COMPUTING

INTENT

At The Grove, we intend that children should master Computing to such an extent that they can go on to have careers within Computing and make use of Computing effectively in their everyday lives, without being completely reliant on technology. Our children will be taught to use technology responsibly and carefully, being mindful of how their behaviour, words and actions can affect others. Our children will be taught Computing in a way that ensures progression of skills, and follows a sequence to build on previous learning. Our children will gain experience and skills of a wide range of technology in a way that will enhance their learning opportunities, enabling them to use technology across a range of subjects to be creative and solve problems, ensuring they make progress.

Our computing learning is embedded in all our subjects; it enhances learning, supports learning and makes children into confident, safe and respectful users.

IMPLEMENTATION

We follow a broad and balanced Computing curriculum that builds on previous learning and provides both support and challenge for learners. We follow a Computing scheme called TEACH COMPUTING that ensures the progression of skills and covers all aspects of the Computing curriculum. Children will experience a mixture of approaches (a scheduled Computing lesson each week or be taught Computing alongside other curriculum subjects), depending on the unit being covered. Children's work will be stored on Seesaw for reference and assessment. We want to ensure that Computing is embedded in our whole school curriculum and that opportunities for enhancing learning by using technology are always taken.

IMPACT

Our children enjoy and value Computing and know why they are doing things, not just how. Children will understand and appreciate the value of Computing in the context of their personal wellbeing and the technological, creative and cultural industries and their many career opportunities. Progress in Computing is demonstrated through regularly reviewing children's work to ensure that progression of skills is taking place. Namely through:

Looking at pupils' work, especially over time as they gain skills and knowledge

Observing how they perform in lessons

Talking to them about what they know.

The Computing curriculum will contribute to children's personal development in creativity, independence, judgement and self-reflection. This would be seen in them being able to talk confidently about their work, and sharing their work with others. Progress will be shown through outcomes and through the important record of the process leading to them.

Children at The Grove learn how to use technology safely, discerningly, responsibly, confidently and effectively, preparing them well for the world in which they live.

Early Years	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment
Early Years –	Computing has officially been removed from the Early Years. However, children are given opportunities to explore a range of hardware and software eg digital microscopes, digital laptops, iPads, Beebots etc				
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next steps	Assessment
Year 1-2 Cycle 1A e- safety Information around Us A	Computing has officially been removed from the Early Years. However, children are given opportunities to explore a range of hardware and software eg digital microscopes, digital laptops, iPads, Beebots etc	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	I know and can recognise the uses and features of information technology. I know and can identify the uses of information technology in the school. I know and can explain how information technology helps us.	I know how a digital device works and can follow a process. I know what parts make up a digital device and can design one. I know how digital devices help us and can describe how. I know and can describe how I am connected. I know and describe how computers are connected. I know what our school network looks like and can describe the benefits.	
Moving a Robot A	Computing has officially been removed from the Early Years. However, children are given opportunities to explore a range of hardware and software eg digital microscopes, digital laptops, iPads, Beebots etc	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 Recognise common uses of information technology beyond school	I know and can explain what a given command will do. I know and can describe a series of instructions as a sequence. I know and can combine 'forwards' and 'backwards' commands to make a sequence. I know and can combine four direction commands to make sequences. I know and can plan a simple program. I know and can find more than one solution to a problem. I know and can design an algorithm. I know and can create and debug a program that I have written.	I know how a sprite moves in an existing project and can make suggestions for improvements. I know how to and can create a program to move a sprite in four directions. I know how to and can adapt a program to a new context. I know how to and can develop my own program by adding features. I know how to and can identify and fix bugs in a program. I know how to and can design, make and evaluate a maze based challenge.	

