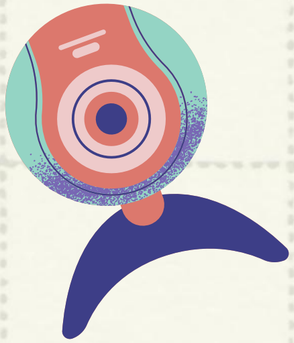
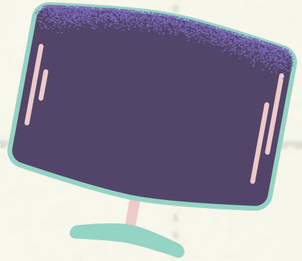
COMPUTING AT AYLWARD

KNOWLEDGE AND SKILLS PROGRESSION MAP

CLICK ON EACH TAB TO FIND THE RELEVANT INFORMATION

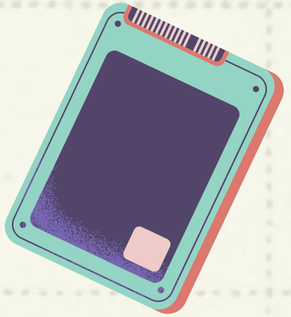




Intent, Implementation and Impact

Curriculum map

Knowledge and Skills Progression by Year Group



Intent, Implementation and Impact

Intent

- Develop computation thinking and creativity skills
- Develop digital literacy skills – find, evaluate, create and share content.
- Understand and apply essential principles of Computer science.
- Understand how to be responsible and respectful digital citizens.

Implementation

- Children engage in problem-solving tasks that involve breaking down problems, spotting patterns, and designing simple algorithms through creative projects like coding stories or games.
- Children are taught how to search effectively, evaluate information, and create purposeful digital content using a range of tools.
- Key computing concepts such as algorithms, programming, and data representation are taught through age-appropriate, hands-on activities.
- Online safety and respectful digital behaviour are embedded across the curriculum and reinforced through discussions and real-life scenarios.

Impact

- Children confidently apply logical thinking and show creativity in designing and debugging digital solutions.
- Children use technology independently and critically, selecting appropriate tools to communicate ideas and information clearly.
- Children develop a strong foundational understanding of how computers and programs work, and apply this knowledge when coding.
- Children make safe, respectful choices online and understand their responsibilities in the digital world.

Curriculum map

Computing curriculum map 2026-27

Computer science Digital literacy Information technology

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS Nursery and Reception	During their time in Nursery and Reception, children are introduced to technology through purposeful exploration and play. Although there is no formal Computing curriculum at this stage, children develop their understanding of technology by interacting with a range of digital devices, online activities, interactive games and programmable toys. Through these experiences, children begin to recognise simple cause and effect relationships, exploring how their actions can create different outcomes. Children develop early computational thinking skills through problem-solving activities, puzzles, pattern recognition, sorting, sequencing and logical thinking opportunities within continuous provision and adult-led activities. They also begin to develop early programming skills by following and giving simple instructions, creating and following sequences of events, and exploring how instructions can be used to achieve a desired outcome. Alongside this, children learn to use technology safely and appropriately, developing confidence and independence when using devices such as tablets and laptops.					
Year 1	Online safety	Logging on and opening programs	Creating media: digital writing	Data and information: grouping data	Programming: moving a robot (beebots)	Programming: programming animation (scatch jnr)
Year 2	Online safety	Creating media: digital photography	Data and information: pictograms	Programming: Robot algorithms (beebots)	Creating media: digital music	Programming: programming quizzes (scatch jnr)
Year 3	Online safety	Creating media: stop-frame animation	Internet research and multi-media presentations	Communication systems and networks: communication and email	Programming: code.org coding (sequencing & loops)	Programming: events and actions in programmes
Year 4	Online safety	Creating media: audio production	Data & information: branching databases	Programming: code.org – loops, nested loops and conditional (recap loops, introduce nested loops, and conditional if/else statements)	Programming: repetition in games (scatch)	Communication & collaboration: the internet and web publishing
Year 5	Online safety	Programming: selection in quizzes (scatch)	Programming: micro:bit – intro to physical computing (micro:bits)	Internet research and search engines	Creating media: video production using iMovie	Data & information: flat-file databases
Year 6	Online safety	Programming: micro:bit – designing solutions	Programming: python coding	Data and information: spreadsheets	Creating media: 3D modelling	Collaborative multimedia project

Knowledge and Skills Progression map by Year Group

Year 1

Year 2

Year 3

Year 4

Year 5

Year 6

Year 1

Autumn 1

Online Safety

Autumn 2

Logging on and opening programmes

Spring 1

Creating media: digital writing

Spring 2

Data & information: grouping data

Summer 1

Programming- moving a robot

Summer 2

Programming – programming animation

Year 1 Autumn 1 - Online safety

Prior Learning: Children explore keeping themselves safe in Reception, through PSHE where they learn how to be kind to each other.

Intent

This unit aims to equip pupils with the knowledge and skills to use the internet safely, thoughtfully, and responsibly. Pupils will learn what the internet is and how it can be used, recognise how online experiences can influence their own emotions and those of others, understand the impact their online actions may have, and identify what information is appropriate or inappropriate to share in digital spaces.

Knowledge

Know that the internet is many devices connected to one another.

Know what to do if you feel unsafe or worried online – tell a trusted adult.

Know that people you do not know on the internet (online) are strangers and are not always who they say they are.

Know that to stay safe online it is important to keep personal information safe.

Know that 'sharing' online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.

Skills

Recognise devices that are connected to the internet.

Understand that we are connected to others when using the internet.

Understand some of the ways we can use the internet.

When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable.

Understand how to interact safely with others online.

Recognise how actions on the internet can affect others.

Recognise what a digital footprint is and how to be careful about posting online.

Discuss ways to balance time spent online and offline.

Vocab

- app
- appropriate
- device
- digital footprint
- feelings
- going online
- in-person interactions
- internet
- Kindness
- Online
- Offline
- offline activity
- online activity
- online interactions
- Private
- unkind
- website
- online safety
- personal information
- Private information
- pop-up
- posting online
- report
- responsible digital citizen
- screen time
- sharing online
- stranger
- technology
- trusted adult

Suggestions for implementation

Twinkl online safety resources (saved in Computing folder on Teach Only → Teaching Resources → Online safety → EYFS/KS1)

Smartie the penguin: https://www.childnet.com/resources/smartie-the-penguin/
Hanni and the magic window: https://www.childnet.com/resources/hanni-and-the-magic-window/
LGFL Online Safety resources: https://www.lgfl.net/online-safety/default.aspx

Enrichment opportunities

Participate in an online safety workshop
Internet safety day in school
Creating online safety posters
Drama/ role play with scenarios
Guest speakers to talk about online safety.

Questions to measure impact

What personal information should you not tell people online?
What would you do is you saw something inappropriate on a laptop at school?
Who are trusted adults you could talk to if you see something inappropriate on the internet?
Who can see information that is put on the internet?

Year 1 Autumn 2 - Logging on and opening programs

Prior learning

Know that passwords are private and should not be shared (Y1 Aut1)
Know that trusted adults can help when using technology (Y1 Aut1)

Intent

Pupils will develop the confidence to use school technology independently and safely. They will learn how to log onto the school network using their own username and password, access familiar programmes and websites. Through regular practice, pupils will begin to use a keyboard and touchpad with increasing accuracy while understanding the importance of keeping personal login information private and using technology responsibly.

Knowledge

- Know the main parts of a laptop, including the screen, keyboard, touchpad and power button.
- Know how to carry and use a laptop safely and responsibly.
- Know that usernames and passwords are used to log into a computer and should be kept private.
- Know that trusted adults can help if they forget their login details or need support.
- Know that a keyboard is used for typing and a touchpad is used to move and control the pointer.
- Know that a web browser is used to access websites and online learning platforms.
- Know we always ask an adult before visiting a new website.

Skills

- Turn a laptop on and shut it down correctly.
- Carry and handle a laptop safely using two hands.
- Log onto the school network using a personal username and password with increasing independence.
- Keep login details private and know who to ask for help if needed.
- Use the keyboard to type letters, numbers and simple words.
- Use the backspace key to correct mistakes.
- Use the touchpad to move the pointer, click and open programmes.
- Open a web browser and access familiar school websites.
- Close a web browser when I am finished.

Vocab

- Username
- Password
- Log in
- Log out
- Shut down
- Keyboard
- Touchpad
- Screen
- Cursor (or pointer)
- Web browser
- SharePoint
- Website
- Laptop
- Search
- Private
- Power button

Suggested questions to measure impact

Why do we use a username and password?
Why should you keep your password private?
What can you do if you forget your password?
How do you shut down your laptop?

Suggestions for implementation

Provide regular opportunities for children to log onto the school network
Model safe handling of laptops, reinforcing how to log on, carry and shut down devices
Have shirt, purposeful practise sessions using the keyboard

Enrichment opportunities

Encourage pupils to log into home learning platforms such as SharePoint or Numbots independently.

Provide opportunities for pupils to help a partner log in by giving verbal instructions (without sharing passwords).

Celebrate increasing independence through a "Digital Champion" role, where pupils demonstrate safe and responsible use of technology.

Year 1 Spring 1 – Creating media: digital writing

Prior learning

Recognise and use basic technology in the classroom (EYFS & Y1)
Know that a keyboard is used for typing and atouchpad is used to move and control the pointer (Y1 Au2)
Use the keyboard to type letters, numbers and simple words (Y1 Au2)

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-writing

Intent

Pupils will develop the foundational skills needed to create, edit and improve digital text using a word processor.
They will learn how to use a keyboard confidently, make purposeful changes to their writing using editing and formatting tools, and understand the benefits of digital writing compared with handwriting. They will learn how to save and retrieve their work.
By the end of the unit, pupils will be able to produce simple digital documents independently and explain the choices they have made.

Knowledge

- Know that a computer can be used to create writing and that different keys have different functions.
- Know that digital text can be changed without rewriting it and that editing keys have specific purposes.
- Know that digital writing can be edited and improved after it has been created.
- Know that formatting changes the appearance of text and that word processors include tools to do this
- Know that formatting choices should help the reader and can be changed if needed.
- Know that writing can be created by hand or digitally and that each method has advantages.
- Know that work should be saved so it can be opened and edited later.

Vocab

Keyboard, key, type, text, computer, space bar, backspace, enter, capital letter, word processor, toolbar, format, font, bold, undo, edit, cursor, appearance, save, open

Skills

- Use a keyboard to locate letters and type simple words in a word processor.
- Add, delete and correct text using the Space, Backspace and Enter keys.
- Edit text by adding capital letters and correcting mistakes independently
- Select text and use simple formatting tools, such as changing font size or applying bold.
- Choose appropriate formatting and use Undo to review and improve digital writing.
- Compare digital and handwritten work, explaining when each method is most suitable.
- Save, open and continue editing a document.

Tips and Tricks

Suggestions for implementation

Explore the keyboard – Busy Things game – 'tree keys'
Adding and removing text on a word document or J2e
Making changes to test – e.g. adding capital letters/ fixing mistakes
Exploring the toolbar – font size/ style
Completing the same activity using pencil and then on a keyboard – which was easier? What is the difference?

Enrichment opportunities

Write a sentence about a familiar character or story and add a bold title.
Create a simple fact file about a season, animal or plant using a title and one or two sentences.
Type labels for artwork

Suggested questions to measure impact

What is a keyboard used for?
Can you find the letters to type a name?
Which key creates a space between words?
Which key would you use to fix a mistake?
What does it mean to edit your writing?
Can you show me how to add a capital letter?
What is the same about writing with a pencil/ typing?
What is different about writing with a pencil/ typing?
Why did you choose that font/ style?
How would you save your work?

Year 1 Spring 2 – Data & information: grouping data

Prior learning

- Building on knowledge gained through EYFS learning in maths and understanding the world

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-1/data-and-information-grouping-data

Intent

In this unit, pupils develop an understanding of how data can be organised by exploring different ways to sort and group everyday objects. They learn to identify and describe objects using labels and properties, recognising that the same information can be organised in different ways depending on the purpose. Through practical activities, pupils develop the skills to group, count and compare data, using their observations to answer simple questions. By the end of the unit, pupils understand that organising information using labels and groups helps both people and computers to find, compare and use data more effectively.

