



Crawley Down Village C of E School

Computing curriculum progression document

Crawley Down Village C of E School aspires to be a learning community where love and respect are at the heart of all we do. We aim to be a school that lives life in all its fullness; encouraging and supporting each other to be the best we can be.

Learning together, flourishing together: "With God, all things are possible." Matthew 19:26



Kapow
Primary

Intent

We aim to equip pupils to use computational thinking and creativity to understand and change the world. We aim to develop children's knowledge and understanding, equipping them to use information technology to create programs, systems and a range of content. We want our pupils to become digitally literate and express themselves and develop their ideas through, information and communication technology at a level suitable for the future workplace and as active participants in a digital world.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	Exploring technology (cameras, interactive whiteboard, typewriter, the internet etc) through continuous provision		Improving computer skills	Programming 1: all about instructions	Programming 2: Introducing the Bee-Bots	Data Handling: introduction to data
	Online safety					
Year 1	Improving mouse skills	Programming 1: algorithms unplugged	Programming 2: Bee-Bot		Data Handling: introduction to data	
	Online safety					
Year 2	Computer systems and networks: what is a computer?		Programming 1: algorithms and debugging		Data Handling: international space station	
	Online safety					
Year 3	Computer systems and networks: networks and the internet	Programming: Scratch	Computer systems and networks: journey inside a computer		Creating media: video trailers	
	Online safety					
Year 4	Computer systems and networks: collaborative learning	Programming: Further coding with scratch	Skills showcase: HTML		Computational thinking	
	Online safety					
Year 5	Data Handling: Mars Rover 1		Computer systems and networks: Search engines		Programming 1: Music	
	Online safety					
Year 6	Computer systems and networks: Bletchley Park	Programming: Introduction to Python	Data Handling: Big Data 1		Creating media: history of computers	
	Online safety					

EYFS

Autumn

Once Upon a Time –
Wonderful Me & Families

Once Upon a Time –
Traditional Tales

Spring

Move it!

Look Up - Aliens

Summer

Mammoth to Mini

Dinosaurs

Minibeasts and planting

By the end of the Autumn term, it is expected that children will be able to:

Continuous Provision:

- Taking a photograph with a camera or tablet.
- Searching for information on the internet.
- Playing games on the interactive whiteboard.
- Exploring an old typewriter or other mechanical toys.
- Watching a video clip.
- Listening to music.

By the end of the Spring term, it is expected that children will be able:

Using a computer

- To learn what a keyboard is and how to locate relevant keys.
- To learn how to log in and log out.
- To understand why we need to log in and out.
- To learn what a mouse is and to develop basic mouse skills such as moving and clicking.

Programming 1: All about instructions

- To follow instructions as part of practical activities and games.
- To follow instructions as part of practical activities and games.
- To learn to give simple instructions.
- To learn that an algorithm is a set of instructions to carry out a task, in a specific order.
- To learn how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary.

By the end of the Summer term, it is expected that children will be able:

Programming 2: Introducing the Bee-Bots

- To understand the meaning of directional arrows.
- To follow a simple sequence of instructions.
- To experiment with programming a Bee-bot/Blue-bot.
- To explore and tinker with hardware to develop familiarity and introduce relevant vocabulary.
- To learn how to give simple commands to a Bee-Bot.
- To learn to debug instructions, with the help of an adult, when things go wrong.

By the end of the Summer term, it is expected that children will be able:

Data Handling: Introduction to data

- To understand how to sort and categorise objects.
- To explain how items have been sorted and categorised.
- To understand how to represent data in a pictogram.
- To understand how to read a simple pictogram.

