



**Computing  
Knowledge and Skills  
Progression  
Cycle A – 2023-2024**

**Intent**

At Borrow Wood Primary School, we want all of our pupils to become autonomous, independent users of computing technologies who are inspired and enthused by the computing curriculum. The pupils will understand how digital systems work and how to put this knowledge to use through programming that will enable them to become active participants in a digital world. It is important to us that pupils understand how to use ever-changing technology to express themselves and as a means to drive their generation forward.

Our computing curriculum also ensures that pupils become digitally literate – able to use, and develop their ideas through, information and communication technology. We want pupils to develop as respectful, responsible and confident users of technology, aware of the measures that can be taken to keep themselves and others safe online. These aspects of our computing curriculum build on the school’s ethos of CHOICE. Through our computer science lessons we want pupils to develop creativity, resilience and problem solving and critical thinking skills. Where pupils feel supported to achieve the best, they can be challenged to deepen their knowledge.

The curriculum has been designed in line with the National curriculum for computing; this provides a broad, balanced and ambitious curriculum. Our aim is to provide a deep knowledge base alongside opportunities to apply skills in various digital contexts and to ensure that our curriculum is accessible to every pupil.

**Cycle A**

**Year 1 and 2**

**Core Knowledge**

**Online Safety  
Privacy and Security**

Children will know how personal online information can be used, stored, processed and shared. The children will become aware of how strategies that they can use to protect their information online.

**Computer Science  
Moving a Robot**

Children will know what a beebot is and what the arrows on a beebot do.  
  
Children will know what an instruction is.

**Information Technology  
Grouping Data**

Children will know what data is and how to use labels to put objects into groups.  
  
Children will know how to use the properties of objects and how these can influence the grouping of the objects.

**Health, well-being and lifestyle**

Children will have an understanding of the impact that technology has on health, well-being and lifestyle, e.g. mood, sleep, body health and relationships. The children will become aware of strategies that they can use to deal with negative behaviours that are amplified by technology use.

**Self-image and Identity**

Children will understand the differences between online and offline identity beginning with self-awareness, creating an online identity and how media can influence stereotypes. Children will become aware of how to report issues and receive support as well as the impact that technology can have on self-image and behaviour.

**Online Reputation**

Children will become aware of how others may use online information to make judgements. Children will know strategies of how to manage their personal digital content and learn how to create a positive online profile.

**Key Skills**

**Computer Science**  
**Moving a Robot**

- Explain what a given command will do
- Act out a given word
- Combine forwards and backwards commands to make a sequence
- Combine four direction commands to make sequences
- Plan a simple program
- Find more than one solution to a problem

**Information Technology**  
**Grouping Data**

- Label objects
- Identify that objects can be counted
- Describe objects in different ways
- Count objects with the same properties
- Compare groups of objects
- Answer questions about groups of objects

**Key Vocabulary**

**Online Safety**  
**Privacy and Security**

- account – a selection of files that relate to just one user
- identify – to figure out or show who someone is or what something is/to connect or associate
- password – a secret word or phrase that allows one to enter a place or get information
- personal information – tells other people who you are, all about you and where to find out (e.g. name, address, school, appearance)
- protect – to defend or keep safe

**Health, well-being and lifestyle**

- access – the right or ability to enter, look at, or use something
- identify – to figure out or show who someone is or what something is/to connect or associate
- rules – a law or direction that guides behaviour or action
- technology – machinery and equipment

**Self-image and Identity**

- embarrassed – to feel uncomfortable or uneasy
- offline – not connected to the Internet
- online – connected to the Internet
- trust – a belief in the strength or truth of a person or thing
- uncomfortable – feeling discomfort

**Online Reputation**

- consent – to give permission or approval; agree
- identify – to figure out or show who someone is or what something is/to connect or associate
- personal information – tells other people who you are, all about you and where to find you (e.g. name, address, school, appearance)

**Computer Science**  
**Moving a Robot**

- command – to order or instruct
- device – an invention or machine used to perform simple tasks
- enact – to act out
- instructions – to act of giving knowledge; teaching/ directions or orders
- outcome – a result of something
- predict – to tell in advance that something will happen
- series – a group of related things that come one after another

**Information Technology**  
**Grouping Data**

- attributes – a characteristic of a person, place or thing
- collect – to gather together
- data – facts, figures or other pieces of information that can be used to learn something about
- identify – to figure out or show who someone is or what something is/to connect or associate
- present – to share
- properties – a quality that something is known by; characteristic
- similarity – having resemblance or likeness

**National Curriculum Links**

**Online Safety**

1.5 recognise common uses of information technology beyond school  
1.6 use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

**Computer Science**

1.1 understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions  
1.2 create and debug simple programs  
1.3 use logical reasoning to predict the behaviour of simple programs

**Information Technology**

1.4 use technology purposefully to create, organise, store, manipulate and retrieve digital content

## Year 3 and 4

### Core Knowledge

#### Online Safety

##### Privacy and Security

Children will know how personal online information can be used, stored, processed and shared. The children will become aware of how strategies that they can use to protect their information online.