Knowledge

- Know that data is information that can be organised using labels and groups.
- Know that the same data can be grouped in different ways depending on the chosen criteria or purpose.
- Know that labels and categories help organise information so it can be found and compared more easily.
- Know that grouped data can be used to answer questions and make simple comparisons.
- Know that organising data helps both people and computers to store, find and use information effectively.

Vocab

- Data
- Information
- Object
- Property
- Label
- Group
- Sort
- Criteria
- Compare
- Count
- Category
- True or false
- Classify
- Organise
- Describe

Skills

- Describe and identify the properties of everyday objects using appropriate vocabulary and labels.
- Sort and group objects using different criteria, explaining why objects belong in particular groups.
- Count, compare and describe groups accurately using mathematical and computing vocabulary.
- Use grouped data to answer simple questions and draw conclusions from the information presented.
- Explain how grouping and organising information makes it easier to find and use data.

Tips and Tricks

Suggestions for implementation

- Toy sorting challenge
- Healthy lunch survey
- Collect natural objects and sort them
- Mystery object – describe an object using its properties and others to guess what it is

Enrichment opportunities

- Opportunity for cross curricular links with maths or science topic
- Home learning sorting challenges
- Class surveys

Suggested questions to measure impact

Can you describe this object using its properties?
How could you sort these objects into groups?
What label would you give this group?
Can you group objects in more ways than one?

Year 1 Summer 1 – Programming: moving a robot

Prior learning

Follow simple instructions in the correct order during everyday activities (EYFS)

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-1/programming-a-moving-a-robot

Intent

In this unit, pupils will be introduced to programming through controlling Bee-Bot robots. They will learn that programs are made up of sequences of instructions (algorithms) that must be given in the correct order to achieve a desired outcome. Pupils will create, run and debug simple programs, using directional commands to move a robot around a defined route. They will begin to predict outcomes of programs and understand that computers and robots follow instructions precisely.

Knowledge

- Explain what a given command does
- Predict the outcome of a sequence involving up to four commands
- Match a command to an outcome
- Understand that a program is a set of commands that a computer can run
- Know that a sequence of instructions (algorithm) can be planned before it is carried out

Skills

- Choose and run commands to control a device
- Create a simple sequence of instructions
- Combine commands to achieve a goal
- Predict the outcome of a sequence
- Find and fix simple errors (debugging)

Vocab

- Algorithm (sequence of instructions)
- Command
- Program
- Sequence
- Direction (forward, backward, left, right)
- Turn
- Route
- Bee-Bot
- Predict
- Debug
- Error
- Instruction
- Outcome
- Start point
- Finish point

Tips and Tricks

Suggestions for implementation

Start with offline algorithms (giving instructions in steps)
Encourage paired work
Begin with simple commands before progressing to 2-4steps
Offer opportunities to debug errors

Enrichment opportunities

Cross curricular challenges (e.g. using a map beebot mat)
Pupils design their own beebot mat
Peer teaching opportunities

Suggested questions to measure impact

Can you create a program with 2-4 commands?
Why didn't the beebot reach the correct place?
Can you fix the error in this algorithm?

Year 1 Summer 2- Programming: programming animation(Scratch Jnr)

Prior learning

Know that a sequence of instructions(algorithm) can be planned before it is carried out(Y1 Su1)
Create a simple sequence of instructions Y1 Su1)
Find and fix simple errors (Y1 Su1)

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-1/programming-b-introduction-to-animation

Intent

In this unit, pupils will develop their understanding of programming by creating simple animated programs using ScratchJr. They will learn that programs are made up of sequences of commands (blocks) that control characters (sprites) on a screen. Pupils will use start events to trigger programs, create sequences to make sprites move and act, and debug simple programs when they do not work as expected. This unit builds on physical programming from Bee-Bots and introduces pupils to on-screen coding, preparing them for more complex programming in KS1 and KS2.

Knowledge

- Know that a sprite is an object that can be controlled in a program
- Know that commands (blocks) tell a sprite what to do
- Know that programs start when an event (such as a start button or green flag) is pressed
- Know that commands can be joined in order (sequence) to make things happen
- Know that a program is a set of commands a computer can run.

Skills

- Predict the outcome of simple programs.
- Use commands (blocks) to control a sprite.
- Create a program by sequencing commands with a start block.
- Test programs by running them and observing the result.
- Debug simple programs by identifying and fixing errors.

Vocab

- Program
- Algorithm
- Sequence
- Command / Block
- Sprite
- Start block / Event
- Action
- Character
- Move
- Turn
- Animate
- Predict
- Debug
- Error
- Run
- outcome

Tips and Tricks

Suggestions for implementation

Begin with teacher modelling of scratch jnr.
Short focused challenges (e.g. make a character move or say something)
LInk blocks (scratch jnr) to commands (Beebots)
Encourage predictions
Build in debugging opportunities

Enrichment opportunities

Create animated stories linked to topic books
Share animations with the class
Add sound or dialogue
Peer reviews

Suggested questions to measure impact

Can you predict what will happen before you run your program?
Can you fix the error in your program?
What happens if you change the order of blocks?
How do you start a program in scratch?
How is programming a progrmame similar to a beebot?

Year 2

Autumn 1

Online Safety

Autumn 2

Creating media: digital photography

Spring 1

Data and information: pictograms

Spring 2

Programming – robot algorithms

Summer 1

Creating media: digital music

Summer 2

Programming: programming quizzes

Year 2 Autumn 1 - Online safety

Prior Learning: Know that to stay safe online it is important tokeep personal information safe (Y1 Aut1)
Recognise how actions on the internet can affectothers (Year 1 Aut1)

Intent

This unit aims to equip pupils with the knowledge and skills to engage with online information safely and responsibly. Pupils will learn what online information is, recognise what is safe to share, and understand the importance of using strong passwords to protect themselves. They will learn that permission is required before sharing content online, including their right to refuse consent, and know who to turn to for help with online worries. Pupils will also begin to use simple strategies to judge whether online information is reliable.

Knowledge

- Understand the difference between online and offline.
- Understand what information I should not post online.
- Know how to create a strong password.
- Know that you should ask permission from others before sharing about them online and that they have the right to say 'no.'
- Understand that not everything I see or read online is true.
- Understand the term 'content'.
- Know that using someone else's content without permission is wrong.

Skills

- Identify whether information is safe or unsafe to be shared online.
- Learn how to create a strong password.
- Learn to be respectful of others when sharing online and ask for their permission before sharing content.
- Use strategies for checking if something they read online is true.
- Understanding how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable.
- Identify the owner of offline content.

Vocab

- accepting
- consent
- copyright
- copy
- content
- denying permission
- fake
- give permission
- offline
- online
- password
- permission
- personal information
- pop-up
- pressure
- private information
- real
- reliable
- sharing online
- source
- ownership
- trusted adult

Suggestions for implementation

Twinkl online safety resources (saved in Teach Only --> Computing --> Teaching resources --> Online Safety --> EYFS/ KS1)

Interactive story - Lee and Kim's Adventure: https://www.thinkuknow.co.uk/5_7/leeandkim/
LGFL Online Safety resources: https://www.lgfl.net/online-safety/default.aspx

SMART video lessons - https://www.childnet.com/resources/video-lessons/

Enrichment opportunities

Internet safety day in school

Creating posters advising others how to stay safe online

Questions to measure impact

What personal information should you not tell people online?
What would you do is you saw something inappropriate on a laptop at school?
Who can see information that is put on the internet?
How would you use safe search to look up images?
Is everything you read online true? How can you begin to check information?

Year 2 Autumn 2 – Creating media: digital photography

Prior learning

Know that a computer (technology) can be used to create and that different buttons have different function (Y1 Sp1)

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-photography

Intent

In this unit, pupils will learn how to take, edit and improve digital photographs using simple tools. They will explore how images can be changed to improve their quality and purpose, and understand that digital photographs can be stored, shared and used in different ways. Pupils will develop their understanding of how technology can be used to capture and represent the world around them and begin to make simple choices about how images can be improved for a given purpose.

Knowledge

- Know that photographs can be taken in different orientations, such as portrait and landscape.
- Know that lighting affects the quality and clarity of a photograph.
- Know that photographs can be improved by editing them using digital tools.
- Know that photographs are taken for a purpose and can be changed to improve their effect.

Skills

- Take a photograph using a digital device in camera mode.
- Choose whether to take a portrait or landscape photograph depending on the subject.
- Experiment with taking photographs using different lighting conditions.
- Identify features that make a photograph effective or less effective.
- Use simple editing tools (e.g. crop, rotate, adjust brightness) to improve a photograph.
- Recognise when a photograph has been edited or enhanced.
- Explain how editing tools have changed a photograph.

Vocab

- Device
- Camera
- Photograph
- Capture
- Image
- Digital
- Landscape
- Portrait
- Framing
- Subject
- Compose
- light sources
- Flash
- Focus
- Background
- Editing
- Filter
- Format
- Lighting
- Crop
- Rotate
- brightness

Tips and Tricks

Suggestions for implementation

- Using ipads/ digital cameras to take photos of things around the school.
- Model and show how to crop, rotate and improve brightness
- Compare original and edited pictures to see differences

Enrichment opportunities

- Cross curricular links with DT / art
- Creating a collage with pictures of meaningful things
- Class phot gallery with images

Suggested questions to measure impact

- Can you crop an image?
- Can you take a clear photgraph using a device?
- Can you explain why some photos are clearer than others?
- How does technology help us capture images?

Year 2 Spring 1 – Data & information - pictograms

Prior learning

Know that labels and categories help organise information so it can be found and compared more easily (Y1 Sp2)
Count, compare and describe groups accurately using mathematical and computing vocabulary (Y1 Sp2)

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-1/data-and-information-pictograms

Intent

In this unit, pupils will build on their understanding of grouping data by learning how information can be represented in pictograms. They will learn how data can be collected, organised and displayed using images to represent quantities. Pupils will interpret pictograms to answer questions and compare data sets, developing their understanding that data can be shown in different visual forms to help us understand it more easily. This unit supports pupils in moving from physical grouping of objects to digital representation and interpretation of data.

Vocab

- Data
- Information
- Pictogram
- Chart
- Symbol
- Label
- Key
- Represent
- Compare
- Count
- More / Less
- Most / Least
- Equal
- Group
- Label

Knowledge

- Know that data is information that can be collected, organised and represented in different ways.
- Know that a pictogram is a way of showing data using pictures or symbols.
- Know that each symbol in a pictogram represents a specific number of items (as shown in the key).
- Know that a key explains what each symbol represents in a pictogram.
- Know that pictograms can be used to compare information and answer questions.
- Know that data can be represented visually to make it easier to understand.

Skills

- Collect simple data from given sources or class surveys.
- Represent data using a pictogram with given symbols and a key.
- Use a key to interpret how many items each symbol represents.
- Read and answer questions about data shown in a pictogram.
- Compare quantities in a pictogram using language such as more, less, most, least and equal.
- Create a simple pictogram to represent collected data (with support where needed).
- Check that data is represented accurately in a pictogram.
- Explain what information a pictogram is showing

Tips and Tricks

Suggestions for implementation

Use hands on, practical data collection (e.g. class surveys, favourite animals, transport to school)
Begin with physical pictograms before digital
Teach the importance of a key and what it represents

Enrichment opportunities

Class pictogram display
School wide survey and display result
Link to maths learning
Use real world examples (e.g. sports results)
Challenge pupils to design their own survey
Topic or seasonal pictograms

Suggested questions to measure impact

What is a pictogram?
Can you answer questions using a pictogram?
Can you compare two sets of data using a pictogram?
Can you explain what each symbol in a pictogram represents?
How does a pictogram help us understand information?

