EYFS & Key Stage 1 Computing National Curriculum coverage

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Please complete the pre and end of unit tasks for each unit and complete the assessment tracker at the end of each lesson. This will inform your end of year grades

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Online Safety	***Computing Systems and Networks***	*Data Handling*	*Programming*	*Creating Media*

Skills and Knowledge covered through the units over the year

Reception - all online safety lessons are taken from NOS • To name and recognise on comparison of arised and upset emotions. • Recognise, recognise, recognise on line or offline and Sky UK said no thank you. I'll tell out how. Ask to somebody who makes him feel sad, uncomfortable, embarrassed, or upset • Recognise ways in which the Internet can be used to communicate. • To describe ways people can be unkind online. • To identify devices that you can access the information on the Internet. • To identify ways and rules that help keep us safe and healthy and beyond using the Internet and technology • To understand what personal information is. • To know who can be a trusted adult. • To know that work I created belongs to me.	**Year 1 - Lesson 1-5 Kapow, lesson 6 Project Evolve** • To know that the internet is many devices connected to one another. • To know that you should tell a trusted adult if you feel unsafe or worried online. • To know that people you do not know on the internet (online) are strangers and are not always who they say they are. • To know that to stay safe online it is important to keep personal information safe. • To know that 'sharing online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.	**Year 2 lesson 1-4 Kapow, lessons 5- 6 Project Evolve** • To understand the difference between online and offline. • To understand what information I should not post online. • To know what the techniques are for creating a strong password. • To know that you should ask permission from others before sharing about them online and that they have the right to say 'no.' • To understand that not everything I see or read online is true.
• To be able to understand what a computer keyboard is and recognising some letters and numbers. • To know that a mouse can be used to click, drag and create simple drawings. • To know that to use a computer you need to log in to it and then log out at the end of your session. • To know that different types of technology can be found at home and in school. • To know that you can take simple photographs with a camera or iPad. • To know that you must hold the camera still and ensure the subject is in the shot to take a photo.	• To know that "log in and log out" means to begin and end a connection with a computer. • To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art. • To know that passwords are important for security. • To know that when we create something on a computer it can be more easily saved and shared than a paper version. • To know some of the simple graphic design features of a piece of online software.	• To know the difference between a desktop and laptop computer. • To know that people control technology. • To know that buttons are a form of input that give a computer an instruction about what to do (output). • To know that computers often work together
• To know that sorting objects into various categories can help you locate information. • To know that using yes/no questions to find an answer is a branching database.		• To understand that you can enter simple data into a spreadsheet. • To understand what steps you need to take to create an algorithm. • To know what data to use to answer certain questions. • To know that computers can be used to monitor supplies.
• To know that being able to follow and give simple instructions is important in computing. • To understand that it is important for instructions to be in the right order. • To understand why a set of instructions may have gone wrong.	• To understand that an algorithm is when instructions are put in an exact order. • To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing. • To know that we call errors in an algorithm 'bugs' and fixing these 'debugging • To understand the basic functions of a Bee-Bot. • To know that you can use a camera/tablet to make simple videos. • To know that algorithms move a bee-bot accurately to a chosen destination.	• To understand what machine learning is and how that enables computers to make predictions. • To know that abstraction is the removing of unnecessary detail to help solve a problem. • To know that coding is writing in a special language so that the computer understands what to do.

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		• To understand that the character in Scratch Junior is controlled by the programming blocks. • To know that you can write a programme to create a musical instrument
	• To understand that holding the camera still and considering angles and light are important to take good pictures. • To know that you can edit, crop and filter photographs. • To know how to search safely for images online.	
Self image and identity **Lesson 1: What can we do if someone makes us feel uncomfortable, embarrassed, or upset online or offline?** **Objective :** • I can name and recognise uncomfortable, embarrassed and upset emotions. • I can recognise online or offline, but anyone can say no thank you. Please stop. I'll tell. I'll ask. To somebody who makes them feel sad, uncomfortable, embarrassed, or upset. **Key Vocab:** : Sad, Uncomfortable, Embarrassed., Upset , Online, Offline, Trusted adult.	recap activity https://www.educaplay.com/learning-resources/15623329-staying_safe_online.html **Online Relationships** **Lesson 1: Using the Internet Safely** **Objective:** • To know what the internet is and how to use it safely ***National Curriclum*** • *recognise common uses of information technology beyond school , to use technology safely and respectfully, keeping personal information private;* **Skills :** • **I** understand what the Internet is. • To know how to offer advice to anyone who is being treated unkindly online. • To know who to go to, when help is needed and advice with online matters. **Key Vocab:** respect, communicate, unkind, internet safety ,devices, online, kind, internet, online safety Adaptive teaching **Pupils needing extra support** -Should draw simple images on their Activity: My digital footprint to represent their digital usage. **Pupils working at greater depth** - Could make a list of the things that should not be shared or posted; could write next to each one whether there is anybody they would trust with this information. **Pupils with secure understanding indicated b**y: confidently identifying what they share and post online and recognising how this creates a digital footprint. **Pupils working at greater depth indicated by**: identifying rules to help others avoid sharing or posting inappropriate information; setting some rules for their own internet activities.	recap activity https://www.educaplay.com/learning-resources/15610613-year_2_online_safety_recap_activity.html **Online Reputation** **Lesson 1: What happens when I post online?** **Objective: To know what happens to information posted online.** ***National Curriculum*** • *Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.* Skills: • To explain what online information is • know what is safe to share online. • I know who to talk to if something is shared that makes me feel sad or worried. **Key Vocab:** offline, online, information, private, safe, trusted adult Adaptive teaching **Pupils needing extra support** Should sort the Activity: The Three Little Pigs scenarios. **Pupils working at greater depth** Could create scenarios based on the story of Little Red Riding Hood; could identify what information would be safe for Little Red Riding Hood to post online during her trip to Grandma's house and what information would not be safe to post. **Pupils with secure understanding indicated by:** explaining what is meant by online information; classifying information as 'safe to share' and 'not safe to share'; identifying trusted adults. **Pupils working at greater depth indicated by**: explaining that we can keep ourselves safe online by controlling how much detail we share in our posts (for example, sharing a picture of the skatepark is safe for John, but tagging the location is sharing too much information); sharing ideas about permissions and consent.