Year 1		
Autumn - Paddington	Spring – Crowns and Castles	Summer – A Gardeners' World
By the end of the Autumn term, it is expected that children will be able: Improving Mouse Skills - To log into a computer and access a website. - To develop mouse skills. - To use mouse skills to draw and edit shapes. - To draw a scene from a story using digital tools. - To create a self-portrait using digital techniques. Online Safety - To know what the internet is and how to use it safely. Programming 1: Algorithms unplugged - To understand what an algorithm is. - To follow instructions precisely to carry out an action. - To understand that computers and devices around us use inputs and outputs. - To understand and be able to explain what decomposition is. - To know how to debug an algorithm.	By the end of the Spring term, it is expected that children will be able: Programming 2: Bee-Bot - To explore a new device. - To create a demonstration video. - To plan and follow a set of instructions precisely. - To program a device. - To create a program. Online Safety - To understand different feelings when using the internet.	By the end of the Summer term, it is expected that children will be able: Data Handling: Introduction to Data - To represent data in different ways. - To use technology to represent data in different ways. - To collect and record data. - To sort data. - To design an invention to gather data. Online Safety - To understand how to treat others, both online and in-person. Online Safety - To understand the importance of being careful about what we post and share online.
Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. 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.	Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs. 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.	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.

Year 2

Autumn – London’s Burning

By the end of the Autumn term, it is expected that children will be able:

Computing Systems & Networks 1: What is a computer?

- To recognise the parts of a computer.
- To recognise how technology is controlled.
- To recognise technology.
- To create a design for an invention.
- To understand the role of computers.

Online Safety

- I know what happens to information posted online.

Online Safety

- To know how to keep things safe and private online.

Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instruction. Recognise common uses of information technology beyond school. 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.

Spring - Africa

By the end of the Spring term, it is expected that children will be able:

Online Safety

- To explain what should be done before sharing information online.

Programming 1: Algorithms and Debugging

- To decompose a game to predict the algorithms that are used.
- To understand that computers can use algorithms to make predictions (machine learning).
- To plan algorithms that will solve problems.
- To understand what abstraction is.
- To understand what debugging is.

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. 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.

Summer – What a Wonderful World

By the end of the Summer term, it is expected that children will be able:

Online Safety

- To explain why I have the right to say no and deny permission.

Data Handling: International Space Station

- To understand how computers can help humans survive in space.
- To create a digital drawing of essential items for life in space.
- To understand the role of sensors on the ISS.
- To create an algorithm for growing a plant in space.
- To interpret data.

Online Safety

- To understand strategies that will help me decide if something seen online is true or not.

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. Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.

Year 3

Autumn – Home is Where the Heart Is

By the end of the Autumn term, it is expected that children will be able:

Computing Systems & Networks 1: Networks and the internet

- To understand what a network is and understand our school network.
- To understand how information moves around a network and begin to recognise real world networks.
- To understand how the Internet works and explain a website's journey.
- To explore the role of routers.
- To understand the role of packets.

Online Safety

- To understand how the internet can be used to share beliefs, opinions and facts.

Programming: Scratch

- To explore a programming application.
- To use repetition (a loop) in a program.
- To program an animation.
- To program a story.
- To program a game.

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. Design, write and debug

Spring – Mission Impossible

By the end of the Spring term, it is expected that children will be able:

Computing Systems & Networks 3: Journey inside a computer

- To recognise basic inputs and outputs.
- To decompose a laptop.
- To understand the purpose of computer parts.
- To understand the purpose of computer parts.
- To decompose a tablet computer.

Online Safety

- To understand the effects that some internet use can have on our feelings and emotional wellbeing.

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.

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

Summer - Invasion

By the end of the Summer term, it is expected that children will be able:

Creating Media: Video trailers

- To plan a book trailer.
- To take photos or videos to tell a story.
- To edit a video.
- To add text and transitions to a video.
- To evaluate video editing.

Online Safety

- To understand the ways personal information can be shared on the internet.

Online Safety

- To understand the rules for social media platforms.