	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment
Year 1-2 Cycle 1B Animation A	Computing has officially been removed from the Early Years. However, children are given opportunities to explore a range of hardware and software eg digital microscopes, digital laptops, iPads, Beebots etc	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	I know and can choose a command for a given purpose. I know and can show that a series of commands can be joined together. I know and can identify the effect of changing a value. I know and can explain that each sprite has its own instructions. I know and can design the parts of a project. I know and can use my algorithm to create a program.	I can create an effective flipbook and explain how it works. I can create and effective stop frame animation and explain how it works. I can create and evaluate a story board. I can use onion skinning, review a series of frames and evaluate the quality of my animation. I can evaluate and improve my animation. I can add other media to my animation, explain why I used these other media and evaluate my final film.	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment
Year 1-2 Cycle 1C Digital Literacy	Computing has officially been removed from the Early Years. However, children are given opportunities to explore a range of hardware and software eg digital microscopes, digital laptops, iPads, Beebots etc	Use technology purposefully to create, organise, store, manipulate, and retrieve digital content Use technology safely and respectfully, keeping personal information private	I know how to and can use a computer to write. I know how to and can add and remove text on a computer. I know how to and can identify that the look of text can be changed on a computer. I know how to and can make careful choices when changing text. I know how to and can explain why I used the tools that I chose. I know how to and can compare typing on a computer to writing on paper.	I know the terms text and image and understand and can describe the advantages and disadvantages of using one or the other or both. I can edit text and know that editing can be used to improve communication. I can create a template for a particular purpose. I can add to and edit content on my template. I know how and why different layouts suit different purposes and describe why. I can describe why desktop publishing might be useful and compare it to the written hand.	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment

Year 1-2 Cycle 2A e- safety Information Around Us B	Computing has officially been removed from the Early Years. However, children are given opportunities to explore a range of hardware and software eg digital microscopes, digital laptops, iPads, Beebots etc	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	I know how to and can identify technology. I know how to and can identify information technology beyond school. I know how to and can recognise that choices are made when using information technology.	I know how a digital device works and can follow a process. I know what parts make up a digital device and can design one. I know how digital devices help us and can describe how. I know and can describe how I am connected. I know and describe how computers are connected. I know what our school network looks like and can describe the benefits.	
Moving a Robot B	Computing has officially been removed from the Early Years. However, children are given opportunities to explore a range of hardware and software eg digital microscopes, digital laptops, iPads, Beebots etc	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 Recognise common uses of information technology beyond school	I know how to and can explain what a given command will do. I know how to and can describe a series of instructions as a sequence. I know how to and can combine 'forwards' and 'backwards' commands to make a sequence. I know how to and can combine four direction commands to make sequences. I know how to and can plan a simple program, I know how to and can find more than one solution to a problem. I know how to and can design an algorithm. I know how to and can create and debug a program that I have written.	I know how a sprite moves in an existing project and can make suggestions for improvements. I know how to and can create a program to move a sprite in four directions. I know how to and can adapt a program to a new context. I know how to and can develop my own program by adding features. I know how to and can identify and fix bugs in a program. I know how to and can design, make and evaluate a maze based challenge.	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment

Year 1-2 Cycle 2B Amination B	Computing has officially been removed from the Early Years. However, children are given opportunities to explore a range of hardware and software eg digital microscopes, digital laptops, iPads, Beebots etc	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	I know how to and can choose a command for a given purpose. I know how to and can show that a series of commands can be joined together. I know how to and can identify the effect of changing a value. I know how to and can explain that each sprite has its own instructions. I know how to and can design the parts of a project. I know how to and can use my algorithm to create a program.	I can create an effective flipbook and explain how it works. I can create and effective stop frame animation and explain how it works. I can create and evaluate a story board. I can use onion skinning, review a series of frames and evaluate the quality of my animation. I can evaluate and improve my animation. I can add other media to my animation, explain why I used these other media and evaluate my final film.	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment
Year 1-2 Cycle 2C Taking and Using Photographs	Computing has officially been removed from the Early Years. However, children are given opportunities to explore a range of hardware and software eg digital microscopes, digital laptops, iPads, Beebots etc	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	I know how to and can use a digital device to take a photograph. I know how to and can make choices when taking a photograph. I know how to and can describe what makes a good photograph. I know how to and can decide how photographs can be improved. I know how to and can use tools to change an image. I know how to and can recognise that photos can be changed.	I know and can explain that digital images can be changed and the effect that this can have. I know how and can change the composition of an image and explain why someone might want to do this. I know how to and can explain that digital images can be changed to suit a scenario. I know how to and can choose tools to retouch an image, explaining and evaluating my choices. I know and can recognise that not all images are real and can identify and talk about fake images around me. I can make and evaluate a publication.	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment

Year 3-4 Cycle 1Aa Connecting Computers	I know and can recognise the uses and features of information technology. I know and can identify the uses of information technology in the school. I know and can explain how information technology helps us.	I know how to use sequence, selection, and repetition in programs; work with variables and various forms of input and output I 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 I know how to 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	I know how a digital device works and can follow a process. I know what parts make up a digital device and can design one. I know how digital devices help us and can describe how. I know and can describe how I am connected. I know and describe how computers are connected. I know what our school network looks like and can describe the benefits.	I know how and can describe how networks physically connect to other networks. I know and can describe what the internet is made up of. I know and can outline how websites can be shared via the World Wide Web (WWW). I can access these websites. I can describe how content can be added and accessed on the World Wide Web (WWW). I know and can recognise how the content on the WWW is created by people and can explain that there are rules to protect content. I know and can evaluate the consequences of unreliable content	
Year 3-4 Cycle 1Ab Animation	I know how to and can choose a command for a given purpose. I know how to and can show that a series of commands can be joined together. I know how to and can identify the effect of changing a value. I know how to and can explain that each sprite has its own instructions. I know how to and can design the parts of a project. I know how to and can use my algorithm to create a program.	I know how to 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 I know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	I can create an effective flipbook and explain how it works. I can create and effective stop frame animation and explain how it works. I can create and evaluate a story board. I can use onion skinning, review a series of frames and evaluate the quality of my animation. I can evaluate and improve my animation. I can add other media to my animation, explain why I used these other media and evaluate my final film.	I know how to and can recognise that you can work in three dimensions on a computer. I know how to and can identify that digital 3D objects can be modified. I know how to and can recognise that objects can be combined in a 3D model. I know how to and can create a 3D model for a given purpose. I know how to and can plan my own 3D model. I know how to and can create my own digital 3D model.	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment

Year 3-4 Cycle 1Ba Desktop Publishing	I know how to and can use a computer to write. I know how to and can add and remove text on a computer. I know how to and can identify that the look of text can be changed on a computer. I know how to and can make careful choices when changing text. I know how to and can explain why I used the tools that I chose. I know how to and can compare typing on a computer to writing on paper.	I know how to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content I know how to 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	I know the terms text and image and understand and can describe the advantages and disadvantages of using one or the other or both. I can edit text and know that editing can be used to improve communication. I can create a template for a particular purpose. I can add to and edit content on my template. I know how and why different layouts suit different purposes and describe why. I can describe why desktop publishing might be useful and compare it to the written hand.	I know and can explain that digital images can be changed and the effect that this can have. I know how and can change the composition of an image and explain why someone might want to do this. I know how to and can explain that digital images can be changed to suit a scenario. I know how to and can choose tools to retouch an image, explaining and evaluating my choices. I know and can recognise that not all images are real and can identify and talk about fake images around me. I can make and evaluate a publication.	
Year 3-4 Cycle 1Bb Branching Databases	I know how to and can use a computer to write. I know how to and can add and remove text on a computer. I know how to and can identify that the look of text can be changed on a computer. I know how to and can make careful choices when changing text. I know how to and can explain why I used the tools that I chose. I know how to and can compare typing on a computer to writing on paper.	I know how to 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 I know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	I can explore and create my own yes/no questions to sort/identify a group of objects. I know how to and can arrange objects into a tree structure. I can create a branching database. I can explain why it is helpful that a branching database is well structured. I can plan the structure of a branching database. I can independently create a branching database, test it and describe real-life uses for a branching database.	I know how to and can use a form to record information I know how to and can compare paper and computer-based databases I know how to and can outline how grouping and then sorting data allows us to answer questions I know how to and can explain that tools can be used to select specific data I know how to and can explain that computer programs can be used to compare data visually I know how to and can apply my knowledge of a database to ask and answer real-world questions.	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment

Year 3-4 Cycle 1Ca Sequence in Music	I know how to and can explain what a given command will do. I know how to and can describe a series of instructions as a sequence. I know how to and can combine 'forwards' and 'backwards' commands to make a sequence. I know how to and can combine four direction commands to make sequences. I know how to and can plan a simple program, I know how to and can find more than one solution to a problem. I know how to and can design an algorithm. I know how to and can create and debug a program that I have written.	I know how to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts I know how to use sequence, selection, and repetition in programs; work with variables and various forms of input and output I know how to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs I know how to 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	I know how to and can explore a new programming environment, identifying the objects, explaining that objects in Scratch have attributes and can recognise that commands in Scratch are represented as blocks I know how to and can create a program following a design, knowing that commands have an outcome. I know how to and can create a sequence of commands. I know that a sequence of commands can have an order and can combine sound commands into an order. I know how to and can change the appearance of my project. I know how to and can create a project from a task description, implementing my algorithm as code.	I know and can explain what makes a video effective I know and can use a digital device to record video I know and can capture video using a range of techniques I know how to and can create a storyboard. I know and can identify that video can be improved through reshooting and editing I know and can consider the impact of the choices made when making and sharing a video	

