What does Computing look like at Hambledon?

What does it mean to be a computer scientist at Hambledon Primary School?

- To equip our children with a broad range of knowledge, skills and qualities to become successful and responsible learners, ready for the next stage of their education. We achieve these through developing learning values across all aspects of a curriculum that is cohesive, progressive and relevant.
- In Computing, this means that children will be developing their independent problem solving skills through debugging and developing their computational thinking. They will also be developing transferable skills, such as word processing, using research to build knowledge, and image manipulation that can benefit them in numerous future career paths. Furthermore, the curriculum must ensure children develop the understanding of how to use technology safely, responsibly, respectfully and securely, an imperative in an up and coming technological world.

EYFS

Reception	Personal, Social and Emotional Development		• Show resilience and perseverance in the face of a challenge. • Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'.
	Physical Development		• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		• Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	• Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

KS1

A	**Text and Multimedia** - create PowerPoint about explorer (text, graphic and sound) Use **Research** skills to find information	**Algorithms** – control devices (toys) & code musical instruments using Scratch **E-Safety** (Internet Safety Day)	**Data Logging** (weather station – link to weather) **Data Handling** – enter weather data into simple (set up) spreadsheet
B	**Digital Images** - image manipulation to modify picture & create simple animation to tell a story	**Handling information** - use graphing package - pictogram for colour of cars/etc. **E-Safety** (Internet Safety Day)	**Algorithms** – play adventure game. Creating own adventure game using Scratch (including **Sound**).

Lower KS2

A	**Text and Multimedia** – present information (text, graphic and sound) Use **Research** skills to find information **Data Logging** – collect physical data about amount of light. Interpret the results.	**Algorithms** – create quiz for someone else to answer linked to Topic **E-Safety** (Internet Safety Day)	**Algorithms** – stop motion animation - explorer travelling through rainforest? (including **Sound** – importing/creating) **Data Handling** – collect rainwater information and input data into spreadsheet. Use data to create graph.
B	**Algorithms** – create game – hunter-gathers catching animals (including **Sound** – importing/creating)	**Data Handling** – children collect information about various things (e.g. pulse rate, favourite colours) and input this information into spreadsheet. Create graphs. **E-Safety** (Internet Safety Day)	**Text and Multimedia** – present information (text, graphic and sound) Use **Research** skills to find information

Upper KS2

A	**Algorithms** - Lego Wedo – create space buggy & Programming microbits to show rocket taking off.	**Text and Multimedia** – present information (text, graphic and sound) Use **Research** skills to find information **E-Safety** (Internet Safety Day)	**Sound** - linked to radio broadcasts? Create own podcast. **Algorithms** - Programming for if dark, turn light on etc?
B	**Algorithms** – create a multi-levelled adventure game (link to travelling through pyramid?) **Text and Multimedia** – present information (text, graphic and sound) Use **Research** skills to find information	**Data Logging** – link to sound. Collect physical data. Interpret the results. Spot trends. **E-Safety** (Internet Safety Day)	**Digital Images** – create animation with moving images as instructions explaining how to make tortillas/hot chocolate. **Data Handling** – collect data and input information into spreadsheet. Use formulae to investigate mathematical models.

Cycle A & B

EYFS

Progression of Skills:

	EYFS
Text and Multimedia	• Play on a touch screen game and use computers/keyboards/mouse in role play. • Type letters with increasing confidence using a keyboard and tablet.
Digital Images	• Create a simple digital collage. • Move and resize images with my fingers or mouse. • Take a photograph. • Use a painting app and explore the paint and brush tools
Sound and Music	• Record their voice over a picture. • Record sounds with different resources. • Find ways to change their voice (tube, tin can, shouting to create an echo).
Electronic Communication	• Recognise some ways in which the internet can be used to communicate. • Give examples of how they use technology to communicate with people they know.
Research and E-Safety	• Recognise that they can say 'no'/'please stop'/'I'll tell'/'I'll ask' to somebody who asks them to do something that makes them feel sad, embarrassed or upset. Explain how this could be either in real life or online. • Talk about how they can use the internet to find things out. • Identify devices they could use to access information on the internet. • Give simple examples of how to find information (e.g. search engine, voice activated searching).
Control (Algorithms)	• Follow oral algorithms. • Spot simple patterns. • Sequence simple familiar tasks. • Input a simple sequence of commands to control a digital device with support (BeeBot)
Handling Information	• Identify a chart. • Sort physical objects, take a picture and discuss what they have done.