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. Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities

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.	technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	they offer for communication and collaboration. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
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Year 4		
Autumn – Inside Out	Spring – A Glimpse of Gold	Summer – Water, Water Everywhere
By the end of the Autumn term, it is expected that children will be able: Computing systems and networks: Collaborative learning - To understand that software can be used collaboratively online to work as a team/ - To understand how to contribute to someone else's work effectively. - To understand how to create effective presentations. - To understand how to create and share Google Forms. - To understand how to use a shared spreadsheet to explore data. Online Safety - To describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy. Programming 1: Further coding with Scratch - To recall the key features of Scratch. - To understand how a Scratch game works by using decomposition to identify key features. - To understand what a variable is and how to make one. - To understand how to make a variable in Scratch. - To use knowledge of how variables work to create a quiz	By the end of the Spring term, it is expected that children will be able: Skills showcase: HTML - To understand and identify examples of HTML tags. - To change HTML code for a specific purpose. - To change the HTML and CSS to alter the appearance of an object on the web. - To understand and explore more complex components of a web page. - To alter key elements on a webpage including text and images. Online Safety - To describe some of the methods used to encourage people to buy things online. - To explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true.	By the end of the Summer term, it is expected that children will be able: Online Safety - To explain that technology can be designed to act like or impersonate living things. - To explain how technology can be a distraction and identify when I might need to limit the amount of time spent using technology. Computational Thinking - To understand that computational thinking is made up of four key strands. - To understand what decomposition is and how to apply it to solve problems. - To understand what pattern recognition and abstraction mean. - To understand how to create an algorithm and what it can be used for. - To combine computational thinking skills to solve a problem.

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. 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 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.	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. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 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.
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Year 5

Autumn – Mission to Mars

By the end of the Autumn term, it is expected that children will be able:

Data Handling: Mars Rover 1

- To identify how and why data is collected from space.
- To read and calculate numbers using binary code.
- To identify the computer architecture of the Mars Rovers.
- To use simple operations to calculate bit patterns.
- To represent binary as text.

Online Safety

- To understand how apps can access our personal information and how to alter the permissions.
- To be aware of the positive and negative aspects of online communication

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.

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.

Spring – Groovy Greeks

By the end of the Spring term, it is expected that children will be able:

Computing Systems & Networks: Search engines

- To understand what a search engine is and how to use it.
- To be aware that not everything online is true.
- To search effectively.
- To understand how search engines work.

Online Safety

- To understand how online information can be used to form judgements.

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.

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways

Summer – Sea-Faring Invaders

By the end of the Summer term, it is expected that children will be able:

Programming 1: Music

- To tinker with Scratch music elements.
- To create a program that plays themed music.
- To plan a soundtrack program.
- To program a soundtrack.
- To program music for a specific purpose.

Online Safety

- To discover ways to overcome bullying.
- To understand how technology can affect health and wellbeing.

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

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Year 6

Autumn – Portals, People and Places

By the end of the Autumn term, it is expected that children will be able:

Computing systems and networks: Bletchley Park

- To understand that there are lots of different types of secret codes.
- To understand the importance of having a secure password.
- To understand the importance of Bletchley Park to the World War II war effort.
- To understand about some of the historical figures that contributed to technological advances in computing.
- To research and present information about historical figures in computing.

Online Safety

- To describe issues online that give us negative feelings and know ways to get help.
- To think about the impact and consequences of sharing online.

Programming: Introduction to Python

- To tinker with a new piece of software.
- To understand nested loops.
- To understand basic Python commands.
- To use loops when programming.
- To understand the use of random numbers.

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

Spring – Off with their Heads

By the end of the Spring term, it is expected that children will be able:

Data handling 1: Big Data 1

- To identify how barcodes and QR codes work.
- To explore how infrared waves transmit data.
- To recognise the uses of RFID.
- To input and analyse real-world data.
- To analyse and evaluate data.

Online Safety

- To know how to create a positive online reputation.
- To be able to describe how to capture bullying content as evidence.

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.

Summer – Survival of the Fittest

By the end of the Summer term, it is expected that children will be able:

Creating media: History of computers

- To tinker with sound.
- To record, edit and add sound effects to a radio play.
- To understand how computers have changed and the impact this has had on the modern world.
- To research one of the computers that changed the world and present information about it to the class.
- To design a computer of the future.

Online Safety

- To manage personal passwords effectively.
- To be aware of strategies to help be protected online.

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.

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. 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. 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
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Acronyms		
CS – Computer service	IT – information technology	DL – Digital Literacy