

Computing Intent and Implementation

Why do we teach computing?

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems.

The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content.

Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.



What is our curriculum aim?

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

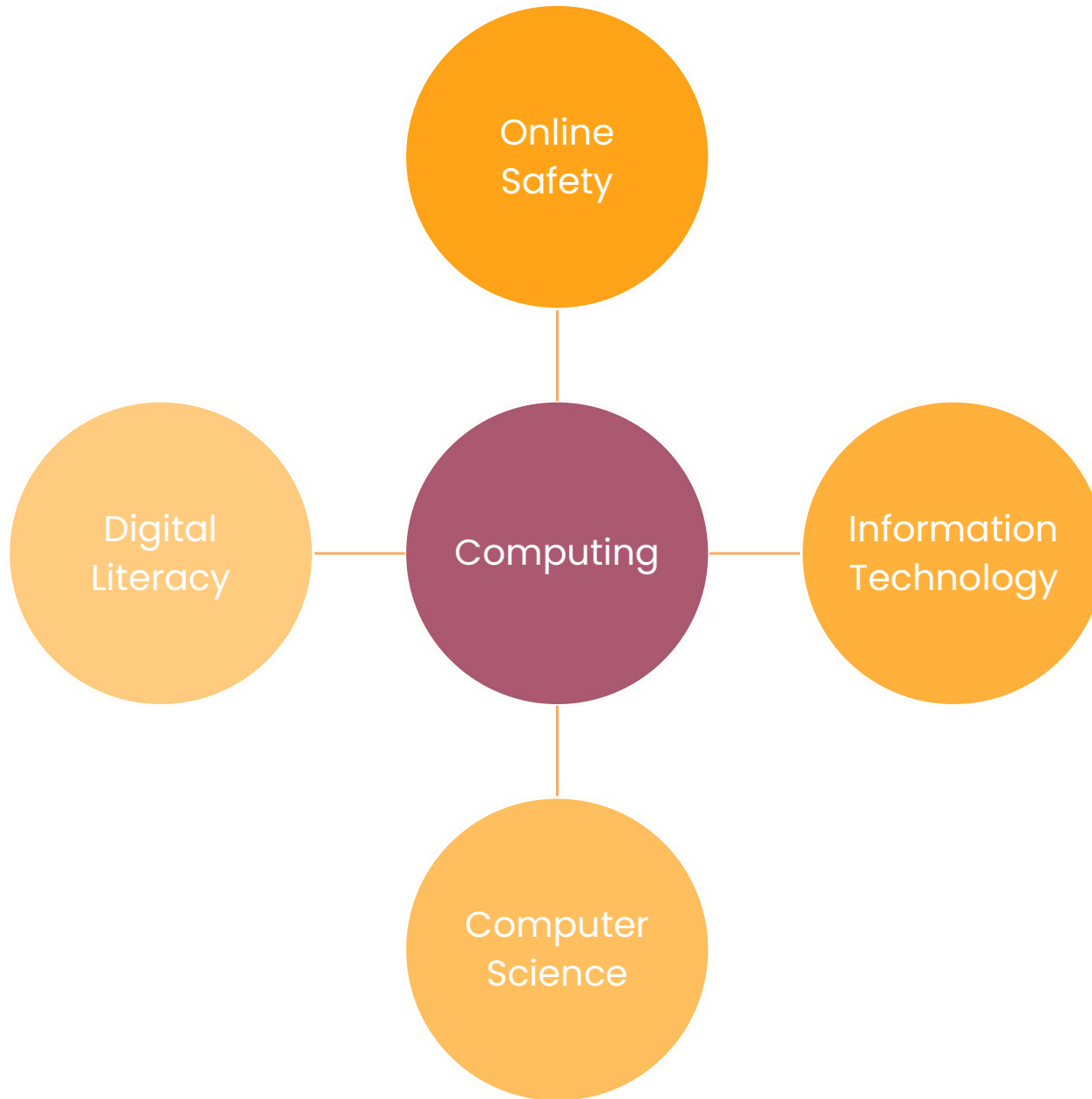
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How is computing taught?