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CORE UNIT QUESTION Using a Computer Computing systems and networks **Lesson 1: Keyboards** **Objective:** To learn what a keyboard is and how to locate relevant keys Skills • Spell words by identifying the sounds and then writing the sound with letter/s. • Link the number symbol (numeral) with its cardinal number value. • Playing and exploring • Active learning **Key Vocab :** Monitor, Computer tower, Keyboard, Mouse **Lesson 2: Logging in and out** **Objective:** To learn what a keyboard is and how to locate relevant keys. Skills • To learn how to log in and log out. • To understand why we need to log in and out. • Spell words by identifying the sounds and then writing the sound with letter/s • Re-read what they have written to check that it makes sense. • Active learning **Key Vocab :** login, logout, keyboard **Lesson 3: Mouse Control (track pad)** **Objective:** To learn what a mouse is and to develop basic mouse skills such as moving and clicking. Skills • To use a simple online paint tool to create digital art. • Develop their small motor skills so that they can use a range of tools competently, safely and confidently • Active learning **Key Vocab :** left-click, mouse, track pad **Lesson 4: Mouse Control Clicking** **Objective:** To learn what a mouse is and to develop basic mouse skills such as moving and clicking Skills • To use a simple online paint tool to create digital art • Develop their small motor skills so that they can use a range of tools competently, safely and confidently • Playing and exploring • Active learning **Key Vocab : left- click, track pad,**	Recap activity https://www.educaplay.com/learning-resources/15610644-reception_recap_parts_of_the_computer.html **CORE UNIT QUESTION Improving Mouse Skills Computing systems and networks** **Lesson 1: Logging In** **Objective: To log in to a computer and access a website** ***National Curriculum*** • *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'* Skills • To recognise what we mean by a computer • to understand why we need to log in to a computer • to log in and out of a computer account **Key Vocab:** log in, log off, mouse, click, screen, account, sketchpad, tools, eraser, explore, login, computer, mouse pointer, keyboard, password, software, clipart, brushes, predict, explain **Adaptive teaching** **Pupils needing extra support** - Should stick to brushes before moving on to shapes; should be given time to get comfortable with navigating the mouse pointer and using the mouse to left-click; could be supported using the mouse if they have issues with fine motor control. **Pupils working at greater depth** - Should be encouraged to explore more complex tools such as clipart or some sliding scales under the shapes toolkit **Pupils with secure understanding indicated by:** explaining how to log in to computers; use a mouse and keyboard. **Pupils working at greater depth indicated by:** using a keyboard and mouse confidently; predicting the function of different tools. **Lesson 2: Click and Drag** **Objective: To develop mouse skills** ***National Curriculum*** • *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'* Skills • To navigate a computer using a mouse/ trackpad • To understand what we mean by 'click and drag' • To use the fill and stamp tools in Sketch pad or paint **Key Vocab:** drag, digital photograph, undo, ctrl, log in, log off, mouse, keyboard, password, software, clipart, brushes, predict, explain, click, digital art, duplicate, snap tools, login, computer, mouse pointer, screen, account, Sketchpad, paint, tools, eraser, explore	Recap activity https://www.educaplay.com/learning-resources/15635995-digital_imagery_recap.html **CORE UNIT QUESTION What is a Computer? Computing Systems and Networks** **Lesson 1: Computer Parts** **Objective: To recognise the parts of a computer** ***National Curriculum*** • *Recognise common uses of information technology beyond school* • *Use technology purposefully to create, organise, store, manipulate and retrieve digital content'* Skills: • To name parts of the computer • To explain the purpose of different computer parts • To explain that a keyboard contains lots of buttons **Key Vocab:** computer, desktop, laptop, mouse, monitor buttons, trackpad Adaptive teaching **For pupils needing extra support** - Could repeat new vocabulary back to a peer or adult; could use the sticky notes to support spelling. **Pupils working at greater depth** - Could annotate their drawing, describing what the mouse, keyboard and screen do. **Pupils with secure understanding indicated by:** confidently identifying a desktop computer's peripherals (screen, keyboard and mouse); understanding the function of each part; identifying peripherals on different types of computers. **Pupils working at greater depth indicated by**: identifying how to operate a computer that does not have the same peripherals, e.g. a tablet. **Lesson 2: Inputs** **Objective: To recognise how technology is controlled** ***National Curriculum*** • *Use logical reasoning to predict the behaviour of simple programs* • *Recognise common uses of information technology beyond school* Skills: • I know that people control technology • I know that technology follows instructions • I can predict what technology will do **Key Vocab:** input, output, robot, device, technology Adaptive teaching **For pupils needing extra support -**Could be given limited options for what their robot could do if they struggle with generating ideas; could be provided with a word bank and sentence stems to assist with their robot explanation. **Pupils working at greater depth** -Should explain how we know whether technology is doing what we asked it to do (i.e. the output); should label and explain their robot's output.

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Lesson 5: Mouse Control Clicking and Dragging
Objective: To learn what a mouse is and to develop basic mouse skills such as moving and clicking

Skills

- Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
- Playing and exploring
- Active learning

Adaptive teaching
Pupils needing extra support - Should use only one clipart image.

Pupils working at greater depth - Could explore different fill styles by clicking the fill colour box and selecting linear, radial or pattern; could use a variety of clipart images and sizes to create a repeated pattern; could create an exact copy of a clipart image by clicking the right mouse button and selecting duplicate.

Pupils with secure understanding indicated by: creating a piece of artwork that demonstrates clear control of the mouse; using dragging and clicking to create a repeated pattern; explaining how to log in and log out of the local computer network.

Pupils working at greater depth indicated by: using more advanced tools such as menus to duplicate or snap tools to make artwork more symmetrical.

Lesson 3: Drawing Shapes
Objective: To use mouse skills to draw and edit shapes

National Curriculum
- *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'*

Skills
- To click and drag objects to change their size or position
- To use a mouse to carefully position shapes
- To move shapes in front of or behind each other

Key Vocab: shape tool, background, outline, right click, menu, layers, log in, log off, mouse, track pad, keyboard, password, software, tools, fill tool, fill, drag and drop, left click, bring to the front, username, login, computer, mouse pointer, screen, account, Sketchpad, Paint

Adaptive teaching

Pupils needing extra support - Should draw three concentric circles; could be encouraged to consider carefully the colours used.

Pupils working at greater depth - Should be challenged to draw squares to go behind each group of circles; should be encouraged to make their artwork more in the style of Kandinsky.

Pupils with secure understanding indicated by: recognising that buttons cause effects; recognising that technology follows instructions.

Pupils working at greater depth indicated by: suggesting how we know technology is doing what we want it to, i.e. outputs.