Year 2 Spring 2 – Programming: robot algorithms

Prior learning

Choose and run commands to control a device (Y1 Su2)
Find and fix simple errors (debugging) (Y1 Su2)

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms

Intent

In this unit, pupils develop their understanding of algorithms by planning, creating and debugging programs to control Bee-Bot robots. They will use sequences of directional commands to move a robot accurately around a range of routes and challenges. Pupils will understand that algorithms are step-by-step instructions used to achieve a goal, and that the order of commands is important. They will test and refine their programs when outcomes do not match expectations, developing early debugging skills. This unit builds on Year 1 programming and prepares pupils for more complex programming in Year 2 Scratch.

Knowledge

- Know that an algorithm is a sequence of instructions used to solve a problem or achieve a goal.
- Know that changing the order of instructions changes the outcome of an algorithm.
- Know that the outcome of an algorithm can be predicted by reading the sequence of commands.

Skills

- Follow and create sequences of instructions using directional commands (forward, backward, left, right).
- Plan and explain algorithms to move a robot to a given goal.
- Create programs to control a Bee-Bot to reach a target.
- Design routes or mats with more than one possible solution path.
- Test and debug programs by identifying and correcting errors in a sequence.
- Predict where a robot will end up based on a given algorithm.

Vocab

Algorithm, Program, Sequence, Command, Instruction, Direction, Forward, Backward, Left, Right,
Route, Start, Predict, Debug, Error, Outcome, Goal

Suggestions for implementation

Design and create their own beebot mats in groups
Code beebots to successfully complete their programme/ explore their mat
Beebot coding - http://code-it.co.uk/wp-content/uploads/2016/06/y2beebotplan.pdf
Include regular opportunities for pupils to test, evaluate and debug their programs.
Introduce challenges with multiple possible routes to encourage problem-solving and comparison of solutions.

Tips and Tricks

Enrichment opportunities

Creating beebot mats based around a country studied in Geography/ topic in History
Creating ‘games’ and getting other children to explore their beebot mats

Suggested questions to measure impact

Can you plan more than one route to reach the same destination?
Can you explain why the order of commands is important?
Can you test and improve your algorithm?
Can you describe the steps your Bee-Bot will follow before you start the program?

Year 2 Summer 1 – Creating media: digital music

Prior learning

Use a digital device to create and edit simple digital content (Y1 Sp1)
Understand that technology can be used to create different types of digital media (Y2 Au2).

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-1/creating-media-making-music

Intent

In this unit, pupils will explore how music can be created using digital technology. They will use a simple music-making application to select, combine and organise sounds to create their own pieces of music. Pupils will investigate how changing musical elements such as tempo and volume affects the overall sound and will learn to explain the choices they make. This unit develops creativity alongside computational thinking, helping pupils understand that technology can be used to create, edit and improve digital media.

Knowledge

- Know that digital devices can be used to create and play music.
- Know that digital music is created by combining and arranging different sounds.
- Know that changing musical elements, such as tempo and volume, changes how music sounds.
- Know that digital music can be edited and improved.
- Know that different sounds can be chosen for different purposes or effects.

Skills

- Use a digital music application to create simple pieces of music.
- Select and combine different sounds to create a musical sequence.
- Change musical elements such as tempo and volume.
- Play back, listen to and evaluate digital music.
- Edit and improve a piece of digital music.
- Explain the choices made when creating digital music.

Vocab

- Digital music
- Sound
- Beat
- Rhythm
- Tempo
- Volume
- Save
- Instrument
- Loop
- Sequence
- Compose
- Edit
- Play
- Stop

Enrichment opportunities

- Create music to accompany a class story or animation.
- Compose soundtracks for photographs taken in the Digital Photography unit.
- Produce music inspired by a topic, season or class text.
- Share compositions during assemblies or class celebrations.
- Work collaboratively to create a longer piece of digital music.
- Explore a wider range of digital instruments and sounds.

Tips and Tricks

Suggestions for implementation

- Introduce pupils to a simple music-making app through teacher modelling.
- Allow pupils to explore different sounds before composing their own music.
- Model how changing one element (e.g. tempo or volume) changes the overall effect.
- Provide short composition challenges with clear success criteria.
- Encourage pupils to listen critically to their own and others' compositions and discuss what they notice.
- Link activities to topics, stories or emotions to give music-making a clear purpose.
- Build in opportunities for pupils to edit and improve their work after listening back.

Suggested questions to measure impact

- Can you explain how you created your piece of music?
- What happens if you change the tempo?
- What happens if you change the volume?
- Why did you choose those sounds or instruments?

Year 2 Summer 2 – Programming: programming quizzes (Scratch Jnr)

Prior learning

Know that commands (blocks) control the actions of a sprite (Y1 Su2)
Use a start block or event to make a program begin (Y1 Su2)
Test and debug simple programs by identifying and correcting errors (Y1 Su2 & Y2 Sp2)

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-1/programming-b-programming-quizzes

Intent

In this unit, pupils will develop their programming skills by creating interactive quizzes using a block-based programming environment. They will learn how to use events, sequences and user interactions to make their programs respond in different ways. Pupils will design, test and debug their own quizzes, considering how the user will interact with their program. This unit develops computational thinking, problem-solving and creativity while building confidence in creating purposeful digital programs.

Knowledge

- Know that programs can be started using different events (e.g. tap or click).
- Know that a sequence of commands leads to a specific outcome.
- Know that different sequences of commands can achieve the same outcome.
- Know that programs can be changed by altering sprites, backgrounds and values (numbers).

Vocab

- Program
- Algorithm
- Sequence
- Command
- Block
- Event
- Sprite
- Start
- Click
- Input
- Output
- Quiz
- Question
- Answer
- Debug
- Predict
- Test
- Response

Skills

- Create and run simple programs using blocks.
- Use different start events to control when a program runs.
- Sequence blocks to achieve a specific outcome.
- Modify a program by changing sprites, backgrounds or values.
- Test and debug a program by identifying and fixing errors.

Suggested questions to measure impact

- Can you explain how your quiz works?
- What happens when the user clicks on the sprite or presses a button?
- Can you predict what your program will do before you run it?
- Can you find and fix a mistake in your program?
- How did you improve your quiz after testing it?

Tips and Tricks

Suggestions for implementation

- Begin by exploring simple interactive quizzes and discussing how they work.
- Model how events trigger actions within a program.
- Build quizzes gradually, adding one feature at a time (questions, responses, feedback).
- Encourage pupils to predict what will happen before testing their programs.
- Use pair programming so pupils can test each other's quizzes and provide feedback.
- Build regular opportunities for debugging and improving programs.
- Encourage pupils to explain how their program works using computing vocabulary.

Enrichment opportunities

- Create quizzes linked to current curriculum topics (science, geography, history or maths).
- Design a class quiz for another class to complete.
- Challenge pupils to add extra questions or multiple endings.
- Hold a "Quiz Showcase" where pupils play and evaluate each other's programs.

Year 3

Autumn 1

Online Safety

Autumn 1

Creating media: Stop-frame animation

Spring 1

Internet research and multimedia presentations

Spring 2

Communication systems and networks: communication and email

Summer 1

Programming: code.org coding

Summer 2

Programming: events & actions in programs

Year 3 Autumn 1 - Online safety

Prior Learning: Understand that not everything I see or read online is true (Y2 Au1)

Intent

This unit aims to help pupils develop the awareness and skills needed to engage thoughtfully and safely in online environments. Pupils will learn to distinguish between fact, opinion and belief, understand how to respond to upsetting content, and recognise how digital devices share personal information. They will gain an understanding of the purposes of social media platforms and why age restrictions are in place to help keep young users safe.

Knowledge

- Know that not everything on the internet is true.
- Understand that the internet can affect people's moods and feelings.
- Know that privacy settings limit who can access important personal information, such as names, ages and gender.
- Know what social media is and that age restrictions apply.
- Understand why content ownership should be considered and when permission is needed before reusing

Skills

- Recognise how social media platforms are used to interact.
- Recognise that different information is shared online, including facts, beliefs and opinions.
- Identify reliable information when searching online.
- Show how to stay safe on social media.
- Identify how technology can affect mood and wellbeing.
- Give simple examples of content that

Vocab

- Belief
- Fact
- Fake news
- Hoax
- Opinion
- Content
- Permission
- Share
- Charity
- Online emotions
- Organisation
- Autocomplete
- Digital device
- Smart device
- Age restrictions
- Search
- Social media platforms
- Credit
- Author
- Title
- Website

Suggestions for implementation

Twinkl online safety resources (saved in Computing folder on Teach Only)

Smart Crew: https://www.childnet.com/resources/the-adventures-of-kara-winston-and-the-smart-crew/
BBC Own It: https://www.bbc.com/ownit
Think-U-Know: https://www.thinkuknow.co.uk/
LGFL Online Safety resources: https://www.lgfl.net/online-safety/default.aspx

Enrichment opportunities

Internet safety day in school
Creating online safety posters/ presentations to advise others
Guess who by their digital footprint – book/ film characters

Questions to measure impact

- Give an example of something online that could affect your reputation.
- What would you do if you saw a suspicious message or scam?
- Why are strong passwords important?
- How could you gather evidence and get help if online bullying happened?

Year 3 Autumn 2 – Creating media: stop-frame animation

Prior Learning: Use simple tools to capture and change digital images (Y2 Au2)
Know that digital devices can be used to create different types of media (Y2 Au2).

Intent

In this unit, pupils will learn how stop frame animation can be used to create the illusion of movement by showing a sequence of images. They will plan, create and edit a short animation using digital devices, understanding that small changes between frames create movement when played quickly. Pupils will develop skills in planning a storyline, capturing images systematically, and improving their animations through editing. This unit builds on prior digital media knowledge and introduces pupils to structured digital creation over time.

Knowledge

- Know that stop frame animation is created by showing a sequence of images quickly.
- Know that each frame in an animation must be slightly different to show movement.
- Know that planning is important before creating an animation.
- Know that digital animations can be edited and improved.
- Know that small changes between frames create the effect of motion.
- Know that digital tools can be used to capture, arrange and play animations.

Skills

- Plan a simple storyboard or sequence for an animation.
- Take a series of photographs to create frames for an animation.
- Ensure small changes are made between each frame.
- Use a digital device or app to assemble frames into an animation.
- Play back and review an animation to check its effect.
- Edit and improve an animation by adjusting or replacing frames.
- Work with others to plan or create an animation.

Vocab

- Animation
- Stop frame
- Frame
- Sequence
- Storyboard
- Movement
- Edit
- Capture
- Photograph
- Play
- Playback
- Loop
- Timeline
- Improve

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-2/creating-media-animation

Suggestions for implementation

- Show simple stop frame animations and discuss how movement is created.
- Model how small changes between frames create the illusion of motion.
- Use physical objects (e.g. Lego, toys, classroom objects) for early animation practice.
- Teach pupils to plan before they begin capturing images (simple storyboard).
- Encourage careful, consistent frame capture to maintain smooth animation.
- Allow time for repeated editing and improvement of animations.
- Promote pair or group work (director, photographer, editor roles).
- Build in regular opportunities to review and improve animations

Enrichment opportunities

Create animations linked to class stories or literacy texts.

- Hold a class “animation festival” to showcase final products.
- Use outdoor environments for larger-scale stop frame projects.
- Add sound effects or voice recordings to enhance animations.

Questions to measure impact

- What is stop frame animation?
- How do we make something look like it is moving in an animation?
- Why do we need to plan before creating an animation?
- What happens if the frames are too different from each other?

Year 3 Spring 1 - Internet research and multimedia presentations

Prior learning

Know that digital content can be created using different software tools (Y2 Au2 and Y2 Su1)

Intent

In this unit, pupils will develop their ability to search for, select and evaluate information from the internet. They will learn how to use search engines safely and effectively using keywords and safe search tools. Pupils will understand how to judge whether online information is useful for a given purpose. They will then use this information to create structured multimedia presentations, combining text, images, sound and animation to communicate ideas clearly. This unit develops pupils' ability to research, select and present digital information for a specific audience and purpose.

