online or offline tool to create and share ideas.</li> <li>· I can review and improve my own work and support others to improve their work.</li> </ul>	<ul style="list-style-type: none"> <li>· I can describe different parts of the Internet.</li> <li>· I can use different online communication tools for different purposes.</li> <li>· I can use a search engine to find appropriate information and check its reliability.</li> <li>· I can recognise and evaluate different types of information I find on the World Wide Web.</li> <li>· I can describe the different parts of a webpage.</li> <li>· I can find out who the information on a webpage belongs to.</li> </ul>
	Y4	<ul style="list-style-type: none"> <li>· I choose a secure password when I am using a website.</li> <li>· I can talk about the ways I can protect myself and my friends from harm online.</li> <li>· I use the safety features of websites as well as reporting concerns to an adult.</li> <li>· I know that anything I post online can be seen by others.</li> <li>· I choose websites and games that are appropriate for my age.</li> <li>· I can help my friends make good choices about the time they spend online.</li> <li>· I can talk about why I need to ask a trusted adult before</li> </ul>	<ul style="list-style-type: none"> <li>· I can use logical thinking to solve an open-ended problem by breaking it up into smaller parts.</li> <li>· I can use an efficient procedure to simplify a program.</li> <li>· I can use a sensor to detect a change which can select an action within my program.</li> <li>· I know that I need to keep testing my program while I am putting it together.</li> <li>· I can use a variety of tools to create a program.</li> <li>· I can recognise an error in a program and debug it.</li> </ul>	<ul style="list-style-type: none"> <li>· I can organise data in different ways.</li> <li>· I can collect data and identify where it could be inaccurate.</li> <li>· I can plan, create and search a database to answer questions.</li> <li>· I can choose the best way to present data to my friends.</li> <li>· I can use a data logger to record and share my readings with my friends.</li> </ul>	<ul style="list-style-type: none"> <li>· I can use photos, video and sound to create an atmosphere when presenting to different audiences.</li> <li>· I am confident to explore new media to extend what I can achieve.</li> <li>· I can change the appearance of text to increase its effectiveness.</li> <li>· I can create, modify and present documents for a particular purpose.</li> <li>· I can use a keyboard confidently and make use of a spellchecker to write and review my work.</li> </ul>	<ul style="list-style-type: none"> <li>· I can tell you whether a resource I am using is on the Internet, the school network or my own device.</li> <li>· I can identify key words to use when searching safely on the World Wide Web.</li> <li>· I think about the reliability of information I read on the World Wide Web.</li> <li>· I can tell you how to check who owns photos, text and clipart.</li> </ul>