Lesson 3: Real World Role Play
Objective: To understand the role of computers

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

Skills:
- to explain where computers are used
- To suggest what their job is
- To understand that computers work together

Key Vocab: computer, job, technology, scanner, paying till, digital recorders, video, system

Adaptive teaching
Pupils needing extra support - Should start as digital recorders to allow them to observe the role play before switching to one of the other roles.

Pupils working at greater depth - Should be challenged to consider what the computers do before explaining their function in context; could suggest connections between the different computers; could identify the advantages of using this system in shops.

Pupils with secure understanding indicated by: recognising computers in the world around them; explaining the role of each computer.

Pupils working at greater depth indicated by: suggesting how the computers are connected in different contexts.

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	Pupils with secure understanding indicated by: creating artwork that demonstrates clear mouse control by using dragging and clicking to create different effects; explaining how to log in and log out of the local computer network **Pupils working at greater depth indicated by**: using accurately drawn shapes lined up inside each other; effectively using different styles and colours; using layers to add extra detail to their artwork.	
Online Relationships **Lesson 2: How can we communicate using technology?** **Objective:** • **I can recognise some ways in which the Internet can be used to communicate.** • **I can give examples of how I might use technology with people I know.** **Key Vocab : Communicate, technology.**	**Self-identity and image** **Lesson 2: Online emotions** **Objective: To understand different feelings when using the internet** ***Nartional Curriculum:*** • *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.* **Skills:** • • To recognise advice, to stay happy and safe on line. • To provide advice on ways to stay happy and safe on line. **Key vocab : Instructions, Computer, Internet, Connection, Predict, Internet safety, Online safety, Respect, Kind** **Pupils needing extra support** Should use the sentence stems on slide 7 to support their writing. **Pupils working at a greater depth** Could write or draw an alternative ending to scenario three. **Pupils with secure understanding indicated by:** recognising how internet use may affect mood or emotions; identify ways to stay happy and safe online; suggesting sensible actions in different online safety scenarios. **Pupils working at greater depth**: explaining how internet use may affect mood or emotions; can name a trusted adult and clearly describe how they can help with online problems; explain how to stay safe and happy when using the internet.	**Privacy and Security** **Lesson 2: How do I keep my things safe online?** **Objective: To know how to keep things safe and private online** ***National Curriculum*** • *Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact* Skills: • To know what passwords are for • To explain how to create a strong password • To know information is private and explain how to keep this private **Key Vocab:** online, offline, online information, private, safe, trusted adult Adaptive teaching **Pupils needing extra support** Should use slide 3 of the Presentation: How do I keep my information safe online? to support them when creating their own password. **Pupils working at greater depth** Could write instructions for the class on how to create a strong password **Pupils with secure understanding indicated by:** explaining why we need passwords and the need for a strong password; knowing what information is private and how we can begin to make things private online**.** **Pupils working at greater depth indicated by:** understanding why we use passwords to secure our devices; identifying strategies for creating a strong password; explaining the difference between personal and private information; discussing the implications of not keeping private information secure.
CORE UNIT QUESTION Programming 1 All about instructions **Lesson 1: Following Instructions** Objective: To follow instructions as part of practical activities and games Skills • Understand how to listen carefully and why listening is important	Recap activity https://www.educaplay.com/learning-resources/15635970-computer_hardware.html **CORE UNIT QUESTION Programming 1 Algorithms unplugged** **Lesson 1: What is an algorithm?** **Objective: To understand what an algorithm is.**	Recap activity https://www.educaplay.com/learning-resources/15635991-part_of_the_computer.html **CORE UNIT QUESTION Programming 1 Algorithms and debugging** **Lesson 1: Dinosaur Algorithm** **Objective: To decompose a game to predict the algorithms used**

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- ELG: Self-regulation: Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions.
- Active learning

Key Vocab: instructions,

Lesson 2: Giving Instructions
Objective: To follow instructions as part of practical activities and games

Skills
Articulate their ideas and thoughts in well-formed sentences.

- • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen•
- Build constructive and respectful relationships.
- ELG: Self-regulation: Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions
- ELG: Managing self: Be confident to try new activities and show independence, resilience and perseverance in the face of challenge
- ELG: Building relationships: Work and play cooperatively and take turns with others
- Active learning
- Creating and thinking critically

Key Vocab: turn left, turn right, under, straight on , forwards, backwards

Lesson 3: Dressing up Instructions
Objective: To follow instructions as part of practical activities and games

Skills
- To learn to give simple instructions
- Articulate their ideas and thoughts in well-formed sentences.
- Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.
- Build constructive and respectful relationships.
- ELG: Self-regulation: Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions
- ELG: Building relationships: Work and play cooperatively and take turns with others
- Active learning
- Creating and thinking critically

Key Vocab : instructions, algorithm

Lesson 4: Debugging Instructions
Objective: To follow instructions as part of practical activities and games and to learn to debug when things go wrong

Skills
- To follow instructions as part of practical activities and games and to learn to debug when things go wrong
- To learn to give simple instructions

National Curriculum
- *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'*

Skills:
- To explain that an algorithm is a set of instructions
- To know that these instructions sometimes need to be carried out in order
- To know there is more than one way to solve a problem

Key Vocab: algorithm, computer, order, specific, instructions, tasks, instructions, solution

Adaptive teaching
Pupils needing extra support; Could use a pre-cut version of the Activity: Doll and clothes; could work with a supportive peer.

Pupils working at greater depth: Should be given more blank cards from the Activity: Crossing the road cards to add more steps in their algorithm.

Pupils with secure understanding indicated by: writing clear algorithms; considering the different steps required; explaining what an algorithm is.

Pupils working at greater depth indicated by: giving detailed feedback to other groups and suggesting ways of improving their algorithms; explaining why algorithms need to be precise; giving real-life examples of algorithms.

Lesson 2: Algorithm Pictures
Objective: To follow instructions precisely to carry out an action

National Curriculum
- *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'*

Skills :

- To explain why an algorithm must be clear and precise
- To explain the problems a robot can have following our instructions

Key Vocab: algorithm, bug, instructions

Adaptive teaching
Pupils needing extra support - Could have instructions repeated or written down; could work with a partner when drawing the figure.

Pupils working at greater depth - Should sort the creatures into different groups based on similar features.

Pupils with secure understanding indicated by: using clear instructions in their algorithm; following an algorithm carefully.

Pupils working at greater depth indicated by: using clearer, more detailed algorithms; following an algorithm precisely; explaining why it is important that algorithms are clear and precise.