Knowledge

- Know that safe search tools help users find appropriate information online.
- Know that keywords are used to search for information on the internet.
- Know that search results are ranked based on relevance to the search term.
- Know that not all web pages are equally useful for a specific purpose.
- Know that information can be found quickly using tools such as the 'find' function on a webpage.
- Know that digital presentations can be designed using different multimedia elements.
- Know that combining text, images, sound and animation can improve communication of ideas.
- Know that information should be organised clearly to suit an audience and purpose.

Vocab

Search engine, keyword, safe-search, result, ranking, website, web page, information, reliable, source, evaluate, purpose, audience, presentation, slide, multimedia, import, edit, format, animation, sound, find tool

Skills

- Use safe search tools to find appropriate information online.
- Use keywords effectively to search for information.
- Use the 'find' tool to locate specific information on a webpage.
- Evaluate web pages to decide whether they are useful for a purpose.
- Collect and select relevant information from online sources.
- Design and create digital content to achieve a specific goal.
- Import and organise text, images, sound and animation into a presentation.
- Improve a presentation by editing layout, content and multimedia features.
- Explain how and why they selected specific information for their work.

Tips and Tricks

Suggestions for implementation

- Teach safe search explicitly and revisit regularly during lessons.
- Model how changing keywords affects search results.
- Provide structured research tasks linked to curriculum topics (science, history, geography).
- Teach pupils how to judge whether a source is useful or not.
- Use step-by-step modelling of importing and organising content into slides.
- Encourage pupils to plan presentations before creating them.
- Provide opportunities for peer feedback to improve clarity and layout.
- Reinforce the idea of purpose: "Who is this presentation for?

Enrichment opportunities

Create presentations to teach another class about a topic they have studied. Produce a "fact file" or mini digital report on a curriculum theme.

Suggested questions to measure impact

- Can you decide whether a website is useful for your task?
- Can you explain how search results are ranked?
- Can you find information quickly on a webpage using the find tool?
- Can you create a presentation using text, images and sound?

Year 3 Spring 2- Communication systems and networks: communication and email

Prior learning

Know what to do if you feel unsafe or worried online – tell a trusted adult. (Y1 Au1)

Important safeguarding note -
Ensure emails are sent within the school internal system. Attachments should be pre-vetteed by the class teacher. All accounts should be supervised.

TEACH COMPUTING UNIT LINK - https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-connecting-computers

Note – "Teachers should use Teach Computing lesson materials as the core structure of this unit. Practical email activities (composing, sending, replying and adding attachments) are not included in Teach Computing resources and must be embedded using the school's email system and teacher planning.

Intent

In this unit, pupils will understand how computers communicate with each other using networks, including the internet. They will learn how digital messages and information are sent between devices and how this enables services such as email and video conferencing. Pupils will apply this understanding by using email to communicate safely and effectively, including sending and responding to messages and adding attachments. They will also develop an understanding of online safety, including recognising spam, unsafe attachments and unknown links.

Knowledge

- Know that computers can be connected together to form networks.
- Know that the internet is a large network that allows computers to communicate.
- Know that information is sent between computers using networks.
- Know that email is a way of sending digital messages between computers.
- Know that attachments are files sent with emails.
- Know that video conferencing allows people to communicate in real time over a network.
- Know that communicating online can be faster and more efficient than offline communication.
- Know that not all emails are safe and some may contain spam or harmful attachments.
- Know that safe use of email includes not opening unknown links or attachments.

Skills

- Use simple software to send and receive emails.
- Compose and reply to emails with appropriate subject lines and content.
- Add attachments to emails.
- Identify safe and unsafe emails, including spam and unknown attachments.
- Use digital communication tools to interact with others appropriately.
- Explain how digital communication is different from offline communication.
- Recognise how information is sent across a network in simple terms.
- Make safe choices when using email and online communication tools.

Vocab

- Network, Internet, Device, Communication, Email, Address, Send, Receive, Reply, Attach / Attachment, File, Spam, Secure, Virus, Link, Data, Message, Video conferencing

Enrichment opportunities

Email a fictional character
Create a guide to 'safe emailing' for younger pupils
Design posters on how to stay safe when online
Compare email with other communications

Tips and Tricks

Suggestions for implementation

Simple analogies of networking in the real world (e.g. post system, messaging)
Explicitly teach that the internet is a network of connected devices
Use diagrams to show how messages travel between devices
Introduce email & model composing, replying and attaching files
Embed online safety teaching through steps
Use real-world writing tasks (messages to characters/ teachers)
Include discussions on safe and unsafe communication
Role-play using device communication before using devices

Suggested questions to measure impact

What is a network?
How do computers communicate with each other?
What is the internet?
How does email work? What is an attachment?
How do you know if an email is safe or unsafe?
What should you do if you are unsure about an email?

Year 3 Summer 1 – Programming: code.org coding

Prior learning

Know that a sequence of instructions (algorithm) is a set of steps used to achieve a goal (Y1 Su1)
Know that programs can be started using different events (e.g. button click or input) (Y2 Su2)

Code.org unit - https://studio.code.org/courses/coursec-2025/units/1?redirect_warning=true

Intent

In this unit, pupils will develop their understanding of programming by creating and modifying simple programs using Code.org. They will build on their knowledge of sequences and algorithms from KS1, learning how to construct programs using block-based coding. Pupils will begin to use repetition (loops) to make their programs more efficient and will develop their ability to predict outcomes, test programs and debug errors. They will also learn how programs can be adapted and improved to achieve better results.

Knowledge

- Know that an algorithm is a sequence of instructions used to solve a problem, and that programs follow these instructions in order.
- Know that block-based programming languages are used to create programs on a computer.
- Know that the order of instructions affects the outcome of a program.
- Know that repetition (loops) can be used to make programs more efficient.
- Know that programs can be tested, debugged and improved.
- Know that code can be adapted or modified to change outcomes.
- Know that logical reasoning helps predict what a program will do.

Skills

- Create programs by sequencing blocks of code to achieve a specific goal.
- Use repetition (loops) to reduce repeated instructions.
- Plan and break down a simple algorithm before coding (with support).
- Test programs and identify and fix simple errors (debugging).
- Modify existing code to improve or change outcomes.
- Use logical reasoning to predict and explain what a program will do.
- Explain how a program works using appropriate vocabulary.

Vocab

- Algorithm, Program, Code, Block, Sequence, Instruction, Loop / Repetition, Repeat, Debug, Error, Fix, Predict, Outcome, Modify, Decompose, Test

Suggested questions to measure impact

How do you turn an algorithm into a program?

- What is a loop and why do we use it?
- How does repetition make a program more efficient?
- How can you explain your program to someone else?

Tips and Tricks

Suggestions for implementation

- Model how to convert a simple algorithm into Code.org blocks.
- Introduce loops through repetition patterns before using them in code.
- Provide structured coding challenges with increasing independence.
- Encourage pupils to predict outcomes before running programs.
- Build in regular opportunities for testing and debugging during lessons.
- Use paired programming (driver/navigator roles) to support reasoning and discussion.
- Encourage pupils to explain their thinking using correct vocabulary.
- Allow time for pupils to modify and improve existing programs.

Enrichment opportunities

- Extend Code.org challenges by adding extra features or complexity.
- Create alternative solutions to the same programming problem and compare.
- Design simple interactive stories or games using coding blocks.
- Challenge pupils to reduce the number of blocks used in a solution (efficiency focus).
- Peer showcase of completed programs with explanation of design choices.

Year 3 Summer 2 – Programming: Scratch - events and actions in programs

Prior learning

- Know that repetition (loops) can be used to make programs more efficient (Y3 Su1)
- Know that programs can be tested, debugged and improved (Y3 Su1)
- Know that programs can start or change when an event occurs (e.g. a button click) (Y2 Su2)

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/programming-b-events-and-actions

Intent

In this unit, pupils will develop their understanding of how programs respond to events. They will learn that different inputs such as clicks, key presses, or screen touches can trigger actions in a program. Pupils will build and modify programs that respond to event and will begin to understand how sequences of actions are linked to specific triggers. They will continue to develop their debugging skills and use logical reasoning to predict the behaviour of event-driven programs.

Knowledge

•Know that programs can respond to events, which trigger actions in a program.
•Know that an event causes a program or part of a program to start or change.
•Know that sequences of instructions can be linked to specific events.
•Know that programs are made up of sequences of commands that control actions.
•Know that programs can be tested and improved to ensure they work as intended.
•Know that logical reasoning can be used to predict how a program will behave when an event occurs.

Skills

- Create programs that respond to events by triggering specific actions.
- Explain how events are used to control and run parts of a program.
- Link sequences of instructions to different events in a program.
- Test programs to check how they respond to different events.
- Debug programs by identifying and fixing issues with events or actions.
- Modify programs to improve how they respond to events based on testing.
- Use logical reasoning to predict how a program will behave when an event occurs.

Vocab

- Event
- Action
- Trigger
- Program
- Sequence
- Input
- Output
- Click
- Key press
- Touch
- Command
- Code
- Debug
- Predict
- Response

Suggestions for implementation

- Begin with unplugged activities where pupils respond to “events” (e.g. clap = action).
- Demonstrate simple event-driven programs before pupils create their own.
- Use visual programming (e.g. Scratch-style blocks or similar) to show event triggers.
- Model how one event can trigger a sequence of actions.
- Encourage pupils to experiment with changing events and observing outcomes.
- Build in regular prediction tasks (“What will happen if…?”).
- Teach debugging as part of testing rather than a separate stage.
- Encourage pupils to explain cause and effect in programs (event → action).

Tips and Tricks

Enrichment opportunities

- Create interactive stories or games where users trigger different outcomes.
- Extend programs by adding multiple event triggers.
- Design a simple quiz or reaction game using events and actions.
- Challenge pupils to create “surprise” outcomes by combining events creatively.
- Peer testing of programs with feedback on usability and clarity of events.

Suggested questions to measure impact

- What is an event in a program?
- What happens when an event is triggered?
- Can you describe the sequence of actions in your program?
- How does your program respond when a key is pressed or clicked?
- What would happen if you changed the event in your program?
- Can you predict what your program will do when an event happens?
- How do events and actions work together?

Year 4

Autumn 1

Online Safety

Autumn 1

Creating media: audio production

Spring 1

Data & information: branching databases

Spring 2

Programming: Code.org Coding - Loops, Nested Loops & Conditional

Summer 1

Programming: repetition in games

Summer 2

Communication & Collaboration: The Internet and Web Publishing

Year 4 - Autumn 1 - Online safety

Prior Learning: Identify how technology can affect mood and wellbeing (Y3 Au1)

Intent

This unit helps pupils think critically about the online world. Pupils will learn to search across different platforms and consider the accuracy of the results, recognise common techniques used to persuade people to buy online, distinguish between fact, opinion, and belief in digital content, understand what bots are and identify different types and recognise both positive and negative digital distractions while using simple strategies to manage their time on technology.

Knowledge

- Know methods used to encourage people to buy things online.
- Recognise that technology can be designed to act like or impersonate living things.
- Recognise that technology can be a distraction and identify when someone might need to limit the amount of time spent using it.
- Describe behaviours that help people stay safe and be respectful online.

Skills

- Explain why some search results appear before others.
- Recognise that not all information found through internet searches is factual.
- Judge the accuracy and reliability of information found online.
- Identify different forms of online advertising.
- Reflect on the positive and negative effects of spending time online.
- Identify respectful and disrespectful behaviour online.
- Recognise that some source are more trustworthy than others.

Vocab

- Advantage
- Ad/Advertisement
- Belief
- Bot
- Disadvantage
- Distraction
- Hashtag
- Screen time
- Fact
- In-app purchases
- Influencer
- Opinion
- Reliability
- Recommendation
- Risk
- Search results
- Snippets
- Sponsored
- Copyright
- Fair use

Suggestions for implementation

Twinkl online safety resources (saved in Computing folder on Teach Only)
Play, Like, Share resources (saved in Computing folder on Teach Only)

LGFL Online Safety resources: https://www.lgfl.net/online-safety/default.aspx

Enrichment opportunities

Workshop
Internet Safety Day

Questions to measure impact

- How can you tell whether information you find across different platforms is accurate or trustworthy?
- What techniques do online shops use to persuade people to buy things?
- How can you tell the difference between a fact, an opinion, and a belief when reading something online?
- What is a bot, and can you give an example of how bots are used online?
- What distractions can technology create, and what simple strategies can help you reduce your screen time?