- At Badgemore Primary School, a specific scheme of work for the whole subject has not been chosen, to best meet the needs of our children by selecting from a range of resources (e.g. TEACH Computing, <http://code-it.co.uk/>, BBC Bitesize, MS Office, NOS). Where possible, links are made with other subject areas, so that information technology is seen as a tool to support learning. For each of the four strands, one resource is the primary source for teaching materials to maintain a consistent approach throughout the school, but this may be supplemented where appropriate to provide a rich curriculum.
- Each lesson has a Skills, Knowledge or Understanding focus but these three strands are integrated across the Computing curriculum. Many lessons require the children to access technology either individually, with a partner or in groups. For these lessons, the teacher acts as a facilitator, modelling the task and supporting where appropriate. However, not all lessons require technology. For example, when the focus is on teaching algorithms or for many online safety lessons, the teacher will lead the learning and impart knowledge.
- Our computing hardware includes tablets for computer programming and use of publishing software. We also have a set of iPads for use of apps and online research. In addition to this, we use BeeBots and other programming hardware.



Computing | Key Concepts



Computing | Content Spine



	Autumn	Spring	Summer
ALL	Online Safety National Online Safety program covering: self-image and identity; online relationships; online reputation; online bullying; managing online information; health, wellbeing and lifestyle; privacy and security; copyright and ownership		
Y1	Computer Science Using Bee-Bot to understanding algorithms and make simple programs	Information Technology Create a simple PowerPoint presentation, adding pictures	Digital Literacy Developing an understanding of how to use the internet safely and effectively
Y2	Digital Literacy Investigating how computers have changed through history	Information Technology Using cut, copy and paste to create documents and presentations, and manipulating fonts and shape tools	Computer Science Using Bee-Bot to understanding algorithms and make simple programs
Y3	Information Technology / Digital Literacy Create PowerPoint presentations using research to find information and transitions to present	Computer Science Using Scratch Junior to create a simple game using coding language	Information Technology Using cameras and software to record and edit silent movies
Y4	Information Technology Creating word document using a range of tools to create columns, page breaks, inserting clip art, WordArt and SmartArt	Computer Science Using Scratch Junior to create a simple activity using coding language, manipulating elements within the game to suit a purpose	Digital Literacy Creating an online blog
Y5	Information Technology / Digital Literacy Creating documents and presentations about a chosen topic, using the internet to research appropriately	Computer Science Using Scratch to create a times tables games using variables	Information Technology Creating and using spreadsheets, using simple formula
Y6	Information Technology Use Powerpoint to create a biography Use digital media to create repeating pattern motif Computer Science Use Scratch to revise basic programming	Information Technology Creating a survey using Forms Use Excel to make charts Computer Science Use of Microbits	Information Technology Creating a presentation using images, text, transitions and other features

Year 1

Self Image and Identity

- 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

Online Relationships

- Give examples of how I might use technology to communicate with others I don't know well.

Online Reputation

- Explain how information put online about me can last a long time.

Online Bullying

- Give examples of bullying behaviour and how it could look online.
- Understand how bullying can make someone feel.

Online Information

- Use simple key words in search engines.
- Describe and demonstrate how to get help from a trusted adult if I find content that makes me feel sad, uncomfortable worried or frightened.
- Demonstrate how to navigate a simple webpage to get information I need (e.g. Home, forward, back buttons, links, tabs and sections.)
- Explain what voice activated searching is and how it might be used (e.g. Alexa, Google, Siri).

Health, Wellbeing and Lifestyle

- Explain simple guidance for using technology in different environments and settings.
- Say how those rules / guides can help me.

Privacy and Security

- Describe how online information about me could be seen by others.
- Describe and explain some rules for keeping my information private.