Year 3-4 Cycle 1Cb Events and Actions in Programs	I know how to and can explain what a given command will do. I know how to and can describe a series of instructions as a sequence. I know how to and can combine 'forwards' and 'backwards' commands to make a sequence. I know how to and can combine four direction commands to make sequences. I know how to and can plan a simple program, I know how to and can find more than one solution to a problem. I know how to and can design an algorithm. I know how to and can create and debug a program that I have written.	I know how to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts I know how to use sequence, selection, and repetition in programs; work with variables and various forms of input and output I know how to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs I know how to 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	I know how a sprite moves in an existing project and can make suggestions for improvements. I know how to and can create a program to move a sprite in four directions. I know how to and can adapt a program to a new context. I know how to and can develop my own program by adding features. I know how to and can identify and fix bugs in a program. I know how to and can design, make and evaluate a maze based challenge.	I know how to and can define a 'variable' as something that is changeable. I know how to and can explain why a variable is used in a program. I know how to and can choose how to improve a game by using variables. I know how to and can design a project that builds on a given example. I know how to and can use my design to create a project. I know how to and can evaluate my project.	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment

Year 3-4 Cycle 2Aa The Internet	I know and can recognise the uses and features of information technology. I know and can identify the uses of information technology in the school. I know and can explain how information technology helps us.	I know and 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 I know how to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content I know how to 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 I know how to use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	I know how and can describe how networks physically connect to other networks. I know and can describe what the internet is made up of. I know and can outline how websites can be shared via the World Wide Web (WWW). I can access these websites. I can describe how content can be added and accessed on the World Wide Web (WWW). I know and can recognise how the content on the WWW is created by people and can explain that there are rules to protect content. I know and can evaluate the consequences of unreliable content	I know and can explain that computers can be connected together to form systems I know and can recognise the role of computer systems in our lives I know and can recognise how information is transferred over the internet I know and can explain how sharing information online lets people in different places work together I know how to and can contribute to a shared project online I know how to and can evaluate different ways of working together online	

Year 3-4 Cycle 2Ab Photo Editing	I know how to and can use a digital device to take a photograph. I know how to and can make choices when taking a photograph. I know how to and can describe what makes a good photograph. I know how to and can decide how photographs can be improved. I know how to and can use tools to change an image. I know how to and can recognise that photos can be changed.	I know how to use search technologies effectively I know how to 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 I know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	I know and can explain that digital images can be changed and the effect that this can have. I know how and can change the composition of an image and explain why someone might want to do this. I know how to and can explain that digital images can be changed to suit a scenario. I know how to and can choose tools to retouch an image, explaining and evaluating my choices. I know and can recognise that not all images are real and can identify and talk about fake images around me. I can make and evaluate a publication.	I know and can identify that drawing tools can be used to produce different outcomes I know and can create a vector drawing by combining shapes I know and can use tools for a desired effect. I know and can recognise that vector drawings consist of layers I know and can group objects to make them easier to work with I know and can apply what I have learned about vector drawings	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment

Year 3-4 Cycle 2Ba Audio Editing	I know how to and can use a digital device to take a photograph. I know how to and can make choices when taking a photograph. I know how to and can describe what makes a good photograph. I know how to and can decide how photographs can be improved. I know how to and can use tools to change an image. I know how to and can recognise that photos can be changed.	I know how to 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	I know and can identify that sound can be recorded. I can explain that audio recording can be edited and how to do this. I know and can recognise the different part of planning a podcast project and can plan appropriate content for a podcast. I know how to and can apply audio editing skills independently and edit these. I know how to and can combine audio to enhance my podcast project I can evaluate the effective use of audio.	I know and can explain what makes a video effective I know and can use a digital device to record video I know and can capture video using a range of techniques I know how to and can create a storyboard. I know and can identify that video can be improved through reshooting and editing I know and can consider the impact of the choices made when making and sharing a video	