##### Health, well-being and lifestyle

Children will have an understanding of the impact that technology has on health, well-being and lifestyle, e.g. mood, sleep, body health and relationships. The children will become aware of strategies that they can use to deal with negative behaviours that are amplified by technology use.

##### Self-image and Identity

Children will understand the differences between online and offline identity beginning with self-awareness, creating an online identity and how media can influence stereotypes. Children will become aware of how to report issues and receive support as well as the impact that technology can have on self-image and behaviour.

##### Online Reputation

Children will become aware of how others may use online information to make judgements. Children will know strategies of how to manage their personal digital content and learn how to create a positive online profile.

#### Computer Science

##### Events and Actions

Children will know that an event causes an action.

Children will know what debugging is and the steps involved in debugging a program:

- testing the program
- identifying the bug
  - fix the bug
- test the bug fix

#### Information Technology

##### Branching Databases

Children will know the difference between an open question and a yes/no question.

Children will know what an 'attribute' is and be able to give examples.

Children will know why questions need to be carefully ordered so that objects are split into similarly sized groups at each stage.

### Key Skills

#### Computer Science Events and Actions

- Explain how a sprite moves in an existing project
- Create a program to move a sprite in four directions
- Adapt a program to a new context
- Develop a program by adding features
- Identify and fix bugs in a program
- Design and create a maze-based challenge

#### Information Technology Branching Databases

- Create questions with yes/no answers
- Identify the object attributes needed to collect relevant data
- Create a branching database
- Identify objects using a branching database
- Explain why it is helpful for a database to be well-structured
- Compare the information shown in a pictogram with a branching database

### Key Vocabulary

#### Online Safety Privacy and Security

- consent – to give permission or approval; agree
- device – an invention or machine used to perform simple tasks
- digital age – time in history when the use of technology became more common
- monitored – to observe in order to check on
- password – a secret word or phrase that allows one to enter a place or get information
- personal information – tells other people who you are, all about you and where to find you (e.g. name, address, school, appearance)
- private – personal and not to be shared

#### Health, well-being and lifestyle

#### Computer Science Events and Actions

- combine – to bring or join together into a whole
- command – to order or instruct
- outcome - a result of something
- program – a sequence of instructions that allow a computer to perform a task or a set of operations
- sequence – a pattern or process in which one thing follows another

#### Information Technology Branching Databases

- attributes – a characteristic of a person, place or thing
- branching database – a large collection of information in a computer so it can be quickly changed or search through
- data – facts, figures or other pieces of information that can be used to learn something about
- identify – to figure out or show who someone is or what something is/to connect or associate
- investigate – to look into carefully and closely as to learn the facts; examine
- retrieve – to find

- age restriction – the oldest or youngest at which you are allowed to do something
- impact – a strong and powerful effect
- technology – machinery and equipment

**Self-image and Identity**

- avatar – an icon or figure representing a particular person in a video game, internet forum, etc
- identity – all of those things by which a person or thing is known or is considered as being
- offline – not connected to the Internet
- online – connected to the Internet
- represent – to stand for or be a sign for
- social media – websites and applications that allow users to create and share content and participate in social networking

**Online Reputation**

- identity – all of those things by which a person or thing is known or is considered as being
- online – connected to the Internet
- search – to look through very carefully in order to find something

**National Curriculum Links**

**Online Safety**

1.7 use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

**Computer Science**

1.1 design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller part  
1.2 use sequence, selection, and repetition in programs; work with variables and various forms of input and output

**Information Technology**

1.3 understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration

		<p>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p>	<p>1.4 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content  1.5 select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>
--	--	---	--