Vocabulary

- Internet
- Website
- Equipment
- Buttons
- Movement
- Screen
- Mouse
- Images
- Keyboard
- Monitor
- Paint
- Technology
- Share
- Create
- Collect
- Photographs
- Count
- Organise

KS1: Explorers

National Curriculum Objectives:

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

Aim

To create a multimedia presentation, showcasing the children's research and learning about a famous explorer.

Vocabulary

- Document
- Enter/Return
- Caps Lock
- Save
- Retrieve
- Copy
- Paste
- Edit (size, colour, shape)
- Picture
- Online
- Appropriate/ Inappropriate sites
- Information sources
- Website content
- Purpose
- Keyword searching

Progression of Skills:

	Year 1	Year 2
Text and Multimedia	• Work with others and with support to contribute to a digital class resource, which includes text, graphic and sound.	• Generate their own work, (with help where appropriate with multimedia) combining text, graphics and sound. • Save, retrieve, and edit their work.
Research	• As a class, exercise children explore information from a variety of sources (electronic, paper based, observations of the world around them, etc). • They show an awareness of different forms of information	• Children use a search engine to find specific relevant information to use in a presentation for a topic. • They save and retrieve their work. • Make use of copy and paste • Show an emerging understanding of internet safety. • Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Cycle A – Autumn Term

Lower KS2: Historical Hambledon

Aim

- To create a digital storyboard showcasing pupils knowledge of the Murder Stone mystery, including text, graphic and sound.
- To collect and present data about the amount of light found at different points/times around Hambledon Primary School.

National Curriculum Objectives:

- Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly

Vocabulary

Multimedia/Research

- E-safety
- Report
- Multimedia
- Presentation
- Creating and modifying
- Keyboard shortcuts
- Bullet points
- Information collection
- Reliability
- Present data
- Spell check

Data logging

- Sensors
- Network
- Fibres/cables
- Information collection
- Recording data
- Data logger
- Present data
- Database creation
- Database searches
- Inaccurate data

Progression of Skills:

	Year 3	Year 4
Text and Multimedia	• Record and present information integrating a range of appropriate media combining text and graphics in printable form and sound and video for on-screen presentations, which include hyperlinks. • Begin to show an awareness of the intended audience and seek feedback.	• Use advanced tools in word processing/DTP software such as tabs, appropriate text formatting, line spacing etc appropriately to create quality presentations appropriate for a known audience.
Research	• Children use a search engine to find specific relevant information to use in a presentation for a topic. • They save and retrieve their work. • Make use of copy and paste • Show an emerging understanding of internet safety. • Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	• Using another curriculum area as a starting point, children ask their own questions then use ICT sources to find answers, making use of search engines, an index, menu, hyperlinks as appropriate. Children use the information or resources they have found. • Children talk about using ICT to find information / resources noting any frustrations and showing an emerging understanding of internet safety.
Data Logging	• Begin to use a data logger to sense physical data (sound, light, temperature).	• Use a data logger confidently, connected to the computer or remotely, to capture continuous or intermittent data readings. • Interpret the results and use these in their investigations. • Realise the advantages of using ICT to collect data that might otherwise be problematic.

Cycle A – Autumn Term

Upper KS2: Race to Space

National Curriculum Objectives:

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

Aim

- To build a space buggy using Lego Wedo and write and debug an algorithm to allow the buggy to move.
- To program a microbit to show a rocket taking off.