Year 3-4 Cycle 2Bb Data Logging	I know how to and can use a computer to write. I know how to and can add and remove text on a computer. I know how to and can identify that the look of text can be changed on a computer. I know how to and can make careful choices when changing text. I know how to and can explain why I used the tools that I chose. I know how to and can compare typing on a computer to writing on paper.	I know how to use sequence, selection, and repetition in programs; work with variables and various forms of input and output I know how to 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	I know and explain that data gathered over time can be used to answer questions I know and use a digital device to collect data automatically I know and can explain that a data logger collects 'data points' from sensors over time I know and can recognise how a computer can help us analyse data I know and can identify the data needed to answer questions I know and can use data from sensors to answer questions.	I know how to and can use a form to record information I know how to and can compare paper and computer-based databases I know how to and can outline how grouping and then sorting data allows us to answer questions I know how to and can explain that tools can be used to select specific data I know how to and can explain that computer programs can be used to compare data visually I know how to and can apply my knowledge of a database to ask and answer real-world questions.	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment

Year 3-4 Cycle 2Ca Repetition in Shapes	I know how to and can explain what a given command will do. I know how to and can describe a series of instructions as a sequence. I know how to and can combine 'forwards' and 'backwards' commands to make a sequence. I know how to and can combine four direction commands to make sequences. I know how to and can plan a simple program, I know how to and can find more than one solution to a problem. I know how to and can design an algorithm. I know how to and can create and debug a program that I have written.	I know how to and can design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts I know how to use sequence, selection, and repetition in programs; work with variables and various forms of input and output I know how to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs I know how to 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	I know how to and can identify that accuracy in programming is important. I know how to and can create a program in a text-based language I know how to and can explain what 'repeat' means. I know how to and can modify a count-controlled loop to produce a given outcome I know how to and can decompose a task into small steps I know how to and can create a program that uses count-controlled loops to produce a given outcome	I know how to and can control a simple circuit connected to a computer I know how to and can write a program that includes count-controlled loops I know how t and can explain that a loop can stop when a condition is met I know how to and can explain that a loop can be used to repeatedly check whether a condition has been met I know how to and can design a physical project that includes selection I know how to and can create a program that controls a physical computing project	

Year 3-4 Cycle 2Cb Repetition in Games	I know how to and can explain what a given command will do. I know how to and can describe a series of instructions as a sequence. I know how to and can combine 'forwards' and 'backwards' commands to make a sequence. I know how to and can combine four direction commands to make sequences. I know how to and can plan a simple program, I know how to and can find more than one solution to a problem. I know how to and can design an algorithm. I know how to and can create and debug a program that I have written.	I know and can design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts I know and can use sequence, selection, and repetition in programs; work with variables and various forms of input and output I know and can use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs I know and can 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	I know how to and can develop the use of count-controlled loops in a different programming environment I know how to and can explain that in programming there are infinite loops and count-controlled loops I know how to and can develop a design that includes two or more loops which run at the same time I know how to and can modify an infinite loop in a given program. I know how to and can design a project that includes repetition. I know how to and can create a project that includes repetition.	I know how to and can control a simple circuit connected to a computer I know how to and can write a program that includes count-controlled loops I know how t and can explain that a loop can stop when a condition is met I know how to and can explain that a loop can be used to repeatedly check whether a condition has been met I know how to and can design a physical project that includes selection I know how to and can create a program that controls a physical computing project	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment

Year 5-6 Cycle 1Aa Computing Systems and Networks: Sharing Information	I know how and can describe how networks physically connect to other networks. I know and can describe what the internet is made up of. I know and can outline how websites can be shared via the World Wide Web (WWW). I can access these websites. I can describe how content can be added and accessed on the World Wide Web (WWW). I know and can recognise how the content on the WWW is created by people and can explain that there are rules to protect content. I know and can evaluate the consequences of unreliable content	I know and can design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts I know and can use sequence, selection, and repetition in programs; work with variables and various forms of input and output I know and can 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 I know and can 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 I know and can use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	I know and can explain that computers can be connected together to form systems I know and can recognise the role of computer systems in our lives I know and can recognise how information is transferred over the internet I know and can explain how sharing information online lets people in different places work together I know how to and can contribute to a shared project online I know how to and can evaluate different ways of working together online	Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns	
Year 5-6 Cycle 1Ab Creating Media: Video Editing	I know and can identify that sound can be recorded.	I know about and can use search technologies effectively, appreciate how	I know and can explain what	Undertake creative projects that involve selecting, using, and combining multiple	