Copyright and Ownership

- Describe why other people's work belongs to them.
- Recognise that content on the internet may belong to other people



Year 2

Self Image and Identity

- Give examples of issues online that might make me feel sad, worried, uncomfortable or frightened.
- Give examples of how I might get help.
- Explain what is meant by the term 'identity.'

Online Relationships

- Give examples of how I might use technology to communicate with others I don't know well.
- Use the internet to communicate with people I don't know well (e.g. email a pen pal in another school or country).

Online Reputation

- Know who to talk to if someone has made a mistake about putting something online..

Online Bullying

- Talk about how someone can / would get help about being bullied online and offline

Online Information

- Describe and demonstrate how to get help from a trusted adult or helpline if I find content that makes me feel sad, uncomfortable or frightened.
- Explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'.
- Explain why some information I find online may not be true.

Health, Wellbeing and Lifestyle

- Can explain simple guidance for using technology in different environments and settings.
- Say how those rules / guides can help me.

Privacy and Security

- Explain what passwords are and can use passwords for my accounts and devices.
- Explain how many devices in my home could be connected to the internet and can list some of those devices.

Copyright and Ownership

- Describe why other people's work belongs to them.
- Recognise that content on the internet may belong to other people.



Year 3

Self Image and Identity

- Explain how I represent myself in different ways online.
- Demonstrate reasonable choices about my online identity, depending on context.
- Describe issues online that might make me and others feel sad, worried, uncomfortable or frightened. I know and can give examples of how I might get help, both on and offline.
- Explain why I should keep asking until I get the help I need.

Online Relationships

- 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 communications online with others I don't know well.

Online Reputation

- Search for information about myself online.
- Recognise the need to be careful before sharing anything about myself or others online.
- Know who to ask if I am not sure if something should be put online.
- Search for information about an individual online and create a summary report of the information found.
- Describe ways that information about people online can be used by others to make judgements about an individual.

Online Bullying

- Explain what bullying is and can describe how people may bully others.
- Describe rules about how to behave online and how to follow them.
- Identify some online technologies where bullying might take place.

Online Information

- Use key phrases in search engines.
- Explain what autocomplete is and how to choose the best suggestion.
- Explain how the internet can be used to buy and sell things.
- Describe how to search for information within a wide group of technologies (e.g. Social media, image sites, video sites).
- Describe some of the methods used to encourage people to buy things online (e.g. advertising offers, in-app purchases, pop ups) and recognise some of these when they appear online.

Year 3

Health, Wellbeing and Lifestyle

- Explain why spending too much time using technology can sometimes have a negative impact on me; give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films, videos).
- Explain how using technology can distract me from other things I might do or should be doing.

Privacy and Security

- Give reasons why I should only share information with people I choose to and can trust. Explain that if I'm not sure or I feel pressurised, I should ask a trusted adult. Understand and give reasons why passwords are important.
- Describe simple strategies for creating and keeping passwords private.
- Describe how connected devices can collect and share my information with others.
- Explain what a strong password is.

Copyright and Ownership

- Explain when copying someone else's work from the internet without permission can cause problems.
- Give examples of what those problems might be.

Year 4

Self Image and Identity

- Explain what is meant by the term 'identity'.
- 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)

Online Relationships

- Explain why I should be careful who I trust online and what information I trust them with.
- Explain how my and others' feelings can be hurt by what is said or written online.
- Explain why I take back my trust in someone or something if I feel nervous, uncomfortable or worried.
- Demonstrate how I would support others (including those who we are having difficulties) online.
- Demonstrate ways of reporting problems online for both myself and my friends.

Online Reputation

- Describe how others can find out information about me by looking online.
- Explain ways that some of the information about me online could have been created, copied or shared by others.



Year 4

Online Bullying

- Describe ways people can be bullied through a range of media.
- Explain why I need to think carefully about how content I post might affect others, their feelings and how others feel about them.
- Recognise when someone is upset, hurt or angry online.