National Curriculum
- *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*

Skills:
- To understand what the terms 'decomposition' and 'algorithm' mean.
- to decompose a game to predict algorithms.
- To plan algorithms for a more complex game.

Key Vocab : algorithm, decomposition

Adaptive teaching

Pupils needing extra support - Should have correct vocabulary modelled throughout the lesson; could work with a partner to decompose the game's code and to write new algorithms.

Pupils working at greater depth -Should plan a game with a range of actions for the dinosaur.

Pupils with secure understanding indicated by: writing a creative algorithm for the dinosaur game; explaining what decomposition means.

Pupils working at greater depth indicated by: giving accurate predictions of the algorithms behind the game; giving a detailed explanation of decomposition.

Lesson 2: Machine Learning
Objective: To understand that computers Can use algorithms to make predictions

National Curriculum
- *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'*

Skills:

- To explain what an algorithm is.
- to explain that computers use algorithms to make predictions.
- To write a clear and precise algorithm

Key Vocab : algorithm, data, artificial intelligence

Adaptive teaching
Pupils needing extra support -Should rebuild their model as they write the algorithm to ensure steps are not misse**d.**

Pupils working at greater depth -Should write more detailed algorithms; should explain the importance of clear and precise algorithms.

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- To learn that an algorithm is a set of instructions to carry out a task, in a specific order
- Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.
- ELG: Self-regulation: Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions.
- Know and talk about the different factors that support their overall health and wellbeing
- Further develop the skills they need to manage the school day successfully
- Active learning
- Creating and thinking critically

Key Vocab : algorithm, problem, bug, debug,

Lesson 5: Predictions

Objective: To learn how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary

Skills

- Describe events in some detail.
- Active learning
- Creating and thinking critically

Key Vocab : sequence, order, first, second, third, last

Lesson 3: Step by Step
Objective: To understand and be able to explain what decomposition is.

National Curriculum
- *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'*

Skills:
- To explain what decomposition is
- To understand how decomposition allows you solve a problem more easily
- To explain how we use decomposition in our everyday lives

Key Vocab: decompose, manageable, problem, decomposition, organising, chunks

Adaptive teaching
Pupils needing extra support Should make a simpler shape design with fewer shapes or stages.

Pupils working at greater depth Should make a more complex shape design with more shapes and stages.

Pupils with secure understanding indicated by: showing clear decomposition of their designs into the necessary steps to recreate them.

Pupils working at greater depth indicated by: matching up the designs with the decompositions and a clear decomposition of their design.

Lesson 4: Debugging Directions
Objective: To know how to debug an algorithm.

National Curriculum
- *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'*

Skills
- To spot bugs in algorithms
- To fix the error (debug it) and explain the problem it caused

Key Vocab: algorithm, bug, code, directions, debug, correct

Adaptive teaching

Pupils needing extra support - Should be encouraged to step and turn according to the instructions on the map; could use a toy or figure to guide around the map.

Pupils with secure understanding indicated by: writing clear and precise algorithms that can be understood by another person.

Pupils working at greater depth indicated by: explaining why algorithms need to be clear and precise; explaining the best way to do this by referencing parts of their own algorithms

Lesson 3: Making Maps
Objective: To understand what abstraction is.

National Curriculum
- *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*

Skills :
- To explain what abstraction is
- To give an example of when abstraction might be useful

Key Vocab: abstraction, unnecessary, zoomed in, key features

Adaptive teaching
Pupils needing extra support: - Could work as part of a guided group; could discuss the key features to include before they start.

Pupils working at greater depth: -Should discuss whether the level of abstraction used is too much, too little or just right.

Pupils with secure understanding indicated by: explaining what abstraction is; creating a plan which can be identified as a particular location through clear landmarks or a key.

Pupils working at greater depth indicated by: discussing the level of abstraction (e.g. too much/too little detail); justifying the level of detail in their plans.

Lesson 4: Unplugged Debugging
Objective: To understand what debugging is

National Curriculum

- *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*

Skills:
- understand the meaning of the word 'debugging'
- I can listen to my peer's verbal instructions

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	Pupils working at greater depth - Could create algorithms (and the correct answers) to match their own maps. **Pupils with secure understanding indicated by**: identifying bugs and fixing algorithms. **Pupils working at greater depth indicated by**: identifying more than one way of solving some problems; giving a clear definition of what debugging is	• I can perform a task by following step-by-step instructions **Key Vocab:** debugging, bus, error, correcting Adaptive teaching **Pupils needing extra support:** - Should keep their figure simple; could have fewer building blocks. **Pupils working at greater depth:** - Could be given more building blocks to create a more complex figure; could advise struggling pairs once they have completed their own algorithm. **Pupils with secure understanding indicated by:** understanding what debugging is; identifying incorrect steps within an algorithm. **Pupils working at greater depth indicated by**: understanding that the instructions are an important part of debugging; explaining how the 'computers' needed the 'programmers' to be correct in their algorithmic construction for the processes to work correctly.
Online Reputation **Lesson 2: Technology, can we connect to the internet with it or not?** **Objective: I can identify ways that I can put information on the internet** **Key Vocab :Technology, internet, connect**	**Self-image and identity, Online Relationships, Online Bullying** **Lesson 3: Always be Kind and Considerate** **Objective: To understand how to treat others, both online and in-person** ***National Curriculum*** • *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.* **Skills :** • To recall the top tips using the Internet safely. • To recognise how actions on the Internet can affect others. • **To understand the ways to use the top tips to be in control of my actions went on the Internet.** **Key Vocab : Instructions, Computer, Internet, Connection, Predict, Internet safety, Online safety, Respect, Kind** Adaptive teaching **Pupils needing extra suppor**t	**Online Relationships** **Lesson 3: It's my choice** **Objective: To explain why I have the right to say no and deny permission** ***National Curriculum*** • *Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact* Skills • explain why I have the right to say no • I know who to ask for help if I am unsure or feel pressure to do something • I can explain why I need to ask a trusted adult before clicking 'accept' **Key Vocab:** permission, denying permission, trusted adult, accepting, private information, content Adaptive teaching **Pupils needing extra support** Should use the Activity: Permission comic strip: support version. **Pupils working at greater depth** Should include a reason for denying permission on the Activity: Permission comic strip and explain this to the class.