<p><b>Year 5 and 6</b></p>	<p><u>Core Knowledge</u></p>		
	<p style="text-align: center;"><b><u>Online Safety</u></b>  <b><u>Privacy and Security</u></b></p> <p>Children will know how personal online information can be used, stored, processed and shared. The children will become aware of how strategies that they can use to protect their information online.</p> <p style="text-align: center;"><b><u>Health, well-being and lifestyle</u></b></p> <p>Children will have an understanding of the impact that technology has on health, well-being and lifestyle, e.g. mood, sleep, body health and relationships. The children will become aware of strategies that they can use to deal with negative behaviours that are amplified by technology use.</p>	<p style="text-align: center;"><b><u>Computer Science</u></b>  <b><u>Selections in Quizzes</u></b></p> <p>Children will know why you use selection in programming and what ‘set up’ means.</p> <p>Children will know that when designing programs, there are often points where a decision must be made and that these decisions are implemented in programming using ‘IF’ statements.</p>	<p style="text-align: center;"><b><u>Information Technology</u></b>  <b><u>Flat-file Databases</u></b></p> <p>Children will know how information can be recorded and that a database is a collection of data that is stored in a computer and that can easily be used and added to.</p> <p>Children will know what a field and a record is in a database.</p> <p>Children will know how ‘AND’ and ‘OR’ can be used to refine data selection.</p>

**Self-image and Identity**

Children will understand the differences between online and offline identity beginning with self-awareness, creating an online identity and how media can influence stereotypes. Children will become aware of how to report issues and receive support as well as the impact that technology can have on self-image and behaviour.

**Online Reputation**

Children will become aware of how others may use online information to make judgements. Children will know strategies of how to manage their personal digital content and learn how to create a positive online profile.

**Key Skills**

**Computer Science  
Selections in Quizzes**

- Explain how selection is used in computer programs
- Relate that a conditional statement connects a condition to an outcome
- Explain how selection directs the flow of a program
- Design a program which uses selection
- Create a program which uses selection
- Evaluate a program

**Information Technology  
Flat-file Databases**

- Use a form to record information
- Compare paper and computer-based databases
- Outline how grouping and then sorting data allows us to answer questions
- Explain that tools can be used to select specific data
- Explain that computer programs can be used to compare data visually
- Apply knowledge of a database to ask and answer real-world questions

**Key Vocabulary**

**Online Safety**  
**Privacy and Security**

- consent – to give permission or approval; agree
- geolocation – to identify the location of a person or device
- password – a secret word or phrase that allows one to enter a place or get information
- personal information – tells other people who you are, all about you and where to find you (e.g. name, address, school, appearance)
- phishing – illegally trying to get access to someone's personal data, such as credit card details and passwords
- privacy settings – controls available to limit who can access your information
- scams – a dishonest scheme that tries to illegally obtain your money
- terms and conditions – a contract that sets out the rights and responsibilities of people providing and using the service

**Health, well-being and lifestyle**

- BBFC – British Board of Film Classification
- in-app purchase – extra content or subscriptions that you can buy within an app
- lootbox – a consumable virtual item
- PEGI – Pan-European Game Information
- professionals – a person who has or shows skills in a particular field
- technology – machinery and equipment

**Computer Science**  
**Selections in Quizzes**

- condition – something that must happen before another event or thing can occur
- conditional statement – a set of rules performed if a certain condition is met
- count-controlled loop – to make a computer do the same thing a specific number of times
- define – to explain or state the meaning of
- instructions - to act of giving knowledge; teaching/ directions or orders
- loop – a set of instructions that a computer program repeats over and over again
- modify – to change in some way; alter
- outcome – a result of something
- relate – to have a connection
- repeat – to do or experience again

**Information Technology**  
**Flat-file Databases**

- attributes – a characteristic of a person, place or thing
- data - facts, figures or other pieces of information that can be used to learn something about
- design – to plan for a certain goal or purpose
- flat-file database – a table of information
- operands – something (such as a quantity or data) that is operated on (as in a mathematical operation)
- organise – to set in order; arrange in an orderly way
- structure – to construct or arrange according to a plan; give a pattern or organisation to

**Self-image and Identity**

- alter – to make a slight change
- copy – to make something similar to identical to another
- evaluate – to judge the level, value or accuracy of something
- modify – to make a slight change

**Online Reputation**

- anonymous – having an unknown name or identity
- digital personality – an individual’s attitudes, interests that relate to their use of technology
- online reputation – things online that you have liked, shared and commented on shape what people think about you
- summarise – to share key information in a clear and concise way

**National Curriculum Links**

**Online Safety**

1.7 use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

**Computer Science**

1.1 design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller part  
1.2 use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

**Information Technology**

1.3 understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration  
1.4 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content  
1.5 select, use and combine a variety of software

(including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information