Year 4 Autumn 2 – Creating media - audio production

Prior learning

Know that digital media can be created, saved and edited using a range of digital devices (Y2 Au2)
Know that digital media should be planned before it is created (Y3 Au2)

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/creating-media-audio-editing



Audacity to be used – check is downloaded on laptops/ ipads

Intent

Pupils will develop their understanding of digital audio by identifying the input and output devices used to record and play sound. They will learn about copyright and ownership of digital audio before planning, recording, editing and producing their own podcast. Pupils will use editing tools to improve their recordings by combining multiple audio tracks and will evaluate their own and others' work to identify strengths and areas for improvement.

Vocab

- Audio
- Sound
- Podcast
- Microphone
- Speaker
- Headphones
- Input device
- Output device
- Record
- Playback
- Edit
- Trim
- Volume
- Track
- Import
- Export
- Copyright
- Evaluate

Tips and Tricks

Suggestions for implementation

- Begin by exploring how sound is captured and played back, identifying input and output devices.
- Listen to and evaluate a range of age-appropriate podcasts, discussing their purpose, audience and features.
- Model how to record clear audio using a microphone and appropriate recording software.
- Teach pupils how to edit recordings by trimming unwanted sections, adjusting volume and combining multiple audio tracks.
- Discuss copyright and why permission is needed before using music or sound effects created by others.
- Provide opportunities for pupils to plan, record, edit and evaluate their own podcast, giving and responding to peer feedback throughout the process.

Knowledge

- Know that a microphone is an input device and speakers or headphones are output devices.
- Know that digital audio can be recorded, saved, edited and played back.
- Know that a successful podcast should be planned with a clear introduction, main content and ending.
- Know that different audio tracks can be combined to create a finished recording.
- Know that digital audio belongs to its creator and should not be copied without permission (copyright).
- Know that recordings can be improved through editing and evaluation.

Skills

- Plan the content of a podcast for a specific purpose and audience.
- Record clear voice audio using a microphone.
- Import, arrange and edit multiple audio tracks.
- Use editing tools to improve a recording by removing unwanted sounds or pauses.
- Adjust the volume of audio tracks to create a balanced recording.
- Save, open and edit an existing audio project.
- Evaluate and improve a podcast using feedback.

Suggested questions to measure impact

What is the difference between an input device and an output device, and why do we use a microphone when recording audio?
Why is it important to plan a podcast before you begin recording?
How did you use editing tools (such as trimming, adjusting volume or adding audio tracks) to improve your podcast?
What does copyright mean, and why is it important when creating digital audio?
How did feedback help you improve your podcast, and what would you change if you created it again?

Enrichment opportunities

- Create a school podcast
- Interview peers, teachers or members of staff to create a news or interview podcast.
- Create curriculum-linked podcasts (e.g. retelling a historical event or recommending a book)
- Explore how professional podcasts use music, sound effects and interviews to engage listeners.

Year 4 Spring 1 – Data & information: branching databases

Prior learning

Know that objects can be grouped using different criteria (Y1 Sp2)
Know that data can be collected, organised and represented digitally (Y2 Sp1)

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/data-and-information-branching-databases

Intent

Pupils will develop their understanding of how data can be organised and classified using branching databases. They will learn how to ask and answer yes/no questions to sort information, identify suitable attributes for classification, and create and use simple branching databases. Pupils will understand that data can be organised in different ways depending on its purpose and will evaluate how effectively a branching database classifies information.

Knowledge

- Know that data can be organised in different ways depending on its purpose.
- Know that branching databases use a series of yes/no questions to classify objects.
- Know that attributes are the characteristics used to sort and identify objects.
- Know that carefully chosen questions make a branching database more effective.
- Know that branching databases can help identify and compare objects efficiently.
- Know that branching databases can be tested and improved by refining questions and attributes.

Skills

- Identify suitable attributes to classify a group of objects.
- Create and use a branching database using yes/no questions.
- Follow a branching database to identify an unknown object.
- Test a branching database to check that it works correctly.
- Improve a branching database by changing or refining questions.
- Explain why particular questions or attributes have been chosen.

Vocab

Data, information, database, branching database, classify, classification, attribute, criteria, property, question, yes/no, organise, identify, compare.

Enrichment opportunities

- Create a branching database to classify plants or animals studied in Science.
- Design a "Guess the Object" game using a branching database.
- Create branching databases linked to books, history topics or DT materials.
- Challenge pupils to compare two different branching databases and explain which is more effective.
- Use branching databases to classify objects collected during outdoor learning.

Tips and Tricks

Suggestions for implementation

- Begin with practical sorting activities using real objects before introducing digital branching databases.
- Explore different ways the same set of objects can be classified using different attributes.
- Model how to create effective yes/no questions that divide objects into smaller groups.
- Use a digital branching database tool to create and test simple databases.
- Encourage pupils to evaluate and refine their databases after testing with a partner.
- Link classification activities to other curriculum areas such as Science (living things, rocks, materials) or Geography.

Suggested questions to measure impact

- What is a branching database, and how does it help organise information?
- What is an attribute, and why is it important when classifying objects?
- How do yes/no questions help identify an object?
- How did you test and improve your branching database?
- Why might different people organise the same data in different ways?

Year 4 Spring 2- Programming: Code.org – loops, nested loops & conditional

Prior learning

Know that repetition (loops) can make programs shorter and more efficient(Y3 Su1)
Know that logical reasoning can be used to test and debug programs. (Y3 Su1)

Code.org course D (note: course might update) - https://studio.code.org/courses/coursed-2025/units/1?utm_source=chatgpt.com&viewAs=Instructor

Intent

Pupils will build on their understanding of sequencing, repetition and debugging by creating more complex programs using Code.org. They will learn how to use nested loops and conditional statements (if/else) to control the behaviour of programs, introducing variables to store information and create interactive programs. Pupils will continue to develop their computational thinking by planning algorithms, testing programs and debugging errors.

Vocab

Algorithm, program, code, sequence, repetition, loop, nested loop, condition, conditional statement, if/else, selection, variable, event, input, output, object, action, debug, predict, test, efficient.

Knowledge

- Know that algorithms can be broken into smaller steps to make them easier to design and follow.
- Know that repetition (loops) and nested loops can make programs shorter and more efficient.
- Know that conditional statements (if/else) allow a program to make decisions based on whether a condition is true or false.
- Know that variables are used to store and change information within a program.
- Know that logical reasoning helps identify, test and correct errors in a program.
- Know that algorithms can be used to create a range of digital outcomes, such as games and animations.

Suggested questions to measure impact

- Why are loops and nested loops useful when creating a program?
- How does an if/else statement change the way a program behaves?
- What is a variable, and how is it used in a program?

Skills

- Design algorithms that use sequencing, repetition and selection to achieve a specific goal.
- Create programs using nested loops and conditional (if/else) statements.
- Use variables to store and change information within a program.
- Test and debug programs by identifying and correcting errors using logical reasoning.
- Explain how repetition, selection and variables affect the behaviour of a program.

Enrichment opportunities

- Design and create an interactive game using **Code.org** that includes loops, conditional statements and variables.
- Challenge pupils to improve an existing program by making it more efficient using nested loops.

Tips and Tricks

Suggestions for implementation

Deliver this unit using the Code.org course D (latest version), focussing on sequencing, repetition, nested loops, conditionals and debugging.
Recommended lessons -

- Build a Star Wars Game
- Loops in Ice Age
- Nested Loops in Maze
- Conditionals with Cards
- If/Else with Bee
- Dance Party

Use unplugged activities to teach computational thinking before applying concepts in Code.org

Provide opportunities for pupils to predict, test and debug increasingly complex programs.

Conclude the unit with an open-ended project (e.g. Dance Party) where pupils apply sequencing loops and conditionals creatively.

Year 4 Summer 1 – Programming: repetition in games

Prior learning

- Know that algorithms can be broken down into smaller steps (Y3 Su1)
- Know that repetition (loops) can make programs shorter and more efficient (Y3 Su1)
- Know that repetition (including nested loops) makes programs more efficient (Y4 Sp2)
- Know that conditional statements allow a program to make decisions (Y4 Sp2)
- Know that variables can store and change information within a program (Y4 Sp2)

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/programming-b-repetition-in-games

Intent

Pupils will apply their understanding of repetition by designing and creating interactive games using Scratch. They will use count-controlled and forever loops to control movement, animation and gameplay, developing increasingly efficient programs. Pupils will test, debug and refine their games, explaining how repetition improves the effectiveness of a program.

Vocab

Program, algorithm, code, sequence, repetition, loop, forever loop, count-controlled loop, sprite, event, block, animation, game, debug, test, efficient, repeat, control, evaluate, refine.

Knowledge

- Know that loops repeat actions and can be count-controlled or forever loops.
- Know that different types of loops have different purposes within a program.
- Know that changing a loop will change how a program behaves.
- Know that repetition can control movement, animation and gameplay in a program.
- Know that programs should be tested and debugged to ensure they work as intended.

Suggested questions to measure impact

- Why are loops useful when creating a game?
- What is the difference between a forever loop and a count-controlled loop?
- How did you use repetition to improve the efficiency of your program?
- How did you test and debug your game to make sure it worked as intended?

Skills

- Design and create a game using repetition.
- Use count-controlled and forever loops to control sprites and gameplay.
- Combine repetition with events to create an interactive program.
- Decompose a task into smaller steps to support program design.
- Test and debug a game systematically.
- Evaluate and improve a program based on testing and feedback.
- Explain how repetition has made a program more efficient.

Enrichment opportunities

Design and create a Scratch game linked to a curriculum topic.
Challenge pupils to improve a game by making the code more efficient through repetition.
Hold a class 'Game Showcase' where pupils play and evaluate each other's games.
Modify an existing Scratch project by adding new levels,

Tips and Tricks

Suggestions for implementation

- Deliver the unit using the **Teach Computing – Programming B: Repetition in Games** lessons.
- Revisit repetition by comparing repeated code with loop blocks, discussing how loops improve efficiency.
- Model the use of count-controlled and forever loops to control sprite movement, animations and gameplay.
- Provide opportunities for pupils to predict program outcomes before testing and debugging.
- Encourage pupils to evaluate and refine their games by improving gameplay, efficiency and user experience.
- Promote the use of accurate programming vocabulary when explaining algorithms and

Year 4 Summer 2 – Communication & collaboration: the internet and web publishing

Prior learning

Know that digital content can be designed using different tools for different purposes (Y3 Sp1)
Know that information can be combined (text, images, sound) to create digital products (Y3 Sp1)
Know that computer networks allow information to be sent digitally between devices (Y3 Sp2)

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-the-internet

Intent

Pupils will develop their understanding of how the internet works, including how information is shared across networks and how the World Wide Web is structured. They will explore how websites are created using HTML and apply this knowledge by collaborating to create and contribute to shared online content. Pupils will also evaluate the reliability and appropriateness of web content.

Vocab

Internet, network, World Wide Web, website, webpage, HTML, hyperlink, browser, server, device, packet, collaboration, publish, upload, download, evaluate, reliable, appropriate, content, structure

Knowledge

- Know that the internet is a global network that connects devices and allows information to be shared.
- Know that data is sent across the internet in packets through connected networks.
- Know that the World Wide Web is made up of web pages linked together.
- Know that web pages are created using HTML, which structures content on a page.
- Know that websites can be edited and shared collaboratively online.
- Know that not all web content is reliable or appropriate and must be evaluated carefully.

Suggested questions to measure impact

- What is the internet and how is it different from the World Wide Web?
- How does information travel across the internet?
- What is HTML used for?
- How do web pages link together?
- Why do people need to check if a website is reliable?
- How did you contribute to a shared online project?
- What makes a web page useful for its audience?