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	Should use Resource: Emotion flashcards to identify their feelings towards the role play scenarios. **Pupils working at greater depth** Should use the Activity: Speech bubbles during the online scenarios role play activity to represent an online message; could write a few sentences explaining how they will show kindness to others in the classroom. **Pupils with a secure understanding indicated by**: recognising how others can be hurt by unkind words and actions online; identifying the similarities between online and in-person interactions. **Pupils working at greater depth indicated by**: identifying ways in which kindness can be shown in both the online and real-world; explaining how kindness can be shown in their everyday lives.	**Pupils with secure understanding indicated by:** understanding that they have a right to say no and deny permission; identifying where they can go for help. **Pupils working at greater depth indicated by**: providing examples of when they may want to deny their permission; understanding the importance of asking a trusted adult before clicking 'accept'.
Online Bullying **Lesson 3: How can people be unkind online and how does it make you feel?** • **Objective: I can describe ways that some people can be unkind online.** • **I can offer examples of how this can make others feel.** **Key Vocab : unkind, worry, sad, nervous, embarrassed, upset**	**Lesson 4: Posting and sharing online** **Objective: To understand the importance of being careful about what we post and share online** ***National Curriculum*** • *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.* **Skills:** • To understand the meaning of sharing and posting information online. • To understand what digital footprint means. • To recognise the information types of my own digital footprint. **Key Vocab :** Instructions, Computer, Internet Connection, Predict, Internet safety Online safety, Respect, Digital footprint Adaptive teaching **Pupils needing extra support** Should draw simple images on their Activity: My digital footprint to represent their digital usage. **Pupils working at greater depth** Could make a list of the things that should not be shared or posted; could write next to each one whether there is anybody they would trust with this information.	**Online Relationships** **Lesson 4: Is it true?** **Objective: To learn strategies that will help me decide if something I see online is true or not** ***National Curriculum*** • *Use technology safely, respectfully and responsibly; recognise Acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact* Skills: • To explain the difference between things that are 'imaginary', 'made up' or 'make believe' and those that are true or real • I can explain why some information I find online may not be true • I can explain why people may post things online that are not true **Key Vocab:** reliable, edit, images, pop ups Adaptive Teaching **Pupils needing extra support:** Should use the Activity: True or false: support version which includes sentence openers. **Pupils working at greater depth**: Could write a list of tips or strategies used for checking the reliability of information to display in the classroom. **Pupils with secure understanding indicated by:** understanding that not everything they see online is true; explaining some strategies to help them work out if information is reliable or not.

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	Pupils with secure understanding indicated by: confidently identifying what they share and post online and recognising how this creates a digital footprint. **Pupils working at greater depth indicated by**: identifying rules to help others avoid sharing or posting inappropriate information; setting some rules for their own internet activities.	**Pupils working at greater depth indicated by:** explaining strategies for checking the reliability of information they find online; explaining reasons why people might post false information online.
CORE UNIT QUESTION Computing Systems and Hardware- Exploring Hardware **Lesson 1: Exploring hardware tinker tray** **Objective: To learn how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary** **Skills** **Learn new vocabulary** **Use new vocabulary through the day** **Ask questions to find out more and to check they understand what has been said to them** **Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen** **Develop their small motor skills so that they can use a range of tools competently, safely and confidently** **Confidently and safely use a range of small apparatus, alone and in a group** **Key Vocab: mouse, buttons, keyboard, keys, motherboard, USB stick, system fan, hard drive, monitor, computer tower, speaker, click, push, pull, twist, under, on top of, behind, open, shut, larger, smaller** **Lesson 2: Real World Tinker Tray** **Objective: To explore and tinker with hardware to develop familiarity and introduce relevant vocabulary** **To recognise that a range of technology is used on places such as homes and schools** **Skills** **Learn new vocabulary** **Use new vocabulary through the day** **Ask questions to find out more and to check they understand what has been said to them** **Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen** **Develop their small motor skills so that they can use a range of tools competently, safely and confidently**	Recap activity- https://www.educaplay.com/learning-resources/15624033-online_safety.html **CORE UNIT QUESTION Creating Media Digital Imagery** **Lesson 1: Planning a Photo Story** **Objective: To understand and create a sequence of pictures.** ***National Curriculum*** • *Use logical reasoning to predict the behaviour of simple programs.* • *Use technology purposefully to create, organise, store, manipulate and retrieve digital content.* Skills • To explain what is happening in a photo story • To recognise the importance of sequencing • To plan their own photo story • To know that sequencing is important in Computing **Key Vocab:** image, picture, photograph Adaptive teaching **Pupils needing extra suppor**t - Should plan their pictures around a simple narrative (e.g. an animal chasing the main character); could use word banks to support their writing about what is happening in each picture. **Pupils working at greater depth** - Should use Activity: Five box planning sheet to plan a more complex story; could discuss where they would place the characters in the photo for dramatic effect (e.g. a dinosaur just in the background at first). **Pupils with secure understanding indicated by**: explaining what is happening in a photo story; planning three distinct parts of a photo story; recognising the importance of sequencing. **Pupils working at greater depth indicated by**: explaining how their photos will show their story; discussing where characters will be placed; explaining and discussing the importance of sequencing	Recap activity- https://www.educaplay.com/learning-resources/15636002-representing_data.html **CORE UNIT QUESTION Data Handling - International Space Station** **Lesson 1: Homes in Space** **Objective: To understand how computers can help humans to survive in space** ***National Curriculum*** • *Use technology purposefully to create, organise, store, manipulate and retrieve digital content.* Skills: • To consider human survival needs. • To retrieve digital content from an interactive map. • to consider how a computer is used to monitor data relating to human survival needs. **Key Vocab:** digital content, interactive map, Internation Space Station, satellite, space, survival **Adaptive teaching** **Pupils needing extra support** -Could record their research by drawing pictures using the Activity: International Space Station map; could benefit from using a touchscreen device instead of a mouse to navigate the interactive map. **Pupils working at greater depth** -Should label two sensors on their Activity: International Space Station map and write sentences to explain what they measure; for example, this sensor detects gases in the air that could be dangerous; this sensor measures the astronauts' health. **Pupils with secure understanding indicated by:** navigating the digital map; describing and explaining at least one way in which the astronauts' survival needs are met aboard the ISS.