Vocabulary

- Variable
- Hardware
- Software
- Input
- Output
- Variables

Progression of Skills:

	Year 5	Year 6
Algorithms	• Engage in Logo based problem solving activities that require children to write procedures etc. and to predict, test and modify. • Use control software to control devices (using output commands) or to simulate this on screen. • Predict, test and refine their programming.	• Independently create sequences of commands to control devices in response to sensing (i.e. use inputs as well as outputs). • Design, build, test, evaluate and modify the system; ensuring that it is fit for purpose.

Cycle A – Spring Term

KS1: Toys

National Curriculum Objectives:

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- Create and debug simple programs
- Use logical reasoning to predict the behaviour of simple programs
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Aim

To control physical devices (Bee-Bots) and digital devices (on Scratch/Scratch Jr) by writing and debugging algorithms.

Vocabulary

- Instructions
- Robots
- Patterns
- Program
- Forward
- Backward
- Right-angle turn
- Algorithm
- Sequence
- Debug
- Predict

Progression of Skills:

	Year 1	Year 2
Control (Algorithms)	· Control simple everyday devices to make them produce different outcomes.	· Control a device, on and off screen, making predictions about the effect their programming will have. · Children can plan ahead

Cycle A – Spring Term

Lower KS2: British Study Beyond 1066

National Curriculum Objectives:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Aim

To create quiz for someone else to answer linked to Topic.

Vocabulary

- Sequence
- Debug
- Instructions
- Test and Improve
- Commands
- Sensors
- Repeats
- Amend

Progression of Skills:

	Year 3	Year 4
Control (Algorithms)	· Children are able to type a short sequence of instructions and to plan ahead when programming devices on and off screen.	· Engage in Logo based problem solving activities that require children to write procedures etc. and to predict, test and modify. · Use control software to control devices (using output commands) or to simulate this on screen. Predict, test and refine their programming.

Cycle A – Spring Term

Upper KS2: China

Aim
Use skills to research and make a multi-media presentation for the Shang Dynasty.

National Curriculum Objectives:

- Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Vocabulary

- Informed choices
- Multimedia effects
- Multimedia modification
- Transitions
- Hyperlinks
- Plagiarism
- Editing tools
- Refining
- Audience
- URL
- Research strategies
- Search result rankings
- Complex searches (and/or)
- Analyse information
- Copyright

Progression of Skills:

	Year 5	Year 6
Text and Multimedia	• Use advanced tools in word processing/DTP software (such as tabs, appropriate text formatting, line spacing etc.) appropriately to create quality presentations appropriate for a known audience.	• Multimedia work shows restrained use of effects that help to convey meaning rather than impress.
Digital Images		• Use images that they have sourced/captured/manipulated as part of a bigger project (e.g. presentation or document).
Research and E-Safety	• Make use of copy and paste, beginning to understand the purpose of copyright regulations and the need to repurpose information for a particular audience. • They show an understanding that not all information on the internet is accurate. • Develop a growing awareness of how to stay safe when using the internet (in school and at home) and that they abide by the school's internet safety policy.	• Independently and with due regard for safety, search the internet using a variety of techniques to find a range of information and resources on a specific topic. • Use appropriate methods to validate information and check for bias and accuracy. • Repurpose and make appropriate use of selected resources for a given audiences, acknowledging material used where appropriate.

Cycle A – Summer Term

KS1: Queens

National Curriculum Objectives:

- Recognise common uses of information technology beyond school
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content

Aim

- To observe, record and describe weather changes over a set period of time.
- To present data about weather changes using a online graphing tool.

Vocabulary

- Information sources
- Data
- Pictogram
- Digitally
- Questions
- Data collection
- Graphs
- Charts
- Save
- Retrieve

Progression of Skills:

	Year 1	Year 2
Handling Information	• As a class or individually with support, children use a simple pictogram or painting program to develop simple graphical awareness / one to one correspondence.	• Use a graphing package to collect, organise and classify data, selecting appropriate tools to create a graph and answer questions. • Enter information into a simple branching database, database or word processor and use it to answer questions. • They save, retrieve and edit their work.