	I can explain that audio recording can be edited and how to do this. I know and can recognise the different part of planning a podcast project and can plan appropriate content for a podcast. I know how to and can apply audio editing skills independently and edit these. I know how to and can combine audio to enhance my podcast project I can evaluate the effective use of audio.	results are selected and ranked, and be discerning in evaluating digital content I know and can 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 I know and can use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	makes a video effective I know and can use a digital device to record video I know and can capture video using a range of techniques I know how to and can create a storyboard. I know and can identify that video can be improved through reshooting and editing I know and can consider the impact of the choices made when making and sharing a video	applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment
Year 5-6 Cycle 1Ba	I know and explain that data gathered	use search technologies effectively, appreciate how	I know how to and can use a form to record information	Understand several key algorithms that reflect computational thinking [for	

Data and Information: Flat File Databases.	over time can be used to answer questions I know and use a digital device to collect data automatically I know and can explain that a data logger collects 'data points' from sensors over time I know and can recognise how a computer can help us analyse data I know and can identify the data needed to answer questions I know and can use data from sensors to answer questions.	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	I know how to and can compare paper and computer-based databases I know how to and can outline how grouping and then sorting data allows us to answer questions I know how to and can explain that tools can be used to select specific data I know how to and can explain that computer programs can be used to compare data visually I know how to and can apply my knowledge of a database to ask and answer real-world questions.	example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem	
Year 5-6 Cycle 1Bb Creating Media: Vector Drawings	I know and can explain that digital images can be changed and the effect that this can have.	I know and can select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create	I know and can identify that drawing tools can be used to produce different outcomes	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems	

	I know how and can change the composition of an image and explain why someone might want to do this. I know how to and can explain that digital images can be changed to suit a scenario. I know how to and can choose tools to retouch an image, explaining and evaluating my choices. I know and can recognise that not all images are real and can identify and talk about fake images around me. I can make and evaluate a publication.	a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information.	I know and can create a vector drawing by combining shapes I know and can use tools for a desired effect. I know and can recognise that vector drawings consist of layers I know and can group objects to make them easier to work with I know and can apply what I have learned about vector drawings	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability.	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment
Year 5-6 Cycle 1Ca Programming A - Selection in Physical Computing	I know how to and can develop the use of count-controlled loops in a different programming environment	I know and can design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems;	I know how to and can control a simple circuit connected to a computer I know how to and can write a program	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems Understand several key algorithms that reflect computational thinking	

	I know how to and can explain that in programming there are infinite loops and count-controlled loops I know how to and can develop a design that includes two or more loops which run at the same time I know how to and can modify an infinite loop in a given program. I know how to and can design a project that includes repetition. I know how to and can create a project that includes repetition.	solve problems by decomposing them into smaller parts I know and can use sequence, selection, and repetition in programs; work with variables and various forms of input and output I know and can use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs I know and can 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	that includes count-controlled loops I know how t and can explain that a loop can stop when a condition is met I know how to and can explain that a loop can be used to repeatedly check whether a condition has been met I know how to and can design a physical project that includes selection I know how to and can create a program that controls a physical computing project	[for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem Use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal].	
Year 5-6 Cycle 1Cb Programming: Selection and Quizzes	I know how to and can develop the use of count-controlled loops in a different programming environment I know how to and can explain that in programming there are	I know and can design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	I know and can explain how selection is used in computer programs I know and can relate that a conditional statement connects a condition to an outcome	Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem Use 2 or more programming languages, at least one of which is	

	infinite loops and count-controlled loops I know how to and can develop a design that includes two or more loops which run at the same time I know how to and can modify an infinite loop in a given program. I know how to and can design a project that includes repetition. I know how to and can create a project that includes repetition.	I know and can use sequence, selection, and repetition in programs; work with variables and various forms of input and output I know and can use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs I know and can 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	I know and can explain how selection directs the flow of a program I know how to and can design a program that uses selection I know how to and can create a program that uses selection I can evaluate my program.	textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal].	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	Assessment

Year 5-6 Cycle 2Aa Computing Systems and Networks - Communication	I know how and can describe how networks physically connect to other networks. I know and can describe what the internet is made up of. I know and can outline how websites can be shared via the World Wide Web (WWW). I can access these websites. I can describe how content can be added and accessed on the World Wide Web (WWW). I know and can recognise how the content on the WWW is created by people and can explain that there are rules to protect content. I know and can evaluate the consequences of unreliable content	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts 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	I know how to and can use a search engine. I know how and can describe how search engines select results. I know and can explain how search results are ranked. I know how search engines are influenced and recognise why the order of results is important, and to whom. I know how and can recognise how we communicate using technology. I know how to use and can evaluate different methods of online communication.	Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns.	