Online Information

- Explain that some people I 'meet online' (e.g. through social media) may be computer programs pretending to be real people.
- Explain the difference between a 'belief', an 'opinion' and a 'fact'.
- Analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'.
- Explain why lots of people sharing the same opinions or beliefs online does not make these opinions or beliefs true.
- Use different search technologies
- Evaluate digital content and explain how I make choices from search results.
- Explain key concepts including; data, information, fact, opinion, belief, true, false, valid, reliable and evidence.

Health, Wellbeing and Lifestyle

- Identify times or situations when I might need to limit the amount of time I use technology.
- Suggest strategies to help me limit this time.
- Describe ways technology can affect healthy sleep and can describe some of the issues.

Privacy and Security

- Describe strategies for keeping my personal information private, depending on contact.
- 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.

Copyright and Ownership

- When searching on the internet for content to use, explain why I need to consider who owns it and whether I have the right to reuse it.
- Give some simple examples.
- Access and justify when it is acceptable to use the work of others.

Year 5

Self Image and Identity

- Explain how my online identity can be different to the identity I present in 'real life'.
- Knowing this describe the right decisions about how I interact with others and how others perceive me.
- Explain how identity online can be copied, modified or altered.

Online Relationships

- Explain what it means to 'know someone' online and why this might be different to knowing someone in real life. Explain what is meant by 'trusting someone online.' Explain why this is different to 'liking someone online.'
- Describe strategies for safe and fun experiences in a range of social environments. Give examples of how to be respectful to others online. Explain that there are some people I communicate with online who may want to do me or my friends harm. Recognise that this is not my / our fault.

Online Reputation

- Search for information about an individual online and create a summary report of the information found.
- Describe ways that information about people online can be used by others to make judgments about an individual.

Online Bullying

- Recognise when someone is upset, hurt, or angry online.
- Describe how to get help for someone that is being bullied online and assess when I need to do or say something or tell someone.
- Explain how to block abusive users.
- Explain how I would report online bullying in the apps and platforms I use.
- Describe the helpline services who can support me and what I would say or do if I needed their help (e.g. Childline).

Online Information

- I understand the difference between online misinformation (inaccurate information distributed by accident) and disinformation (inaccurate information deliberately distributed and intended to mislead).
- Explain what is meant by 'being sceptical'. Give examples of what and why it is important to be 'sceptical'.
- Explain what is meant by 'hoax'. Explain why I need to think carefully before I forward anything online.
- Explain why some information I find online may not be honest, accurate or legal.
- Explain why information that is on a large number of sites may still be inaccurate or untrue. Assess how this might happen (e.g. the sharing of misinformation either by accident or on purpose).
- Use search technologies effectively.

Health, Wellbeing and Lifestyle

- Describe some strategies, tips or advice to promote healthy sleep with regards to technology.
- Describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.

Computing | Progression Map - Online Safety



Year 5

Privacy and Security

- Create and use strong and secure passwords.
- Explain how many free apps or services may read and share my personal information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. Explain how and why some apps may request or take payment for additional content (e.g. in-app purchases) and explain why I should seek permission from a trusted adult before purchasing.
- I use different passwords for a range of online services.
- Describe effective strategies for managing those passwords (e.g. password managers, acronyms, stories).
- I know what to do if my password is lost or stolen

Copyright and Ownership

- Give examples of content that is permitted to be reused.
- Demonstrate the use of search tools to find and access online content which can be reused by others.

Year 6

Self Image and Identity

- 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.

Online Relationships

- Make positive contributions and be part of online communities.
- Describe some of the communities in which I am involved and describe how I collaborate with others positively.
- Explain that I understand my responsibilities for the wellbeing of others in my online social group.
- Explain how impulsive and rash communications online may cause problems (e.g. flaming, content produced in live streaming).