Cycle A – Summer Term

Lower KS2: Rainforest

National Curriculum Objectives:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly

Vocabulary

- Repeats
- Sequence
- Creating and modifying
- Recording data
- Data logger
- Present data
- Database creation
- Database searches
- Inaccurate data

Aim

- To create a stop motion animation, including sound, to show an explorer moving through the rainforest.
- To observe, record and describe weather changes over a set period of time.
- To present data about weather changes using a online graphing tool.

Progression of Skills:

	Year 3	Year 4
Digital Images	• Manipulate digital images using a range of tools in appropriate software to convey a specific mood or idea.	• Make a short film / animation from images (still and / or moving) that they have sourced, captured or created.
Sound and Music	• Create a simple podcast, selecting and importing already existing music and sound effects as well as recording their own.	• Create multiple track compositions that contain a variety of sounds.
Handling Information	• Children use a simple database (the structure of which has been set up for them) to enter and save and save information on a given subject. • They follow straight forward lines of enquiry to search their data for their own purposes. • They talk about their experiences of using ICT to process data compared with other methods.	• Children work as a class or group to create a data collection sheet and use it to setup a straight forward database to answer questions. • Enter information and interrogate it (by searching, sorting, graphing etc.) • Begin to reflect on how useful the collected data and their interrogation was and whether or not their questions were answered
Data logging	• Begin to use a data logger to sense physical data (sound, light, temperature).	• Use a data logger confidently, connected to the computer or remotely, to capture continuous or intermittent data readings. • Interpret the results and use these in their investigations. • Realise the advantages of using ICT to collect data that might otherwise be problematic.

Cycle A – Summer Term

Upper KS2: Warfare

National Curriculum Objectives:

- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Vocabulary

- Procedures
- Variable
- Hardware
- Software
- Input
- Output
- Variables
- Script
- Editing tools
- Refining
- Audience

Aim

- To create a WW2 inspired radio broadcast.
- To program a set of lights for a lighthouse, using sensors, that turn on/off depending on the amount of light present.

Progression of Skills:

	Year 5	Year 6
Sound and Music	• Create multiple track compositions that contain a variety of sounds.	• Create podcasts and consider the effect that their podcasts will have on the audience.
Electronic Communication	• Share ICT work they have done electronically by email, VLE, or uploading to authorised sites. • Where possible seek and respond to feedback.	• Abide by school rules for e-safety. • Share ICT work they have done electronically by email, VLE, or uploading to authorised sites.
Control (Algorithms)	• Engage in Logo based problem solving activities that require children to write procedures etc. and to predict, test and modify. • Use control software to control devices (using output commands) or to simulate this on screen. Predict, test and refine their programming.	• Independently create sequences of commands to control devices in response to sensing (i.e. use inputs as well as outputs). • Design, build, test, evaluate and modify the system; ensuring that it is fit for purpose.

Cycle B – Autumn Term

KS1: Fire! Fire!

Aim

- To research the Great Fire of London, retrieving and evaluating content from a range of websites and image banks.
- To create a digital image of the Great Fire of London using paint software.
- To create a simple animation, including recorded sound, to retell the events of the Great Fire of London.

Vocabulary

- Online
- Email
- Appropriate/Inappropriate sites
- Keyword Searching
- Sequence
- Sounds
- Brush size
- Animation
- Enter/Return
- Caps Lock
- Backspace
- Purpose
- Image bank
- Space bar
- Online tools
- Communicate
- Information sources
- Website content
- Save
- Retrieve
- Copy
- Paste
- Edit (size, colour, shape)

National Curriculum Objectives:

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Progression of Skills:

	Year 1	Year 2
Digital Images	· Use a range of simple tools in a paint package / image manipulation software to create / modify a picture.	· Use a range of tools in a paint package /image manipulation software to create / modify a picture to communicate an idea. · Create a simple animation to tell a story
Sound and Music	· Chose suitable sounds from a bank to express their ideas. · Record short speech.	· Produce a simple presentation incorporating sounds the children have captured, or created.
Research and E-Safety	· As a class, exercise children explore information from a variety of sources (electronic, paper based, observations of the world around them, etc.). · They show an awareness of different forms of information	· Children use a search engine to find specific relevant information to use in a presentation for a topic. · They save and retrieve their work. · Make use of copy and paste · Show an emerging understanding of internet safety. · Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Lower KS2: Stone Age

National Curriculum Objectives:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly

Vocabulary

- Gaming
- Sequence
- Debug
- Instructions
- Test and Improve
- Commands
- Bugs in programs
- Repeats
- Amend

Aim

- To create a Stone Age game, including sound, imitating the life of a Stone Age hunter.