	<ul style="list-style-type: none"> <li>· downloading files and games from the Internet.</li> <li>· I comment positively and respectfully online.</li> </ul>	<ul style="list-style-type: none"> <li>· I recognise that an algorithm will help me to sequence more complex programs.</li> <li>· I recognise that using algorithms will also help solve problems in other learning such as Maths, Science and Design and Technology.</li> </ul>		<ul style="list-style-type: none"> <li>· I can use an appropriate tool to share my work and collaborate online.</li> <li>· I can give constructive feedback to my friends to help them improve their work and refine my own work.</li> </ul>	<ul style="list-style-type: none"> <li>· I can create a hyperlink to a resource on the World Wide Web.</li> </ul>
Y3	<ul style="list-style-type: none"> <li>· I can talk about what makes a secure password and why they are important.</li> <li>· I can protect my personal information when I do different things online.</li> <li>· I can use the safety features of websites as well as reporting concerns to an adult.</li> <li>· I can recognise websites and games appropriate for my age.</li> <li>· I can make good choices about how long I spend online.</li> <li>· I ask an adult before downloading files and games from the Internet.</li> <li>· I can post positive comments online.</li> </ul>	<ul style="list-style-type: none"> <li>· I can break an open-ended problem up into smaller parts.</li> <li>· I can put programming commands into a sequence to achieve a specific outcome.</li> <li>· I keep testing my program and can recognise when I need to debug it.</li> <li>· I can use repeat commands.</li> <li>· I can describe the algorithm I will need for a simple task.</li> <li>· I can detect a problem in an algorithm which could result in unsuccessful programming.</li> </ul>	<ul style="list-style-type: none"> <li>· I can talk about the different ways data can be organised.</li> <li>· I can search a ready-made database to answer questions.</li> <li>· I can collect data help me answer a question.</li> <li>· I can add to a database.</li> <li>· I can make a branching database.</li> <li>· I can use a data logger to monitor changes and can talk about the information collected.</li> </ul>	<ul style="list-style-type: none"> <li>· I can create different effects with different technology tools.</li> <li>· I can combine a mixture of text, graphics and sound to share my ideas and learning.</li> <li>· I can use appropriate keyboard commands to amend text on my device, including making use of a spellchecker.</li> <li>· I can evaluate my work and improve its effectiveness.</li> <li>· I can use an appropriate tool to share my work online.</li> </ul>	<ul style="list-style-type: none"> <li>· I can save and retrieve work on the Internet, the school network or my own device.</li> <li>· I can talk about the parts of a computer.</li> <li>· I can tell you ways to communicate with others online.</li> <li>· I can describe the World Wide Web as the part of the Internet that contains websites.</li> <li>· I can use search tools to find and use an appropriate website.</li> <li>· I think about whether I can use images that I find online in my own work.</li> </ul>
Y2	<ul style="list-style-type: none"> <li>· I can explain why I need to keep my password and personal information private.</li> <li>· I can describe the things that happen online that I must tell an adult about.</li> <li>· I can talk about why I should go online for a short amount of time.</li> <li>· I can talk about why it is important to be kind and polite online and in real life.</li> <li>· I know that not everyone is who they say they are on the Internet.</li> </ul>	<ul style="list-style-type: none"> <li>· I can give instructions to my friend (using forward, backward and turn) and physically follow their instructions.</li> <li>· I can tell you the order I need to do things to make something happen and talk about this as an algorithm.</li> <li>· I can program a robot or software to do a particular task.</li> <li>· I can look at my friend's program and tell you what will happen.</li> </ul>	<ul style="list-style-type: none"> <li>· I talk about the different ways I use technology to collect information, including a camera, microscope or sound recorder.</li> <li>· I can make and save a chart or graph using the data I collect.</li> <li>· I can talk about the data that is shown in my chart or graph.</li> <li>· I am starting to understand a branching database.</li> </ul>	<ul style="list-style-type: none"> <li>· I can use technology to organise and present my ideas in different ways.</li> <li>· I can use the keyboard on my device to add, delete and space text for others to read.</li> <li>· I can tell you about an online tool that will help me to share my ideas with other people.</li> <li>· I can save and open files on the device I use.</li> <li>·</li> </ul>	<ul style="list-style-type: none"> <li>· I can tell you why I use technology in the classroom.</li> <li>· I can tell you why I use technology in my home and community.</li> <li>· I am starting to understand that other people have created the information I use.</li> <li>· I can identify benefits of using technology including finding information, creating and communicating.</li> </ul>

		<ul style="list-style-type: none"> <li>· I can use programming software to make objects move.</li> <li>· I can watch a program execute and spot where it goes wrong so that I can debug it.</li> </ul>	<ul style="list-style-type: none"> <li>· I can tell you what kind of information I could use to help me investigate a question.</li> </ul>		<ul style="list-style-type: none"> <li>· I can talk about the differences between the Internet and things in the physical world.</li> </ul>
Y1	<ul style="list-style-type: none"> <li>· I can keep my password private.</li> <li>· I can tell you what personal information is.</li> <li>· I can tell an adult when I see something unexpected or worrying online.</li> <li>· I can talk about why it's important to be kind and polite.</li> <li>· I can recognise an age appropriate website.</li> <li>· I can agree and follow sensible e-Safety rules.</li> </ul>	<ul style="list-style-type: none"> <li>· I can give instructions to my friend and follow their instructions to move around.</li> <li>· I can describe what happens when I press buttons on a robot.</li> <li>· I can press the buttons in the correct order to make my robot do what I want.</li> <li>· I can describe what actions I will need to do to make something happen and begin to use the word algorithm.</li> <li>· I can begin to predict what will happen for a short sequence of instructions.</li> <li>· I can begin to use software/apps to create movement and patterns on a screen.</li> <li>· I can use the word debug when I correct mistakes when I program.</li> </ul>	<ul style="list-style-type: none"> <li>· I can talk about the different ways in which information can be shown.</li> <li>· I can use technology to collect information, including photos, video and sound.</li> <li>· I can sort different kinds of information and present it to others.</li> <li>· I can add information to a pictograph and talk to you about what I have found out.</li> </ul>	<ul style="list-style-type: none"> <li>· I can be creative with different technology tools.</li> <li>· I can use technology to create and present my ideas.</li> <li>· I can use the keyboard or a word bank on my device to enter text.</li> <li>· I can save information in a special place and retrieve it again.</li> </ul>	<ul style="list-style-type: none"> <li>· I can recognise the ways we use technology in our classroom.</li> <li>· I can recognise ways that technology is used in my home and community.</li> <li>· I can use links to websites to find information.</li> <li>· I can begin to identify some of the benefits of using technology.</li> </ul>
EYFS	<ul style="list-style-type: none"> <li>· I can ask an adult when I want to use the Internet.</li> <li>· I can tell an adult when something worrying or unexpected happens while I am using the Internet.</li> <li>· I can be kind to my friends.</li> <li>· I can talk about the amount of time I spend using a computer / tablet / game device.</li> <li>· I am careful with technology devices.</li> </ul>	<ul style="list-style-type: none"> <li>· I can make a floor robot move.</li> <li>· I can use simple software to make something happen.</li> <li>· I can make choices about the buttons and icons I press, touch or click on.</li> </ul>	<ul style="list-style-type: none"> <li>· I can tell you about different kinds of information such as pictures, video, text and sound.</li> </ul>	<ul style="list-style-type: none"> <li>· I can move objects on a screen.</li> <li>· I can create shapes and text on a screen.</li> <li>· I can use technology to show my learning.</li> </ul>	<ul style="list-style-type: none"> <li>· I can tell you about technology that is used at home and in school.</li> <li>· I can operate simple equipment.</li> <li>· I can use a safe part of the Internet to play and learn.</li> </ul>