Online Reputation

- Explain how I am developing an online reputation which will allow other people to form an opinion about me.
- Describe some simple ways that help build a positive online reputation.

Online Bullying

- Describe how to capture online bullying content as evidence (e.g. screen grab, URL, profile) to share with others who can help me.
- Identify a range of ways to report concerns both in school and at home about online bullying.

Year 6

Online Information

- Explain how search engines work and how results are selected and ranked.
- Demonstrate the strategies I would apply to be discerning in evaluating digital content.
- Describe how some online information can be opinion and can offer examples.
- Explain how and why some people may present 'opinions' as 'facts'.
- Define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online (e.g. advertising and 'ad targeting').
- Demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and explain why using these strategies are important.
- Identify, flag and report inappropriate content.

Health, Wellbeing and Lifestyle

- Assess and action different strategies to limit the impact of technology on my health (e.g. nightshift mode, regular breaks, correct posture, sleep, diet and exercise)
- Explain the importance of self-regulating my use of technology; demonstrate the strategies I use to do this (e.g. monitoring my time online, avoiding accidents).

Privacy and Security

- Explain what app permissions are and give some examples from the technology and 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; describe strategies to help me identify such content (e.g. scams, phishing).

Copyright and Ownership

- Demonstrate how to make references to and acknowledge sources I have used from the internet.

Computing | Progression Map - Information Technology



Year 1

- add information to a PowerPoint using the keyboard and mouse
- move images and text on screen
- change the width of drawing tools
- add pictures to a file

Year 2

- type a piece of text and change the font
- use cut, copy and past keyboard shortcuts
- highlight text to change its format (bold, underline, italics)
- use shape tools to draw, then resize and use fills
- make a simple slide show

Year 3

- begin to touch type
- create a PowerPoint file using information from the internet
- use slide transitions
- format text within documents
- use computing equipment to capture videos
- edit images by resizing, cropping and merging

Year 4

- develop touch-typing skills
- format Word documents to include columns and page breaks
- include clip art, WordArt and SmartArt into documents

Year 5

- change page layout
- insert tables and hyperlinks into a document
- format all text to suit the purpose of a document, using bullet points
- use word count tools to check the length of a document
- enter data into a spreadsheet, including simple formula
- use effective slide animations
- edit images in documents

Year 6

- confidently choose which software package is most appropriate for the task
- apply knowledge of publishing to create documents on Microsoft packages
- create a simple online survey
- make multimedia presentations that contain sound, animation, video and buttons to navigate

Computing | Progression Map - Computer Science



Year 1

- understand forwards, backwards, up and down
- put together two instructions to control a BeeBot
- begin to debug a simple program

Year 2

- control a programmable toy using forward, backwards, up, down, left and right
- debug a simple program
- understand the term 'algorithm'

Year 3

- create a simple game which requires the user to control an object on screen
- use simple algorithms to solve puzzles using physical resources

Year 4

- create a simple game which uses sounds
- use a simple algorithm to solve puzzles on screen

Year 5

- write simple code which uses variables
- apply my understanding of coding to different development environments

Year 6

- use a Microbit to run simple programs
- apply knowledge of coding to develop programs for a given scenario, using efficient strategies

Computing | Progression Map - Digital Literacy



Year 1

- look at websites with an adult and discuss what I see

Year 2

- understand keyword searching is an effective way to locate information on the internet
- know that all websites are not equally good sources of information
- know that computers have changed over time and are still changing fast

Year 3

- use increasing effective keywords to search
- understand that information on a website has a purpose, which may be to persuade

Year 4

- evaluate the results of searches
- know that copying the work of others and presenting it as my own is called plagiarism
- understand when it is acceptable to use other people's work in my own

Year 5

- have a basic understanding of how the internet is structured
- know how to cite sources in my work and understand why this is important
- begin to write a bibliography

Year 6

- have an understanding of how the internet has developed and is still changing
- understand that websites can reinforce stereotypes
- evaluate websites for their reliability