Progression of Skills:

	Year 3	Year 4
Control (Algorithms)	· Children are able to type a short sequence of instructions and to plan ahead when programming devices on and off screen.	· Engage in Logo based problem solving activities that require children to write procedures etc. and to predict, test and modify. · Use control software to control devices (using output commands) or to simulate this on screen. Predict, test and refine their programming.
Sound and Music	· Select and import existing music and sound effects as well as recording their own.	· Create multiple track compositions that contain a variety of sounds.
Electronic Communication		· Share ICT work they have done electronically by email, VLE, or uploading to authorised sites. · Where possible seek and respond to feedback.
Digital Images	· Manipulate digital images using a range of tools in appropriate software to convey a specific mood or idea.	· Make a short film / animation from images (still and / or moving) that they have sourced, captured or created.

Cycle B – Autumn Term

Upper KS2: Egyptians

Aim
- To create a multi-levelled adventure game.
- To use research skills effectively and present the information in the form of a blog.

National Curriculum Objectives:
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour

Vocabulary
- Responsible online communication
- Online sharing
- Multimedia effects
- Multimedia modification
- Transitions
- Hyperlinks
- Plagiarism
- URL
- HTML
- Storing
- Editing tools
- Online sharing
- Audience
- Anonymity
- Structure
- Copyright
- Script
- Research strategies
- Search result rankings
- Acknowledge
- Complex searches (and/or)
- Analyse information

Progression of Skills:

	Year 5	Year 6
Text and Multimedia	• Use advanced tools in word processing/DTP software such as tabs, appropriate text formatting, line spacing etc appropriately to create quality presentations appropriate for a known audience.	• Multimedia work shows restrained use of effects that help to convey meaning rather than impress.
Electronic Communication	• Share ICT work they have done electronically by email, VLE, or uploading to authorised sites. • Where possible seek and respond to feedback.	• Abide by school rules for e-safety. • Share ICT work they have done electronically by email, VLE, or uploading to authorised sites.
Research and E-Safety	• Make use of copy and paste, beginning to understand the purpose of copyright regulations and the need to repurpose information for a particular audience. • They show an understanding that not all information on the internet is accurate. • Develop a growing awareness of how to stay safe when using the internet (in school and at home) and that they abide by the school's internet safety policy.	• Independently and with due regard for safety, search the internet using a variety of techniques to find a range of information and resources on a specific topic. • Use appropriate methods to validate information and check for bias and accuracy. • Repurpose and make appropriate use of selected resources for a given audiences, acknowledging material used where appropriate.
Control (Algorithms)	• Engage in Logo based problem solving activities that require children to write procedures etc. and to predict, test and modify. • Use control software to control devices (using output commands) or to simulate this on screen. Predict, test and refine their programming.	• Independently create sequences of commands to control devices in response to sensing (i.e. use inputs as well as outputs). • Design, build, test, evaluate and modify the system; ensuring that it is fit for purpose.
Understanding Technologies	• Perform a search using different search engines and check the results against each other, explaining why they might be different. • Show an awareness of the need for accuracy in spelling and syntax to search effectively.	• Use collaborative tools and e-mail showing a sensitivity for this type of remote collaboration and communication

KS1: Transport

Aim

- To create a digital graph (e.g. pictogram) to present data collected.

National Curriculum Objectives:

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Vocabulary

- Data
- Pictogram
- Digitally
- Data collection
- Graphs
- Charts
- Save
- Retrieve
- Edit (size, colour, shape)

Progression of Skills:

	Year 1	Year 2
Handling Information	• As a class or individually with support, children use a simple pictogram or painting program to develop simple graphical awareness / one to one correspondence.	• Use a graphing package to collect, organise and classify data, selecting appropriate tools to create a graph and answer questions. • Enter information into a simple branching database, database or word processor and use it to answer questions. • They save, retrieve and edit their work.