Skills

- Explain how the internet allows information to be shared between devices.
- Recognise that web pages are made using HTML structure (e.g. headings, text, links).
- Contribute to a shared online project or collaborative webpage.
- Use digital tools to create and organise content for a purpose.
- Evaluate whether web content is appropriate, useful and reliable.
- Work collaboratively to plan and publish digital content.

Enrichment opportunities

- Create a class wiki or digital magazine showcasing learning from another subject
- “Build a webpage” project using simple HTML editing tools or templates
- Explore how websites like Wikipedia are collaboratively created
- Investigate how different websites are structured and compare layouts
- Invite pupils to design a “safe and helpful” class website for younger pupils

Tips and Tricks

Suggestions for implementation

- Teach Computing lessons are used to develop understanding of **what the internet is and how it works**
- Use demonstrations of HTML to show how web pages are structured (headings, links, images)
- Pupils explore examples of HTML using simple tools (e.g. Barefoot Computing or X-Ray Goggles)
- Introduce collaborative publishing through a class wiki, shared page or controlled editing platform
- Pupils work in pairs/groups to create and contribute content for a shared class webpage
- Include explicit teaching of evaluating online content for reliability and purpose

Year 5

Autumn 1

Online Safety

Autumn 2

Programming: selection in quizzes

Spring 1

Programming: micro:bit - introduction to physical computing

Spring 2

Internet research and search engines

Summer 1

Video production (iMovie)

Summer 2

Data & information: flat file databases

Year 5 Autumn 1 - Online safety

Prior Learning: Know how to create a strong password (Y2 Au1)
Know that not everything on the internet is true (Y3 Au1)

Intent

This unit helps pupils develop safe and responsible online habits. Pupils will learn to create strong passwords, recognise types of online communication and seek help when needed, search for simple personal information appropriately, identify online and offline bullying, recognise how online activity affects well-being and give simple strategies to reduce negative online effects.

Knowledge

- Understand that strong passwords help to protect personal information and that apps require secure passwords.
- Explain the possible dangers of being online and how to stay safe.
- Explain the advantages and disadvantages of online communication.
- Understand that information on the internet may not always be true or accurate.
- Explain what bullying is and recognise that it can occur online and offline.
- Explain what to do if they experience bullying online.
- Explain the meaning of the term 'copyright' and how it applies to creative work.

Skills

- Search for simple information about a person, such as their birthday or key life events.
- Recognise different types of online communication and identify who to go to for help.
- Recognise when online activity is affecting health and well-being positively or negatively.
- Offer advice and strategies to reduce the negative effects of online activity.
- Apply copyright principles to real-life scenarios.
- Check whether information found online is likely to be valid by using simple verification strategies.
- Use online communities safely and responsibly.

Vocab

- In-app purchase
- Application
- GDPR
- Emoji
- Meme
- Anonymity
- Judgement
- Accurate
- Opinion
- Hoax
- Bullying
- Organisation
- Trusted adult
- Mental health
- Mindfulness
- Wellbeing
- Copyright
- License

Suggestions for implementation

- Use BBC Own It online clips to support teaching of key content.
- Make links to games and apps pupils in the cohort use.
- Incorporate home learning by asking children to practise skills at home e.g. take a screenshot on a home device.

Enrichment opportunities

Workshop
Internet Safety Day

Questions to measure impact

- Why is it important to use strong passwords and keep them private?
- Who can you talk to if something online makes you feel confused, worried, or uncomfortable?
- How can you check that information about a person online is appropriate and trustworthy?
- What is online bullying, and what should you do if you see it?
- How can being online affect your well-being, and what can you do to stay healthy and safeonline?

Year 5 Autumn 2 – Programming: selection in quizzes

Prior learning

- Know that conditional statements (if/else) allow a program to make decisions.
- Know that selection allows a program to make decisions.
- Know that algorithms are precise sequences of instructions.
- Know that programs can contain repetition and selection to control behaviour.
- Know that Scratch uses blocks to create programs.

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/programming-b-selection-in-quizzes

Intent

Pupils build on their understanding of selection by creating interactive quizzes in Scratch. They learn how conditions determine the flow of a program and use **if...then...else** statements to produce different outcomes based on a user's answers.
Throughout the unit, pupils design, create, test and evaluate a quiz, developing their computational thinking, programming and debugging skills while applying selection in a meaningful context.

Vocab

selection, condition, true, false, if, then, else, input, output, algorithm, program, Scratch, question, answer, debug, test, evaluate, flow, branch

Knowledge

- Know that **if...then...else** statements allow a program to choose between two possible outcomes.
- Know that a condition determines which part of a program will run.
- Know that user input can be used as a condition in a program.
- Know that selection controls the flow of a program.
- Know that testing helps identify errors and improve a program.
- Know that evaluating a program helps determine whether it meets its intended purpose.

Suggested questions to measure impact

- What is the purpose of an **if...then...else** statement?
- How does a condition affect the flow of a program?
- Why is user input important in an interactive quiz?
- How did testing help improve your program?
- Explain one bug you found and how you fixed it.

Skills

- Explain how selection controls the flow of a program.
- Create a quiz in Scratch using **if...then...else** statements.
- Use user input to produce different outcomes in a program.
- Test and debug a program by identifying and correcting errors.
- Evaluate a completed program against its design criteria.
- Improve a program based on testing and feedback.

Enrichment opportunities

- Create a curriculum-themed quiz for another subject, such as Science, History or Geography.
- Design a multiple-level quiz with increasing difficulty.
- Add variables to keep score for users who finish the core task early.
- Explore how commercial online quizzes provide feedback and compare these features with pupils' own programs.
- Share quizzes with younger classes and gather user feedback for further improvements.

Tips and Tricks

Suggestions for implementation

- Begin by revisiting conditions and selection and how decisions are made using Scratch.
- Use Teach Computing lessons to model how **if...then...else** blocks create branching pathways within a program before pupils build their own examples.
- Encourage pupils to plan quiz questions and possible outcomes using flowcharts or annotated designs before programming.
- Provide structured opportunities for pupils to test each other's quizzes, identifying bugs and suggesting improvements.
- Use the final lessons to focus on evaluation, encouraging pupils to compare their finished quiz against the original success criteria and refine it accordingly.
- Reinforce debugging as an ongoing process throughout programming rather than a final activity.

Year 5 Spring 1 – Programming: micro:bit - intro to physical computing

Prior learning

Know that conditional statements (if/else)allow a program to make decisions based on whether a condition is true or false (Y4 Sp2)
Design and create interactive programs using sequence, selection and variables (Y5 Au2)

Intent

Pupils will apply their understanding of sequence, selection, repetition and variables to program a micro:bit. They will explore how software interacts with physical hardware by using inputs such as buttons and sensors to control outputs including LEDs, sounds and displays. Pupils will design, test and debug programs that respond to real-world events, developing their understanding of physical computing.

Skills

•Design, write and debug programs for a micro:bit using block-based programming.
•Use sequence, selection, repetition and variables to create purposeful programs.
•Program inputs (e.g. buttons or sensors) to control outputs such as LEDs, sounds or displays.
•Break programming tasks into smaller steps to support planning and problem solving.
•Use logical reasoning to test, debug and improve programs.
•Evaluate how effectively a program meets the needs of the user and suggest improvements.
•Use sensors to collect information and trigger actions within a program.

Knowledge

- Know that a micro:bit is a programmable physical device with inputs and outputs.
- Know that programs can use inputs (e.g. buttons or sensors) to trigger outputs.
- Know that sequence, selection, repetition and variables can be combined to control physical devices.
- Know that logical reasoning and testing are needed to identify and correct errors in both hardware and software.
- Know that physical computing systems use sensors and inputs to respond to changes in the real world.

Website links:

Micro:bit first 6 lessons - https://microbit.org/teach/lessons/first-lessons-with-makecode-and-the-microbit/

Make code – software that children will use to implement their code - https://makecode.microbit.org/

Suggested questions to measure impact

- What is the difference between an input and an output on a micro:bit?
- How did your program use sequence, selection, repetition or variables to achieve its purpose?
- How did the micro:bit respond to user input or changes in its environment?
- How does physical computing differ from programming on a screen?
- How could you improve your program to solve the problem more effectively?

Vocab

Micro:bit, physical computing, program, algorithm, sequence, selection, repetition, loop, variable, input, output, sensor, button, LED, display, event, condition, debug, test, logical reasoning, hardware, software, device.

Enrichment opportunities

Design a reaction timer, step counter or digital dice using the micro:bit.
Create a simple game that uses buttons, LEDs and variables.
Investigate how micro:bits are used in real-world technology and engineering.
Take part in a physical computing challenge or STEM event using micro:bits.
Extend projects by connecting additional components (e.g. buzzers or external LEDs) where equipment is available.

Tips and Tricks

Suggestions for implementation

- Deliver the unit using the **Micro:bit Educational Foundation – First Lessons with MakeCode and the micro:bit** sequence.
- Use **Microsoft MakeCode for micro:bit** to design, test and transfer programs to the micro:bit.
- Explore how inputs (buttons and sensors) control outputs (LEDs, sounds and displays) through increasingly complex programming tasks.
- Encourage pupils to predict, test and debug programs using logical reasoning.
- Provide opportunities for pupils to apply their programming knowledge to solve real-world problems using physical computing.

Year 5 Spring 2 – Internet research and search engines

Prior learning

Use Safe Search and the Find tool to locate information efficiently (Y3 Sp1)
Select information from websites to create a digital presentation (Y3 Sp1)
Understand that webpages are created using HTML (Y4 Su2)
Evaluate whether a webpage is appropriate for its intended purpose (Y4 Su2)

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-systems-and-searching

Intent

Pupils will develop their understanding of how search engines organise and rank information to help users find relevant content online. They will learn to search effectively using appropriate keywords, refine searches to improve results, and evaluate the reliability, accuracy and purpose of information found online. Pupils will apply these digital literacy skills by researching a topic and creating a blog post that includes text, images and hyperlinks, demonstrating responsible and effective use of digital content.

Knowledge

- Know that search engines organise and rank results using information about webpages. Know that refining search terms can improve the relevance of search results.
- Know that search results may include advertisements and are not always ranked by reliability.
- Know that online information should be evaluated for accuracy, reliability, currency and purpose before it is used.
- Know that digital content should be used responsibly by respecting copyright and acknowledging sources where appropriate.

Vocab

Search engine, keyword, search results, ranking, relevance, reliability, accuracy, bias, source, webpage, website, hyperlink, blog, digital content, copyright, plagiarism, browser, internet, World Wide Web, refine, advertisement, sponsored result.

Skills

- Use search engines effectively by selecting and refining keywords.
- Compare information from multiple online sources to judge relevance and reliability.
- Identify features that indicate whether a website is trustworthy and suitable for a given purpose.
- Select, combine and organise digital content to create a purposeful blog post.
- Use text, images and hyperlinks appropriately within digital content.
- Explain why particular sources have been selected and how information has been used responsibly.

Enrichment opportunities

- Compare search results using different search engines.
- Investigate how search terms affect the results returned.
- Create a class blog showcasing curriculum learning.
- Explore how copyright and Creative Commons licences affect the use of online images.
- Invite pupils to evaluate real websites for reliability and purpose.

Suggested questions to measure impact

How do search engines decide which results to show first?
How can refining keywords improve search results?
How can you tell whether information on a website is reliable and suitable for your purpose?
Why should information be checked using more than one source?
How can text, images and hyperlinks improve a blog post?

Tips and Tricks

Suggestions for implementation

Use the **Teach Computing Year 5 – Systems and Searching lessons 1-3** on search engines, refining searches and evaluating search results to introduce new learning.

Then for the **rest of the unit**, apply learning through researching a topic and publishing findings in a **teacher-managed class blog or digital publishing platform** (e.g. Microsoft Sway or Padlet).

Encourage pupils to compare multiple sources and justify why information has been selected. They should use text, images and hyperlinks. Reinforce responsible use of digital content, including copyright and acknowledging sources.