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Confidently and safely use a range of small apparatus, alone and in a group

Key Vocab : computer, dial, memory, technology, power, electricity, batteries, click, push, pull, twist, on, off

Lesson 3: Pictures of play
Objective: To learn how to operate a camera and or ipad and use it to take photographs

Skills
Develop their small motor skills so that they can use a range of tools competently, safely and confidently

KeyVocab: IPad, Tablet, Lens, Point, Shoot, Capture, Picture, Image, Gallery,Record,Photograph,Photographer,Still,Blurred,Blurry,Crisp,Clear

Lesson 4: Picture walk
Objective: To learn how to operate a camera and or ipad and use it to take photographs

Skills
Articulate their ideas and thoughts in well-formed sentences
Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen
Describe what they see, hear and feel whilst outside (or inside)

Key Vocab: Camera, IPad, Tablet, Lens, Point, Shoot, Capture, Picture, Image, Gallery,Record,Photograph,Photographer,Still,Blurred,Blurry,Crisp,Clear

Lesson 2: Taking Photos
Objective: To Take Clear Photos

National Curriculum
- *Use technology purposefully to create, organise, store, manipulate and retrieve digital content.*
- *Recognise common uses of Information technology beyond school.*

Skills
- To get down to level of the character
- To look at the screen and check what is in the frame
- To press the button carefully to ensure nothing changes
- To ensure the surroundings are bright enough
- To identify that moving can create a blurred image

Key Vocab: camera, delete, photograph, image
Adaptive teaching
Pupils needing extra support - Should be responsible for ensuring the shot is clear; could practice taking photos in the classroom beforehand.

Pupils working at greater depth - Should be responsible for checking their group's photos against the Resource: Success criteria checklist; could explain how to improve photos as they are taking them

Pupils with secure understanding indicated by: identifying clear photos from less clear photos; taking their own photos.

Pupils working at greater depth indicated by: explaining what they have done to make their photos clearer; describing what creates a blurred photo; understanding that zooming in creates a lower quality image and it is better to get physically closer when possible.

Lesson 3: Editing photos
Objective: To edit photos

National Curriculum
- *Use technology purposefully to create, organise, store, manipulate and retrieve digital content.*
- *Recognise common uses of Information technology beyond school.*

Skills:
- To explain that photos can be changed after they have been taken
- To identify ways to improve a photo
- To crop, resize and add a colour filter to a photo

Key Vocab: camera, crop, edit, editing software, image

Adaptive teaching
Pupils needing extra support - Should focus on changing the colour of the photo only by using basic features; could refer the Presentation: What has changed? if needed.

Pupils working at greater depth - Should discuss why they would make changes to a photo and the impact this has (e.g. how it affects the mood of the photo or considering which parts of the image are most important when cropping); could apply a wider range of effects to their photo, experimenting with new editing tools.

Pupils working at greater depth indicated by: identifying sensors on the digital map and describing what they measure.

Lesson 2: Warmer, Colder
Objective: To understand the role of sensors on The ISS

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

Skills:
- to read temperatures using a thermometer.
- To understand that sensors monitor the ISS to make sure the astronauts are safe and healthy.
- To design a display to show the data that the sensors collect.

Key Vocab: air conditioning, ammonia, astronaut, crew, data, insulation, monitor, sensor, temperature, thermometer, urine, waste water

Adaptive teaching
Pupils needing extra support - Could input the temperature data only; could input data for only three locations.

Pupils working at greater depth -Should add borders to their spreadsheet tables and experiment with text size and colour; should explain the importance of data collected by sensors for the astronauts' health and safety.

Pupils with secure understanding indicated by: reading the correct temperature on a thermometer; inputting text and numbers into a spreadsheet; recalling the conditions that computers can monitor with sensors.

Pupils working at greater depth indicated by: using formatting tools to change text or add borders; explaining why computers need to monitor conditions.

Lesson 3: Goldilocks Planets
Objective: Interpreting data

National Curriculum

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

Skills:

- I know that water is very important to life on Earth.

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	Pupils with secure understanding indicated by: acknowledging that images can be changed after being taken; suggesting changes that can be made to photos. **Pupils working at greater depth indicated by**: suggesting reasons for changing photos; experimenting with a range of image editing tools.	• I can interpret data. • I can identify temperatures within a range to decide if they are a Goldilocks planet. **Key Vocab :** data, Goldilocks Zone, interpret, temperature Adaptive teaching **Pupils needing extra support** -Could use the Activity: Unknown planets cards to retrieve data as opposed to the Resource: Planet data spreadsheet; could retrieve data from the Resource: Planet data spreadsheet by verbally answering questions. **Pupils working at greater depth** - Could refer to their completed Activity: Retrieving data and ask a partner to retrieve specific information, e.g. 'What is the name of Proxima's star?' by referring to the Resource: Planet data spreadsheet; should explain how the layout of a spreadsheet can help in retrieving specific data. **Pupils with secure understanding indicated by:** using columns and rows in a spreadsheet to retrieve data about planets. **Pupils working at greater depth indicated by:** asking relevant questions about data in a spreadsheet; explaining how the layout of rows and columns helps retrieve specific data.
Online Reputation **Lesson 4: Technology, can we connect to the internet with it or not?** **Objective: I can identify ways that I can put information on the internet** **Key Vocab :Technology, internet, connect**	**Health, Wellbeing and Lifestyle** **Lesson 5:How much time should we spend on technology?** **Objective: To discuss ways to balance time spent online and offline.** ***National Curriculum*** • *To discuss ways to balance time spent online and offline.* • *To 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.* • *recognise common uses of information technology beyond school* Skills:	**Health, Wellbeing and Lifestyle** **Lesson 5: Changing the Rules** **Objective: To understand how those rules / guides can help anyone accessing online technologies** ***National Curriculum*** • *Use technology safely, respectfully and responsibly; recognise*

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	• give simple examples of how to find information (e.g. search engine, voice activated searching). • I can use the internet to find things out. **Key Vocab:** internet, online activity, online experience, offline activity, screen time, technology Adaptive teaching **Pupils needing extra support** Should use Resource: Emotions flashcards from Lesson 3: Always be kind and considerate to identify how they feel after each activity. **Pupils working at a greater depth** Could write down an explanation about how they can ensure a balance between their online and offline activities. **Pupils with secure understanding indicated by:** recognising how to have a healthy online experience by having a balance of online and offline activities; identifying how to balance their own use of screen time at home. **Pupils working at greater depth indicated by:** explaining the pros and cons of online activities (such as the affect they can have on their eyes and feelings); describing signs that someone might be spending too much time looking at screens; recommending ways other people can balance their screen time.	*Acceptable/unacceptable behaviour; identify a range of ways to* *report concerns about content and contact* Skills: • To demonstrate simple awareness of physical health risks around over engagement. Eg eyes get tired; sitting in one place for a long time; missing meals/drinks etc • Explain simple well-being awareness; eg not physically socialising; not listening to parents/carers; being bored etc • Begin to recognise that rules and guidance can vary by context. **Key Vocab:** rules, guidelines, adapt, wellbeing
Online Bullying **Lesson 5: How can people be unkind online and how does it make you feel?** **Objective: I can describe ways that some people can be unkind online.** **I can offer examples of how this can make others feel.** **Key Vocab :** unkind, worry, sad, nervous, embarrassed, upset	**Privacy and Security** **Lesson 6: Why do I need a password?** **Objective:** • **I can explain how passwords are used to protect information, accounts and devices.** ***National Curriculum***	**Managing Online Information** **Lesson 6: Keyword Captain** **Objective:** • **To use simple keywords in search engines** ***National Curriculum*** • *use technology purposefully to create, organise, store, manipulate and retrieve digital content*