Lower KS2: Romans

Aim

- To collect data, input this into a spreadsheet and create a graph showing the information.

National Curriculum Objectives:

- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Vocabulary

- Sensors
- Information collection
- Reliability
- Recording data
- Data logger
- Present data
- Database creation
- Database searches
- Inaccurate data

Progression of Skills:

	Year 3	Year 4
Handling Information	• Children use a simple database (the structure of which has been set up for them) to enter and save and save information on a given subject. • They follow straight forward lines of enquiry to search their data for their own purposes. • They talk about their experiences of using ICT to process data compared with other methods.	• Children work as a class or group to create a data collection sheet and use it to setup a straight forward database to answer questions. • Enter information and interrogate it (by searching, sorting, graphing etc). • Begin to reflect on how useful the collected data and their interrogation was and whether or not their questions were answered.
Modelling and Simulations	• Make simple use of a spreadsheet to store data and produce graphs.	• Set up and use a spreadsheet model to explore patterns and relationships. • Make predictions. • Know how to enter simple formulae to assist this process.
Data logging	• Begin to use a data logger to sense physical data (sound, light, temperature).	• Use a data logger confidently, connected to the computer or remotely, to capture continuous or intermittent data readings. • Interpret the results and use these in their investigations. • Realise the advantages of using ICT to collect data that might otherwise be problematic.
Understanding Technologies	• Begin to show discernment in their use of computing devices and tools for a particular purpose and explain why their choice was made.	• Make choices about the devices and tools they use for specific purposes and explain them in relation to the context. • Begin to show an awareness of specific tools used in working life.

Cycle B – Spring Term

Upper KS2: Ancient Greece

Aim

- To collect physical data, input this into a spreadsheet and interpret the results using formulae to support investigations.

National Curriculum Objectives:

- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Vocabulary

- Connecting devices
- Spreadsheets
- Problem solving
- Analyse information
- Question data
- Interpret
- Generate
- Process
- Interpret
- Plausibility
- Interrogate
- Investigations

Progression of Skills:

	Year 5	Year 6
Handling Information	• Children work as a class or group to create a data collection sheet and use it to setup a straight forward database to answer questions. • Enter information and interrogate it (by searching, sorting, graphing etc). • Begin to reflect on how useful the collected data and their interrogation was and whether or not their questions were answered.	• Independently solve a problem by planning and carrying out data collection, by organising and analysing data involving complex searches using a database, and by drawing conclusions and presenting findings. • The need for accuracy is demonstrated and strategies for spotting implausible data are evident. • Children should be able to talk about issues relating to data protection and the need for data security in the world at large (e.g. health, police databases).
Modelling and Simulations	• Set up and use a spreadsheet model to explore patterns and relationships. • Make predictions. • Know how to enter simple formulae to assist this process.	• Set up and use their own spreadsheet, which contains formulae to investigate mathematical models. Ask "what if ..." questions and change variable in their model. • Understand the need for accuracy when creating formulae and check regularly for mistakes, by questioning results. • Relate their use of spreadsheets to model situations to the wider world.
Data logging	• Use a data logger confidently, connected to the computer or remotely, to capture continuous or intermittent data readings. • Interpret the results and use these in their investigations. • Realise the advantages of using ICT to collect data that might otherwise be problematic.	• Children are able to identify their own opportunities for data logging and carry out their own experiments. • They check and question results and are able to spot trends in data and identify when problems may have occurred.
Understanding Technologies	• Make choices about the devices and tools they use for specific purposes and explain them in relation to the context. • Begin to show an awareness of specific tools used in working life.	• Evaluate the tools available to them including any that are unfamiliar or new and use them to solve problems. • Demonstrate an awareness of the appropriateness of outcomes depending on choices regarding tools and devices.