Year 5 Summer 1 – Creating media - video production (using iMovie)

Prior learning

- Know that digital media can be created and edited using software.
- Know that audio can be recorded, edited and combined to communicate a message.
- Know that planning helps produce effective digital media.
- Know that digital media should be created for a purpose and audience.
- Know that evaluating digital media helps identify improvements.

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/creating-media-video-editing

Intent

Pupils build on their experience of recording and editing audio by planning, filming and editing short videos for a specific purpose and audience. They learn how visual elements, camera techniques and editing choices work alongside sound to communicate meaning effectively. Throughout the unit, pupils follow the complete video production process from planning through to evaluation, developing their technical skills, creativity and understanding of digital media.

Vocab

video, storyboard, filming, shot, camera angle, close-up, long shot, audience, purpose, import, edit, trim, transition, clip, timeline, export, evaluate, reshoot

Knowledge

- Know that successful videos are planned before they are recorded.
- Know that different camera shots and filming techniques affect how a message is communicated.
- Know that video editing can improve the quality and effectiveness of a recording.
- Know that video files can be imported, edited and exported using video-editing software.
- Know that videos should be created with a clear purpose and audience in mind.
- Know that evaluating a video helps identify strengths and areas for improvement

Suggested questions to measure impact

- Why is it important to plan a video before filming?
- How can different camera shots change the way a video is presented?
- What editing techniques can improve the quality of a video?
- Why should a video be created with a specific audience and purpose in mind?
- How did testing and feedback help improve

Skills

- Identify effective filming techniques used in videos.
- Create a storyboard to plan a short video.
- Capture video using appropriate camera angles and shots.
- Edit video by trimming, arranging and improving clips.
- Evaluate a completed video against its intended purpose and audience.
- Improve a video using feedback from testing and evaluation.

Enrichment opportunities

- Produce a promotional video for a school event or club.
- Create a curriculum-linked documentary or news report in History, Geography or Science.
- Use green screen technology to enhance videos where appropriate.
- Enter a local or national young filmmakers' competition.
- Produce instructional videos for younger pupils

Tips and Tricks

Suggestions for implementation

- Begin by analysing a range of short videos, discussing how camera angles, shot types and editing techniques communicate meaning before introducing key vocabulary.
- Use the Teach Computing lessons to model storyboarding and planning before pupils begin filming, reinforcing that effective videos are designed before recording starts.
- Provide opportunities for pupils to work collaboratively in small production teams, assigning roles such as camera operator, presenter and editor.
- Model how to import footage into video-editing software, trim clips, rearrange sequences and export the finished video.
- Encourage regular peer review throughout the production process so pupils identify opportunities to reshoot or edit footage before completing the final version.
- Finish the unit with structured evaluation against agreed success criteria, encouraging pupils to reflect on both the

Year 5 Summer 2 – Data & information: flat-file databases

Prior learning

- Know that objects can be grouped using their attributes.
- Know that data can be organised to help answer questions.
- Know that branching databases use yes/no questions to identify or classify objects.
- Know that different methods can be used to organise information depending on its purpose.

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/data-and-information-flat-file-databases

Intent

Pupils build on their understanding of organising and classifying data by exploring how flat-file databases store information in records and fields. They learn how to search, sort, group and filter data to answer questions efficiently, before presenting their findings using charts and graphs. Throughout the unit, pupils develop their understanding of how databases are used to organise information and solve real-world problems.

Vocab

database, flat-file database, data, information, record, field, search, sort, group, filter, criteria, graph, chart, attribute

Knowledge

- Know that a flat-file database stores information in **records** and **fields**.
- Know that each record contains information about one item.
- Know that each field stores one type of Information.
- Know that sorting, grouping, filtering and searching help users answer questions from data.
- Know that charts and graphs can help identify patterns and present information clearly.
- Know that databases are used in everyday life to organise and retrieve information efficiently.

Skills

- Identify records and fields within a flat-file database.
- Search, sort, group and filter data to answer questions.
- Select appropriate search tools to find specific information.
- Create charts or graphs from database information.
- Explain what information the data shows.
- Evaluate whether a database has helped answer a question effectively.

Suggested questions to measure impact

- What is the difference between a **record** and a **field**?
- Why is a flat-file database useful for storing information?
- How do sorting and filtering help answer questions about data?
- Which search tool would you use to answer a specific question, and why?
- What patterns can you identify from a chart or graph created from database data?

Enrichment opportunities

- Create a class database based on books, plants or local wildlife and use it to answer questions.
- Investigate how the school library or local library organises and searches its catalogue.
- Collect data from a Science investigation and create a searchable database.
- Explore how online shopping websites allow users to search and filter products.
- Design a simple database to solve a real-life problem in school, such as organising sports equipment or reading

Tips and Tricks

Suggestions for implementation

- Begin by revisiting Year 4 learning, discussing how branching databases classify information before introducing how flat-file databases store larger amounts of data in records and fields.
- Use the Teach Computing lesson sequence to create a paper-based database before moving to a computer database, helping pupils understand the underlying structure of records and fields.
- Model how sorting, grouping and filtering answer increasingly complex questions using a shared dataset.
- Encourage pupils to compare different search methods and discuss which is the most efficient for different questions.
- Use database tools to generate charts and graphs, encouraging pupils to interpret patterns and draw conclusions from the data.
- Finish the unit by exploring real-life uses

Year 6

Autumn 1

Online Safety

Autumn 1

Programming: micro:bit: designing solutions

Spring 1

Programming: python coding

Spring 2

Data & information Spreadsheets

Summer 1

Creating media: 3D modelling

Summer 2

Collaborative multimedia project

Year 6 Autumn 1 - Online Safety

Prior Learning: Recognise when online activity is affecting health and well-being positively or negatively (Y5 Au1)
Know strategies for responding to inappropriate online behaviour (Y5 Au1)

Intent

Pupils will develop their understanding of how their online actions can impact themselves and others. They will learn how to manage their digital footprint, protect personal information, recognise online risks and respond appropriately to harmful or unsafe situations. Pupils will explore how to maintain a positive online reputation and make responsible choices when communicating and sharing information online.

Knowledge

- Know that a digital footprint is the information about a person that exists online as a result of their online activity.
- Know how online bullying can be recorded and captured as evidence to support reporting and seeking help.
- Know why personal information and passwords should be kept secure.
- Know that a positive online reputation is created through responsible and respectful online behaviour.
- Know that online scams use techniques to trick people into sharing information, clicking links or giving access to accounts.
- Know that keeping software and devices updated helps protect against security risks.

Skills

- Explain the potential positive and negative impacts of sharing information online.
- Apply strategies to create and maintain a positive online reputation.
- Create secure passwords and explain how they help protect personal information.
- Demonstrate how to collect evidence of online bullying and identify appropriate ways to report concerns and seek support.
- Recognise common online security risks and explain how actions such as updating software can help protect devices and data.

Vocab

- Block
- Privacy settings
- Report
- Consent
- Inappropriate
- Screenshot
- Selfie
- Digital footprint
- Digital personality
- Anonymity
- Reputation
- Screengrab
- URL
- Biometrics
- Two-factor authentication
- Hacking
- Antivirus
- Malware
- Phishing
- Scammers

Suggestions for implementation

- Use BBC Own It online clips to support teaching of key content.
- Make links to games and apps pupils in the cohort use.
- Incorporate home learning by asking children to practise skills at home e.g. take a screenshot on a home device.

Enrichment opportunities

Create an **online safety campaign** for younger pupils using posters, presentations or videos.
Develop a **digital citizenship guide** for pupils moving to secondary school.
Participate in **Safer Internet Day**, leading online safety activities across the school.

Questions to measure impact

- Give an example of something online that could affect your reputation.
- What would you do if you saw a suspicious message or scam?
- Why are strong passwords important?
- How could you gather evidence and get help if online bullying happened?

Year 6 Autumn 2 – Programming - micro:bit: designing solutions

Prior learning

- Know that a micro:bit is a programmable physical device with inputs and outputs (Y5 Sp1)
- Know that physical computing systems use sensors and inputs to respond to changes in the real world (Y5 Sp1)

Good opportunity for cross curricular link – DT?

Intent

Pupils will build on their understanding of physical computing by designing and programming more complex micro:bit projects that respond to real-world inputs. They will combine sensors, variables, selection, repetition and communication to create purposeful solutions to problems. Pupils will follow the design process by planning, creating, testing, debugging and evaluating their programs, considering the needs of the user and the effectiveness of their solution.

Knowledge

- Know that physical computing systems combine hardware and software to respond to inputs and produce outputs.
- Know that sensors can collect information from the environment and be used to control a program.
- Know that variables can store data collected by sensors or user input.
- Know that programs can use selection and repetition to create responsive and efficient systems.
- Know that physical computing solutions should be designed around the needs of the user and their purpose.
- Know that testing and evaluation are essential when developing reliable digital solutions.

Skills

- Design and create a physical computing solution using a micro:bit.
- Combine multiple inputs, outputs and programming structures to create purposeful programs.
- Use sensors and variables to collect and respond to data.
- Use selection and repetition to control how a device responds.
- Test and debug programs systematically, identifying both hardware and software issues.
- Evaluate and improve a solution based on user needs and testing feedback.

Tips and Tricks

Suggestions for implementation

Use Microsoft MakeCode and micro:bit resources to explore sensors, data logging and communication between devices. Provide opportunities for pupils to design, create and evaluate a physical computing solution for a real-world problem. Encourage pupils to combine inputs, outputs, variables, selection and repetition to develop purposeful systems.

Suggested structure:

- **Lessons 1–2:**

Explore advanced micro:bit features:
sensors
variables
radio
data logging

- **Lessons 3–6:**

Pupils design their own physical computing solution:
Example brief:
"Design a micro:bit system that solves a problem for a user."
Possible outcomes:
environmental monitor
safety device
communication system
accessibility tool

Vocab

micro:bit, physical computing, hardware, software, input, output, sensor, actuator, variable, data, algorithm, sequence, selection, repetition, loop, condition, debug, test, evaluate, prototype, design, system, user, purpose, wireless communication, radio, data logging.

Enrichment opportunities

Design a micro:bit solution for a real-world problem (e.g. environmental monitor, safety device or accessibility tool).
Use micro:bit radio communication to create a system involving multiple devices.
Create a wearable technology prototype.
Use data logging to investigate changes in the environment. Present projects to another class or community audience.
Take part in a STEM challenge involving physical computing.

Suggested questions to measure impact

How does a micro:bit use inputs and outputs to respond to the world around it?
How did you use sensors or variables to make your program more effective?
How did your program combine sequence, selection and repetition?
How did testing help you improve your physical computing solution?
How did you design your solution around the needs of the user?

Year 6 Spring 1 – Programming: python coding

Prior learning

Know that sequence, selection and repetition can be combined to control the behaviour of a program (Y5 Au2)
Know that variables can store information that changes while a program runs (Y5 Au2)
Know that inputs, outputs and variables can be used to create responsive programs (Y5 Sp1)
Know that nested loops are loops inside other loops and can be used to repeat groups of instructions efficiently (Y4 SP2)

Intent

In this unit, pupils build on their previous programming knowledge by transitioning from block-based programming to text-based programming using Python. They will recognise the similarities and differences between programming languages, applying their understanding of sequence, selection, repetition and variables to program a BBC micro:bit using Python. Pupils will learn to read, predict and explain the behaviour of Python programs before running them, developing an understanding of the importance of syntax, indentation and program structure. They will create increasingly efficient programs using nested loops, modify and improve existing code, and test and debug programs systematically. Throughout the unit, pupils will explore how Python is used to control physical devices and solve real-world problems, preparing them for further study of text-based programming in Key Stage 3.

Vocab

Python, text-based programming, syntax, indentation, sequence, selection, repetition, loop, nested loop, variable, input, output, algorithm, debug, syntax error, logic error, predict, trace, modify, efficiency, simulator, download, flash, micro:bit, MakeCode

Knowledge

- Know that Python is a text-based programming language that uses typed commands instead of programming blocks.
- Know that the same programming concepts (sequence, selection, repetition and variables) apply in both block-based and text-based programming.
- Know that MakeCode allows programs to be created using either blocks or Python, producing the same outcome.
- Know that correct syntax, spacing and indentation are important because computers interpret text exactly as it is written.
- Know that nested loops are loops within loops and can make programs more efficient.
- Know that programs written in Python can be tested using a simulator before being downloaded to a BBC micro:bit.
- Know that programmers read, test, modify and debug existing code before creating their own programs.
- Know that debugging involves identifying and correcting both syntax errors and logical errors.