		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			
Year 5-6 Cycle 2Ab Creating Media: Web Page Creation	I know and can explain that digital images can be changed and the effect that this can have. I know how and can change the composition of an image and explain why someone might want to do this. I know how to and can explain that digital images can be changed to suit a scenario. I know how to and can choose tools to retouch an image, explaining and evaluating my choices. I know and can recognise that not all images are real and can identify and talk about fake images around me. I can make and evaluate a publication.	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	I know what makes a good website and can review an existing website and consider its structure. I know how and can plan the features of a web page. I know that I need to and can consider the ownership and use of images (copyright). I know how to and can recognise the need to preview pages. I know how to and can outline the need for a navigation path. I know how to and can recognise the implications of linking to content owned by other people.	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	

		acceptable/unacceptable behaviour.			
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next steps	Assessment
Year 5-6 Cycle 2Ba Data and Information: Spreadsheets	I know and explain that data gathered over time can be used to answer questions I know and use a digital device to collect data automatically I know and can explain that a data logger collects 'data points' from sensors over time I know and can recognise how a computer can help us analyse data I know and can identify the data needed to answer questions I know and can use data from sensors to answer questions.	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	I know how to and can create a data set in a spreadsheet. I know how to and can build a data set in a spreadsheet. I know how to and can explain that formulas can be used to produce calculated data. I know how to and can apply formulas to data, I know how to and can create a spreadsheet to plan an event. I know how to and can choose suitable ways to present data.	Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem	

Year 5-6 Cycle 2Bb Programming A: Variables and Games	I know how to and can develop the use of count-controlled loops in a different programming environment	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve	I know how to and can define a 'variable' as something that is changeable.	Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of	

	I know how to and can explain that in programming there are infinite loops and count-controlled loops I know how to and can develop a design that includes two or more loops which run at the same time I know how to and can modify an infinite loop in a given program. I know how to and can design a project that includes repetition. I know how to and can create a project that includes repetition.	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	I know how to and can explain why a variable is used in a program. I know how to and can choose how to improve a game by using variables. I know how to and can design a project that builds on a given example. I know how to and can use my design to create a project. I know how to and can evaluate my project.	alternative algorithms for the same problem Use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal].	
	Prior Knowledge	National Curriculum Knowledge	Knowledge and Skills	Next Steps	
Year 5-6 Cycle 2Ca Creating Media: 3D Modelling	I can create an effective flipbook and explain how it works. I can create and effective stop frame animation and explain how it works.	Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and	I know how to and can recognise that you can work in three dimensions on a computer.	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems.	

	I can create and evaluate a story board. I can use onion skinning, review a series of frames and evaluate the quality of my animation. I can evaluate and improve my animation. I can add other media to my animation, explain why I used these other media and evaluate my final film.	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	I know how to and can identify that digital 3D objects can be modified. I know how to and can recognise that objects can be combined in a 3D model. I know how to and can create a 3D model for a given purpose. I know how to and can plan my own 3D model. I know how to and can create my own digital 3D model.	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability.	
Year 5-6 Cycle 2Cb Programming B: Sensing	I know how to and can develop the use of count-controlled loops in a different programming environment I know how to and can explain that in programming there are infinite loops and count-controlled loops I know how to and can develop a design that includes two or more loops which run at the same time I know how to and can modify an infinite loop in a given program. I know how to and can design a project that includes repetition.	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	I know how to and can create a program to run on a controllable device. I know how to and can explain that selection can control the flow of a program. I know how to and can update a variable with a user input. I know how to and can use a conditional statement to compare a variable to a value. I know how to and can design a project that uses inputs and outputs on a controllable device.	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem Use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists,	

	I know how to and can create a project that includes repetition.	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	I know how to and can develop a program to use inputs and outputs on a controllable device.	tables or arrays]; design and develop modular programs that use procedures or functions Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal].	