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	• *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.* Skills: • Understand how passwords and PINs keep devices and information secure. • Recognise some examples of strong and poor password practice. **Key Vocab:** password, information, safe, security	Skills: • To use keywords in a search engine • To describe and demonstrate how to get help from a trusted adult or helpline if I find content that makes me feel sad, uncomfortable, worried, or frightened • To demonstrate how to navigate a simple webpage to get to information I need (e.g. Home, forward, back buttons, links, tabs and sections) **Key Vocab:** search engine, keyword, trusted adult.
Core Unit Question Introduction to DataData Handling **Lesson 1 Loose Parts Play** **Objective: To understand how to sort and categorise objects.** Skills To explain how items have been sorted and categorised Articulate their ideas and thoughts in well-formed sentences Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen Count objects, actions and sounds Subitise Count beyond ten Compare numbers Understand the 'one more than/one less than' relationship between consecutive numbers Continue, copy and create repeating patterns Compare length, weight and capacity Playing and exploring Active learning Creating and thinking critically **Key Vocab:** sort, categorised, problem **Lesson 2: Sorting Ourselves** **Objective: To understand how to sort and categorise objects.** **Skills** To explain how items have been sorted and categorised Articulate their ideas and thoughts in well-formed sentences Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen	Recap activity https://www.educaplay.com/learning-resources/15635956-algorithms_key_word_recap.html **CORE UNIT QUESTION Programming 2 – Programming Bee-Bot** **Lesson 1: Getting to know a virtual device** **Objective: To explore a new device** ***National Curriculum*** • ***Use logical reasoning to predict the behaviour of simple programs.*** • ***Create and debug simple programs.*** **Skills:** • **to 'tinker' with the buttons of a Bee-Bot to see what they do** • **to complete a cycle of predict, test and review** **Key Vocab: algorithm, Bee-Bot, code, emulator, instructions, tinker** Adaptive teaching **Pupils needing extra support** - Should explore the functions of a Bee-Bot at whatever level they can access; could have an adult vocalise the actions the child is doing/did to reinforce concepts of cause and effect (e.g. you pressed forward two times and it moved to here). **Pupils working at greater depth** - Should be encouraged to plan before testing with the Bee-Bot to increase the challenge (e.g. think about how many times it will have to move forward before it has to turn). **Pupils with secure understanding indicated by**: explaining what happened when certain buttons were pressed; explaining why the buttons pressed were the right ones; recognising cause and effect. **Pupils working at greater depth indicated by**: recognising and explaining the cause and effect of the buttons pressed; demonstrating links to other technology in the real world (e.g. a cross usually means delete or arrows represent moving forwards); explaining how they used their first try to help them on their second try.	Recap activity - https://www.educaplay.com/learning-resources/15635956-algorithms_key_word_recap.html **CORE UNIT QUESTION : MakeCode** **Lesson 1: Tinkering with code** **Objective: To explore programming in games** ***National Curriculum*** *Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.* *Use logical reasoning to predict the behaviour of simple programs.* *Recognise common uses of information technology beyond school.* Skills: • I can break a task down into smaller steps to solve a problem. • I can ignore details and focus on the important parts of a game. • I can give examples of instructions used in a game.

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ELG: Listening, attention and understanding: Make comments about what they have heard and ask questions to clarify their understanding

ELG: Speaking: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.
Count objects, actions and sounds
Subitise
Count beyond ten
Compare numbers
Understand the 'one more than/one less than' relationship between consecutive numbers
Continue, copy and create repeating patterns
Compare length, weight and capacity
Playing and exploring
Active learning
Creating and thinking critically

Key Vocab: question, sort, problem

Lesson 3: Yes or No
Objective: To understand how to sort and categorise objects.

Skills
To explain how items have been sorted and categorised.
Articulate their ideas and thoughts in well-formed sentences
Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen
ELG: Listening, attention and understanding: Make comments about what they have heard and ask questions to clarify their understanding

- Listening, attention and understanding: Make comments about what they have heard and ask questions to clarify their understanding.
- ELG: Listening, attention and understanding: Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions

ELG: Speaking: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.
Count objects, actions and sounds
Subitise
Count beyond ten
Compare numbers
the 'one more than/one less than' relationship between consecutive numbers
Continue, copy and create repeating patterns
Compare length, weight and capacity
Playing and exploring
Active learning
Creating and thinking critically

Key Vocab: sort, categorise, question

Lesson 5: Creating a Branch Database
Objective: To understand how to sort and categorise objects

Lesson 2: Precise instructions
Objective: To plan and follow a precise set of instructions.

National Curriculum
- *Understand what algorithms are, how they are implemented as programs on digital devices and that programs execute by following precise and unambiguous instructions.*

Skills:
- To follow verbal instructions
- To give precise instructions
- To check that the instructions being given are correct

Key Vocab: algorithm, Bee-Bot, explain, explore, instructions, precise, video

Adaptive teaching
Pupils needing extra support - Could continue to execute the programs with a single directional command at a time.

Pupils working at greater depth - Should start with the Bee-Bot facing away from the goal.

Pupils with secure understanding indicated by: recognising which buttons are necessary in the sequence of instructions; predicting correct instructions to reach a pre-planned destination.

Pupils working at greater depth indicated by: predicting and planning an increasing number of steps; correcting instructions that do not work the first time.

Lesson 3: Bee-Bot world virtual
Objective: to program a device

National Curriculum
- *Create and debug simple programs*

Skills:
- To personalise a Bee-Bot world
- To consider how the Bee-Bot model can move from one place to another
- To plana Bee-Bot route
- To program a Bee-Bot model to follow a planned route

Key Vocab: Bee-Bot, code, program

Adaptive teaching

Pupils needing extra support
Could navigate the mat one step at a time even if the end goal is three steps away (e.g. select clear > move > go each time); could use Resource: Example Bee-Bot world mat instead of creating their own.
Pupils working at greater depth
Should plan their route getting from A to C while missing out B (see Wrapping up)

Pupils with secure understanding indicated by: identifying a destination and getting the Bee-Bot there (in as many steps as necessary).