Skills

- Design and refine algorithms before writing Python code.
- Read, predict and explain what a Python program will do before it is run.
- Program a BBC micro:bit using Python.
- Use sequence, selection, repetition and nested loops to create efficient programs.
- Modify existing Python code to produce a new intended outcome.
- Decompose programming problems into smaller, manageable steps.
- Test and debug programs systematically by identifying syntax and logical errors.
- Evaluate and improve programs for efficiency, accuracy and purpose.

Tips and Tricks

Suggestions for implementation

- Compare equivalent block-based and Python programs within micro:bit MakeCode to identify similarities and differences.
- Use retrieval activities to revisit programming concepts developed through Scratch, Code.org and micro:bit programming.
- Read, trace and predict the outcome of existing Python programs before writing new code.
- Use live coding to model Python syntax, indentation and debugging strategies.
- Test programs using the MakeCode simulator before downloading them onto a BBC micro:bit.
- Modify and extend existing Python programs to create new outcomes.
- Investigate how changes to loops, variables and conditions affect the behaviour of the micro:bit.
- Encourage pupils to evaluate, refine and explain their programs using appropriate programming vocabulary.

Suggested questions to measure impact

- How is Python similar to the programming languages you have used previously?
- Why are syntax and indentation important in Python?
- What is the purpose of a nested loop?
- How can predicting the outcome of code help when programming?
- What is the difference between a syntax error and a logical error?
- How did modifying existing code help you develop your own program?
- Why is it useful to test programs using the simulator before downloading them to a micro:bit?
- How has using Python helped you understand programming more deeply?

Enrichment opportunities

•Design and program a micro:bit device to solve a real-life problem within school (e.g. reaction timer, step counter, temperature monitor or digital badge).
•Investigate careers that use Python, such as software development, robotics, engineering, data science and cybersecurity.
•Explore how Python is used to control robots, smart devices and automated systems.
•Challenge pupils to improve the efficiency of an existing Python program by reducing repeated code.
•Enter a micro:bit or coding competition such as the BBC micro:bit Challenge if available.
•Create a short tutorial or screencast explaining how to convert a block-based program into Python

Year 6 Spring 2 – Data & information: spreadsheets

Prior learning

Know that data can be organised using digital tools to make it easier to find and use (Y4 Sp1)

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/data-and-information-spreadsheets

Intent

Pupils will be introduced to the features of spreadsheets for organising, analysing and presenting data. Building on their understanding of data collection and branching databases from Lower Key Stage 2, pupils will learn how spreadsheets automatically calculate values using formulae, allowing them to model real-life scenarios efficiently. They will create, format and manipulate data, use formulae and cell ranges, duplicate calculations and present findings using charts. Pupils will evaluate how effectively spreadsheets can be used to answer questions and solve problems. These skills prepare pupils for more advanced data handling in Key Stage 3 and develop important digital literacy skills for everyday life.

Vocab

spreadsheet, cell, row, column, cell reference, formula, function, range, duplicate, autofill, calculate, data, chart, graph, format, value, worksheet, average, SUM

Knowledge

- Know that a spreadsheet stores data in rows, columns and cells.
- Know that a formula performs calculations automatically using cell references.
- Understand that using formulae reduces errors and updates calculations automatically when data changes.
- Know that a range of cells can be used within a formula to perform calculations efficiently.
- Know that spreadsheets can be used to model real-life situations and support decision-making.
- Understand that charts can be used to present data clearly and help identify patterns or trends.
- Know that accurate formatting and organisation make spreadsheet data easier to interpret and analyse.

Suggested questions to measure impact

What is the purpose of a formula in a spreadsheet?
Why is it better to use cell references instead of typing numbers directly into a formula?
How can duplicating a formula save time and reduce mistakes?
When would you choose to present information using a chart rather than a table?

Skills

- Create, organise and format data within a spreadsheet.
- Format cells to improve the accuracy and presentation of data.
- Use formulae, including functions that use cell ranges, to perform calculations.
- Duplicate formulae to apply calculations across multiple cells efficiently.
- Create and interpret charts to present data and answer questions.
- Evaluate whether a spreadsheet effectively answers a given problem or supports decision-making.

Enrichment opportunities

Collect and analyse sports day or PE results using formulae and charts. Compare weather data collected over several weeks and present findings graphically.
Explore more advanced spreadsheet functions such as AVERAGE, MIN and MAX for pupils who are ready.
Investigate how businesses and scientists use spreadsheets to analyse large data sets.

Tips and Tricks

Suggestions for implementation

- Follow the six lessons in the Teach Computing Year 6 **Introduction to Spreadsheets** unit, progressing from data entry to creating charts.
- Use Microsoft Excel so pupils experience an authentic spreadsheet environment.
- Demonstrate formulae using real-life contexts such as budgets, event planning or sports results before pupils create their own spreadsheets.
- Encourage pupils to predict calculation outcomes before entering formulae to strengthen mathematical reasoning.
- Use paired debugging activities where pupils identify and correct formatting or formula errors.
- Conclude the unit with pupils designing a spreadsheet to solve a practical problem and presenting their findings using charts.

Year 6 Summer 1 – Creating media: 3D modelling

Prior learning

Know that planning is important before creating media (Y3 Au2)
Know that digital creations can be improved through evaluation and feedback (Y5 Su1)

Teach Computing unit - https://teachcomputing.org/curriculum/key-stage-2/creating-media-3d-modelling

Intent

In this unit, pupils develop their understanding of digital design by creating and manipulating three-dimensional (3D) models. They learn how 3D models are constructed from simple shapes and modified using a range of digital tools. Pupils will move, rotate, resize and combine objects to create purposeful models, developing their spatial awareness, creativity and problem-solving skills. They will evaluate and refine their designs against a given purpose, gaining an understanding of how digital modelling is used in fields such as architecture, engineering and product design. This unit prepares pupils for further study of computer-aided design (CAD), 3D modelling and digital design in Key Stage 3.

Vocab

3D, model, object, shape, workspace, viewpoint, rotate, resize, scale, position, combine, duplicate, align, dimension, design, modify, CAD, vertex, face, edge, manipulate

Knowledge

- Know that a 3D model represents an object with height, width and depth.
- Know that complex 3D models can be created by combining and modifying simple shapes.
- Know that moving, rotating, resizing and combining objects changes the overall design of a 3D model.
- Know that different viewpoints allow a 3D model to be viewed and edited more accurately.
- Understand that digital modelling enables designers to test and refine ideas before creating physical products.
- Know that evaluating and refining a 3D model helps ensure it meets its intended purpose and design criteria.

Suggested questions to measure impact

What makes a 3D model different from a 2D drawing?
Why are simple shapes often used to create complex 3D models?
How does changing the viewpoint help when editing a model?
Which tools would you use to improve the accuracy of a 3D design?
Why is it important to evaluate and refine a digital model?
Create a 3D model that meets a given design brief and explain the design choices you made.

Skills

- Create a 3D model by combining simple shapes.
- Move, rotate, resize and combine objects accurately within a 3D workspace.
- Modify individual objects to improve the overall design.
- Navigate a 3D environment by changing viewpoint and zoom.
- Evaluate a 3D model against given design criteria and make improvements.
- Explain how digital modelling tools support the design, testing and development of three-dimensional objects.

Enrichment opportunities

Design a model of a sustainable home or playground using 3D modelling software.
Create a historical artefact or monument to support learning in history.
Design a product prototype linked to a Design and Technology project.
Explore how architects, engineers and game designers use 3D modelling in industry.
Investigate how 3D models can be prepared for 3D printing.
Take part in a whole-class design challenge to solve a real-world problem using digital modelling.

Tips and Tricks

Suggestions for implementation

- Follow the Teach Computing Year 6 **Creating Media – 3D Modelling** lessons, introducing pupils to the interface before exploring increasingly complex modelling techniques.
- Demonstrate how simple geometric shapes can be combined to create recognisable everyday objects before pupils develop their own designs.
- Encourage pupils to compare 2D drawings with 3D models, discussing the advantages and limitations of each.
- Model how changing viewpoint, zoom and rotation improves accuracy when editing a design.
- Use iterative design by encouraging pupils to evaluate, refine and improve their models against a design brief.
- Link the unit with Design and Technology by creating digital prototypes before making physical products where appropriate.

Year 6 Summer 2 – Collaborative multimedia project

Prior learning

Use search engines effectively by selecting and refining keywords (Y5 Sp2)
Compare information from multiple online sources to judge relevance and reliability (Y5 Sp2)
Know that websites can be edited and shared collaboratively online (Y4 Su2)

Intent

In this unit, pupils will apply the digital knowledge and skills they have developed throughout Key Stage 2 to plan, create and refine a collaborative multimedia presentation for a specific audience and purpose. Working together, they will use shared digital tools to research, organise and communicate information using a combination of text, images, audio, video and hyperlinks. Pupils will apply principles of effective design, accessibility and responsible use of digital content while giving and responding to feedback to improve their work. This unit provides a culmination of pupils' learning in creating digital media and prepares them for collaborative digital working in Key Stage 3.

Vocab

multimedia, collaboration, audience, purpose, accessibility, design, layout, consistency, typography, copyright, licence, attribution, hyperlink, shared document, version history, comment, feedback, refine, presentation, media, transition, animation

Knowledge

- Know that effective multimedia presentations are designed for a specific audience and purpose.
- Know that collaborative digital tools allow multiple users to create, edit and review shared content.
- Know that consistent design choices, including layout, colour, typography and media selection, improve communication.
- Know that accessibility features help make digital content usable by a wider audience.
- Understand that feedback and evaluation are important parts of refining collaborative digital projects.
- Know that digital media should be selected carefully to communicate information effectively while respecting copyright, licensing and attribution.

Suggested questions to measure impact

Why should a multimedia presentation be designed with a specific audience and purpose in mind?
How do collaborative digital tools help people work together on the same project?
Why is it important to use consistent design and accessibility features in a presentation?
What should you consider before using images, videos or music created by someone else?
Evaluate your multimedia presentation, explaining how your design choices helped communicate your message effectively and how collaboration contributed to the final outcome.

Skills

- Plan a collaborative multimedia project that meets a given design brief.
- Collaborate effectively using shared digital tools to create and edit content.
- Select, create and integrate appropriate multimedia elements to communicate information clearly.
- Apply consistent design and accessibility principles throughout a presentation.
- Review and respond constructively to peer feedback to improve a digital product.
- Evaluate the effectiveness of a multimedia presentation against its intended audience and purpose.

Enrichment opportunities

- Create a multimedia presentation for a real audience.
- Produce an interactive digital guide for new pupils joining the school.
- Collaborate with another class using shared online presentation software.
- Enter a local or national digital creativity competition.
- Explore advanced presentation features, such as embedded video, narration, QR codes or interactive navigation.
- Invite professionals who use digital presentations (e.g. designers, architects or marketers) to discuss how multimedia is used in their work.

Tips and Tricks

Suggestions for implementation

- Introduce the unit with examples of high-quality multimedia presentations, discussing how design, media choices and layout support communication.
- Use a collaborative platform such as Microsoft PowerPoint Online, allowing pupils to co-author presentations and use commenting features to provide feedback.
- Provide pupils with an authentic design brief, such as creating a presentation for younger pupils, parents, governors or the local community.
- Model effective design principles, including consistency, visual hierarchy, appropriate use of colour, font selection and accessibility considerations such as readable text and meaningful image choices.
- Build in regular peer-review opportunities where pupils evaluate presentations against agreed success criteria and refine their work accordingly.
- Conclude the unit by presenting completed projects to the intended audience and reflecting on both the collaborative process and the effectiveness of the final product.