## E Safety - Detailed Objectives

Year	E-Safety
Year One	<ul style="list-style-type: none"><li>· Recognise that there may be people online who could make people feel sad, embarrassed or upset.</li><li>· If something happens that makes them feel sad, worried, uncomfortable or frightened, they can give examples of when and how to speak to an adult they can trust</li><li>· Use the internet with adult support to communicate with people they know.</li><li>· Explain why it is important to be considerate and kind to people online.</li><li>· Recognise that information can stay online and could be copied.</li><li>· Describe what information should not put online without asking a trusted adult first.</li><li>· Describe how to behave online in ways that do not upset others and can give examples.</li><li>· Identify rules that help keep us safe and healthy in and beyond the home when using technology.</li><li>· Explain rules to keep us safe when we are using technology both in and beyond the home and give examples of some of these rules.</li><li>· Recognise more detailed examples of information that is personal to them (e.g. where I live, my family's names, where I go to school).</li><li>· Explain why they should always ask a trusted adult before they share any information about myself online.</li><li>· Explain how passwords can be used to protect information and devices.</li><li>· Explain why work they create using technology belongs to them.</li><li>· Say why it belongs to them (e.g. 'it is my idea' or 'I designed it').</li><li>· Save their work so that others know it belongs to them (e.g. filename, name on content).</li></ul>

Year Two

- Explain how other people's identity online can be different to their identity in real life.
- Describe ways in which people might make themselves look different online.
- Give examples of issues online that make them feel sad, worried, uncomfortable or frightened and give examples of how they might get help.
- Understand that they can use the internet to communicate with people they don't know and can give examples.
- Explain how information put online about them can last for a long time.
- Know who to talk to if they think someone has made a mistake about putting something online.
- Give examples of bullying behavior and how it could look online.
- Understand how bullying can make someone feel.
- Talk about how someone can/would get help about being bullied online or offline.
- Explain simple guidance for using technology in different environments and settings.
- Say how those rules/guides can help them.
- Describe how online information about them could be seen by others.
- Describe and explain some rules for keeping their information private.
- Explain what passwords are and can use passwords for their accounts and devices.
- Explain how many devices in their home could be connected to the internet and can list some of those devices.
- Describe why other people's work belongs to them.
- Recognise that content on the internet may belong to other people.