Pupils working at greater depth indicated by: discussing the most efficient route with as few steps as possible; avoiding obstacles**.**

Key Vocab: algorithm, block coding, sequence,

Adaptive teaching

Pupils needing extra support- Should verbalise the instructions they are giving to the computer (e.g. if they are using a forward arrow, they should say 'go forward 1 square'); could use a whiteboard to record and remember each step as they gradually build their algorithm and test it frequently.

Pupils working at greater depth - Should explain how each step contributes to solving a problem; could record each step they make using arrows on a whiteboard.

Pupils with secure understanding indicated by: recognising the smaller steps needed to solve a problem within a game; observing their ability to focus on the important parts of a game without being distracted by the irrelevant details; describing simple tasks in games where programming is used.

Pupils working at greater depth indicated by: explaining how each step contributes to solving a problem; evaluating their ability to maintain focus on the important parts of a game; identifying and discussing examples of programming in different games.

Lesson 2: Tinkering with MakeCode
Objective: To create an animation

National Curriculum

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

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Skills To explain how items have been sorted and categorised To explore and understand the concept of branch databases • To explore and understand the concept of branch databases • ELG: Listening, attention and understanding: Make comments about what they have heard and ask questions to clarify their understanding. • ELG: Listening, attention and understanding: Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions. • Count objects, actions and sounds • Compare numbers • Active learning • Creating and thinking critically **Key Vocab:** branch database, data, pictogram	**Lesson 4: Bee-Bot adventure** **Objective: To create a program that tells a story** ***National Curriculum*** • *Create and debug simple programs* **Skills** • To give Bee-Bot clear instructions • To debug instructions if they go wrong by identifying and correcting the mistake **Key Vocab**: algorithm, Bee-Bot, code, debug, program Adaptive teaching **Pupils needing extra support** - Should plan their pictures around a simple narrative (e.g. an animal chasing the main character); could use word banks to support their writing about what is happening in each picture. **Pupils working at greater depth** - Should use Activity: Five box planning sheet to plan a more complex story; could discuss where they would place the characters in the photo for dramatic effect (e.g. a dinosaur just in the background at first). **Pupils with secure understanding indicated by:** explaining what is happening in a photo story; planning three distinct parts of a photo story; recognising the importance of sequencing. **Pupils working at greater depth indicated by**: explaining how their photos will show their story; discussing where characters will be placed; explaining and discussing the importance of sequencing	Use logical reasoning to predict the behaviour of simple programs. Recognise common uses of information technology beyond school. • Skills: • I can identify different blocks in MakeCode. • I can describe what coding blocks do. • I can create a sequence of instructions. **Key Vocab:** algorithm, block coding, coding, sequence Adaptive teaching **Pupils needing extra support-** Could use the *Activity: Block hunt: support version* to identify a smaller range of blocks and explain what they do verbally; could watch the video How to code with Microsoft MakeCode to introduce them to MakeCode. **Pupils working at greater depth** - Should write what each block does using the *Activity: Block hunt*, giving specific examples (e.g the micro:bit flashed using the 'show leds' block). **Pupils with secure understanding indicated by**: identifying the different blocks and recognising some of their functions; explaining their basic use; creating a simple sequence of instructions using at least three different blocks; recognising that the blocks fit together to form a sequence. **Pupils working at greater depth indicated by:** identifying and categorising different blocks and explaining their functions within a program; creating a complex sequence of instructions using multiple blocks; explaining in detail how the blocks form a sequence and recognising how changes to the sequence affect the outcome.

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		Lesson 3: What does the code mean? **Objective: To interpret a MakeCode algorithm using paper chains.** ***National Curriculum*** Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Use logical reasoning to predict the behaviour of simple programs. Skills: • I can identify a variety of blocks in MakeCode. • I can make paper chains that represent an algorithm. • I can explain what the links in my paper chain represent. **Key Vocab:** algorithm, block coding, coding, sequence Adaptive teaching **Pupils needing extra support -** Should aim to complete two paper chains; could have a device to create the code themselves as they are making the paper chain to support them in seeing the direct connection between their instructions and the resulting program **Pupils working at greater depth** - Should write the instruction from the blocks on blank strips of paper; should complete the 'on button b pressed' program as it is more complex and includes more instructions. **Pupils with secure understanding indicated by:** identifying a variety of blocks in MakeCode correctly; demonstrating an understanding of their basic functions; understanding the sequence of steps involved in representing an algorithm; explaining what the links in the paper chain represent; understanding how each step fits into the overall process.

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		Pupils working at greater depth indicated by: identifying and categorising a variety of blocks in MakeCode; explaining their specific purposes and how they interact within a program, representing a complex algorithm; demonstrating the ability to plan and organise a sequence; explaining the significance of each link in the paper chain, discussing how altering one step can impact the entire algorithm. **Lesson 4: Building a program** **Objective: To plan and build a program in MakeCode.** ***National Curriculum*** *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.* Skills: • I can break the sequence of my program into smaller steps. • I can drag and arrange blocks in MakeCode to create a simple program. • I can test my program and identify and fix errors. **Key Vocab :** algorithm, block coding, coding, program, sequence Adaptive teaching

EYFS & Key Stage 1 Computing National Curriculum coverage

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		Pupils needing extra support - Should plan a sequence with three blocks using the *Activity: Paper chain plan* (support); could be given a suggested outcome to program (e.g. the micro:bit displaying their name). **Pupils working at greater depth** - Should include a different type of block in their plan (e.g music); could write a step-by-step guide for how to code their algorithm using MakeCode (similar to the tutorial); could colour code the strips with a small circle to match the colour of the block (e.g. blue for a 'forever' block) **Pupils with secure understanding indicated by**: breaking down the sequence of their program into smaller, manageable steps; recognising the different types of code blocks needed to create a program; arranging code blocks in the correct order to create a working program; testing their program using the micro:bit emulator; identifying any errors and debugging their code effectively. **Pupils working at greater depth indicated by**: planning and sequencing their program; demonstrating an advanced understanding of breaking it down into smaller, logical steps to achieve the desired outcome; identifying the purpose of each code block and explaining how it contributes to the overall program; creating a more complex program by adding additional features; systematically debugging their programs and identifying errors with minimal guidance.