Cycle B – Summer Term

KS1: Titanic

Aim
- To create an adventure game, including sound, using Scratch.

National Curriculum Objectives:
- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- Create and debug simple programs
- Use logical reasoning to predict the behaviour of simple programs
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school
- Use technology safely and respectfully

Vocabulary
- Instructions
- Patterns
- Program
- Forward
- Backward
- Right-angle turn
- Algorithm
- Sequence
- Debug
- Predict
- Sounds
- Image Bank
- Save
- Retrieve
- Copy
- Paste

Progression of Skills:

	Year 1	Year 2
Digital Images	• Use a range of simple tools in a paint package / image manipulation software to create / modify a picture.	• Use a range of tools in a paint package /image manipulation software to create / modify a picture to communicate an idea. • Create a simple animation to tell a story
Sound and Music	• Chose suitable sounds from a bank to express their ideas.	• Compose music from icons. • Produce a simple presentation incorporating sounds the children have captured, or created.
Control (Algorithms)	• Control simple everyday devices to make them produce different outcomes.	• Control a device, on and off screen, making predictions about the effect their programming will have. • Children can plan ahead
Modelling and Simulations	• Make simple choices to control a simple simulation program.	• Children are able to play an adventure game and use a simple simulation, making choices and observing the results. • Their conversation shows they understand that computers are good at replicating real life events and allowing them to explore contexts that are otherwise not possible.

Cycle B – Summer Term

Lower KS2: Anglo-Saxons/Vikings

Aim

- To use research skills to find information before creating a multimedia presentation to share this information.

National Curriculum Objectives:

- Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly

Vocabulary

- Multimedia
- Presentation
- Amend
- Creating and modifying
- Keyboard shortcuts
- Bullet points
- Spell check
- Different networks
- Information collection

Progression of Skills:

	Year 3	Year 4
Text and Multimedia	• Record and present information integrating a range of appropriate media combining text and graphics in printable form and sound and video for on-screen presentations, which include hyperlinks. Begin to show an awareness of the intended audience and seek feedback.	• Use advanced tools in word processing/DTP software such as tabs, appropriate text formatting, line spacing etc appropriately to create quality presentations appropriate for a known audience.
Research and E-Safety	• Using another curriculum area as a starting point, children ask their own questions then use ICT sources to find answers, making use of search engines, an index, menu, hyperlinks as appropriate. Children use the information or resources they have found. • Children talk about using ICT to find information / resources noting any frustrations and showing an emerging understanding of internet safety.	• Make use of copy and paste, beginning to understand the purpose of copyright regulations and the need to repurpose information for a particular audience. • They show an understanding that not all information on the internet is accurate. • Develop a growing awareness of how to stay safe when using the internet (in school and at home) and that they abide by the school's internet safety policy.
Understanding Technologies	• Show an awareness that not all the resources/tools they use are resident on the device they are using. • Begin to show an understanding of URLs.	• Perform a search using different search engines and check the results against each other, explaining why they might be different. • Show an awareness of the need for accuracy in spelling and syntax to search effectively.

Cycle B – Summer Term

Upper KS2: Mayans

National Curriculum Objectives:

- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Aim

- To create an animation with moving images to show a set of instructions explaining how to make tortillas/hot chocolate.

Vocabulary

- Multimedia effects
- Multimedia modification
- Transitions
- Editing tools
- Refining
- Online sharing
- Audience

Progression of Skills:

	Year 5	Year 6
Text and Multimedia	· Use advanced tools in word processing/DTP software such as tabs, appropriate text formatting, line spacing etc appropriately to create quality presentations appropriate for a known audience.	· Multimedia work shows restrained use of effects that help to convey meaning rather than impress.
Digital Images	· Make a short film / animation from images (still and / or moving) that they have sourced, captured or created.	· Use images that they have sourced/captured/manipulated as part of a bigger project (e.g. presentation or document). · Make a short film / animation from images (still and / or moving) that they have sourced, captured or created
Sound and Music	· Create multiple track compositions that contain a variety of sounds.	· Create podcasts and consider the effect that their podcasts will have on the audience.