### Year Three

- Explain what is meant by the term 'identity'.
- Explain how they can represent themselves in different ways online.
- Explain ways in which and why they might change their identity depending on what they are doing online
- Describe ways people who have similar likes and interests can get together online.
- Give examples of technology specific forms of communication (e.g. emojis, acronyms, text speak).
- Explain some risks of communicating online with others they don't know well.
- Explain why they should be careful who they trust online and what information they can trust them with.
- Explain how theirs and other people's feelings can be hurt by what is said or written online.
- Explain why they can take back their trust in someone or something if they feel nervous, uncomfortable or worried.
- Explain what it means to 'know someone' online and why this might be different from knowing someone in real life.
- Explain what is meant by 'trusting someone online' and explain why this is different from 'liking someone online'.
- Search for information about themselves online.
- Recognise they need to be careful before they share anything about themselves or others online.
- Know who they should ask if they are not sure if they should put something online.
- Explain what bullying is and can describe how people may bully others.
- Describe rules about how to behave online and how they follow them.
- Explain why spending too much time using technology can sometimes have a negative impact on me and give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films, videos).
- Understand and can give reasons why passwords are important.
- Describe simple strategies for creating and keeping passwords private.
- Describe how connected devices can collect and share their information with others.
- Give reasons why they should only share information with people they choose to and can trust and can explain that if they are not sure or feel pressured, they should ask a trusted adult.
- Explain why copying someone else's work from the internet without permission can cause problems.
- Give examples of what those problems might be.

#### Year Four

- Explain how their online identity can be different to the identity they present in 'real life'.
- Knowing this, describe the right decisions about how they interact with others and how others perceive them.
- Describe strategies for safe and fun experiences in a range of online social environments.
- Give examples of how to be respectful to others online.
- Describe how others can find out information about them by looking online.
- Explain ways that some of the information about them online could have been created, copied or shared by others.
- Identify some online technologies where bullying might take place.
- Describe ways people can be bullied through a range of media (e.g. image, video, text, chat).
- Explain why they need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them.
- Explain how using technology can distract them from other things they might do or should be doing.
- Identify times or situations when they might need to limit the amount of time, they use technology.
- Suggest strategies to help them limit this time
- Explain what a strong password is.
- Describe strategies for keeping my personal information private, depending on context.
- Explain that others online can pretend to be me or other people, including my friends.
- Suggest reasons why they might do this.
- Explain how internet use can be monitored
- When searching on the internet for content to use, explain why they need to consider who owns it and whether they have the right to reuse it.

Year Five

- Explain how identity online can be copied, modified or altered.
- Demonstrate responsible choices about their online identity, depending on context.
- Make positive contributions and be part of online communities.
- Describe some of the communities in which they are involved and describe how they collaborate with others positively
- Search for information about an individual online and create a summary report of the information they find.
- Describe ways that information about people online can be used by others to make judgments about an individual.
- Recognise when someone is upset, hurt or angry online.
- Describe how to get help for someone that is being bullied online and assess when they need to do or say something or tell someone.
- Explain how to block abusive users.
- Explain how they would report online bullying on the apps and platforms that they use.
- Describe the helpline services who can support them and what they would say and do if they needed their help.
- Create and use strong and secure passwords.
- Explain how many free apps or services may read and share their private information with others.
- Explain how and why some apps may request or take payment for additional content (e.g. in-app purchases) and explain why they should seek permission from a trusted adult before purchasing.
- Assess and justify when it is acceptable to use the work of others.
- Give examples of content that is permitted to be reused.

Year Six

- Describe ways in which media can shape ideas about gender.
- Identify messages about gender roles and make judgements based on them.
- Challenge and explain why it is important to reject inappropriate messages about gender online.
- Describe issues online that might make them, or others feel sad, worried, uncomfortable or frightened and can give examples of how they might get help, both on and offline.
- Explain why they should keep asking until they get the help they need.
- Show they understand their responsibilities for the well-being of others in their online social group.
- Explain how impulsive and rash communications online may cause problems (e.g. flaming, content produced in live streaming).
- Demonstrate how they would support others (including those who are having difficulties) online.
- Demonstrate ways of reporting problems online for both themselves and their friends
- Explain how they are developing an online reputation which will allow other people to form an opinion of them.
- Describe some simple ways that help build a positive online reputation.
- Describe how to capture bullying content as evidence to share with others who can help them.
- Identify a range of ways to report concerns both in school and at home about online bullying.
- Describe common systems that regulate age-related content and describe their purpose.
- Use different passwords for a range of online services.
- Describe effective strategies for managing those passwords
- Know what to do if their password is lost or stolen.
- Explain what app permissions are and can give some examples from the technology or services I use.
- Describe simple ways to increase privacy on apps and services that provide privacy settings.
- Describe ways in which some online content targets people to gain money or information illegally and can describe strategies to help them identify such content
- Demonstrate the use of search tools to find and access online content which can be reused by others.
- Demonstrate how to make references to and acknowledge sources I have used from the internet.