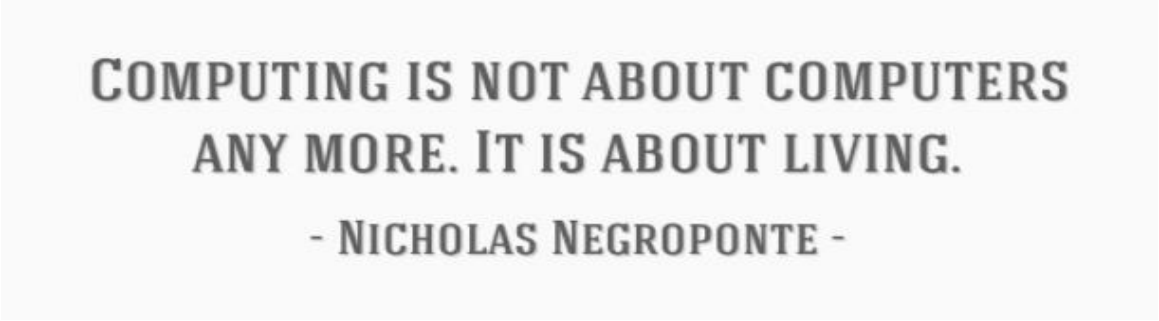
Statement of Intent



At Wantage CE Primary School, we offer an inspiring and enjoyable, high quality Computing Curriculum that provides children with the relevant skills they need to learn in order to flourish with their computational thinking and creativity. Computing is interconnected with many other curriculum subjects including Mathematics, Science, Literacy, Music, Art and Design and Technology. With the rise in technology in our everyday lives, it is imperative that all pupils develop a good knowledge and understanding of the three main components of the computing curriculum:

- **Computer Science – Theory and Programming**
- **Information Technology**
- **Digital Literacy**

The National Curriculum for Computing (2013) aims to ensure that all pupils can:

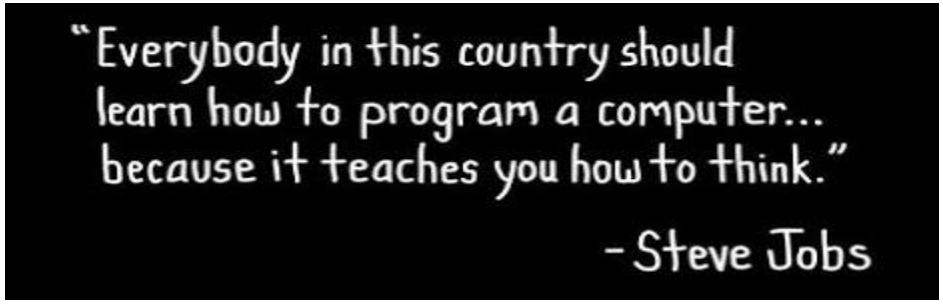
- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, 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
- 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
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Our school vision is 'learning for life' and through our Computing Curriculum, our pupils from Year 1 through to Year 6 are taught about the impact of technology on the world around us, developing a sound understanding of computer systems and networks as well as an awareness of safety and security when using technology.

Through practical, hands-on learning, our students also learn about every aspect of Computing from design, through to how to use electronic tools effectively to create their own documents and media, how to store data and retrieve information as well as how to use algorithms to programme computers or robots.

Implementation

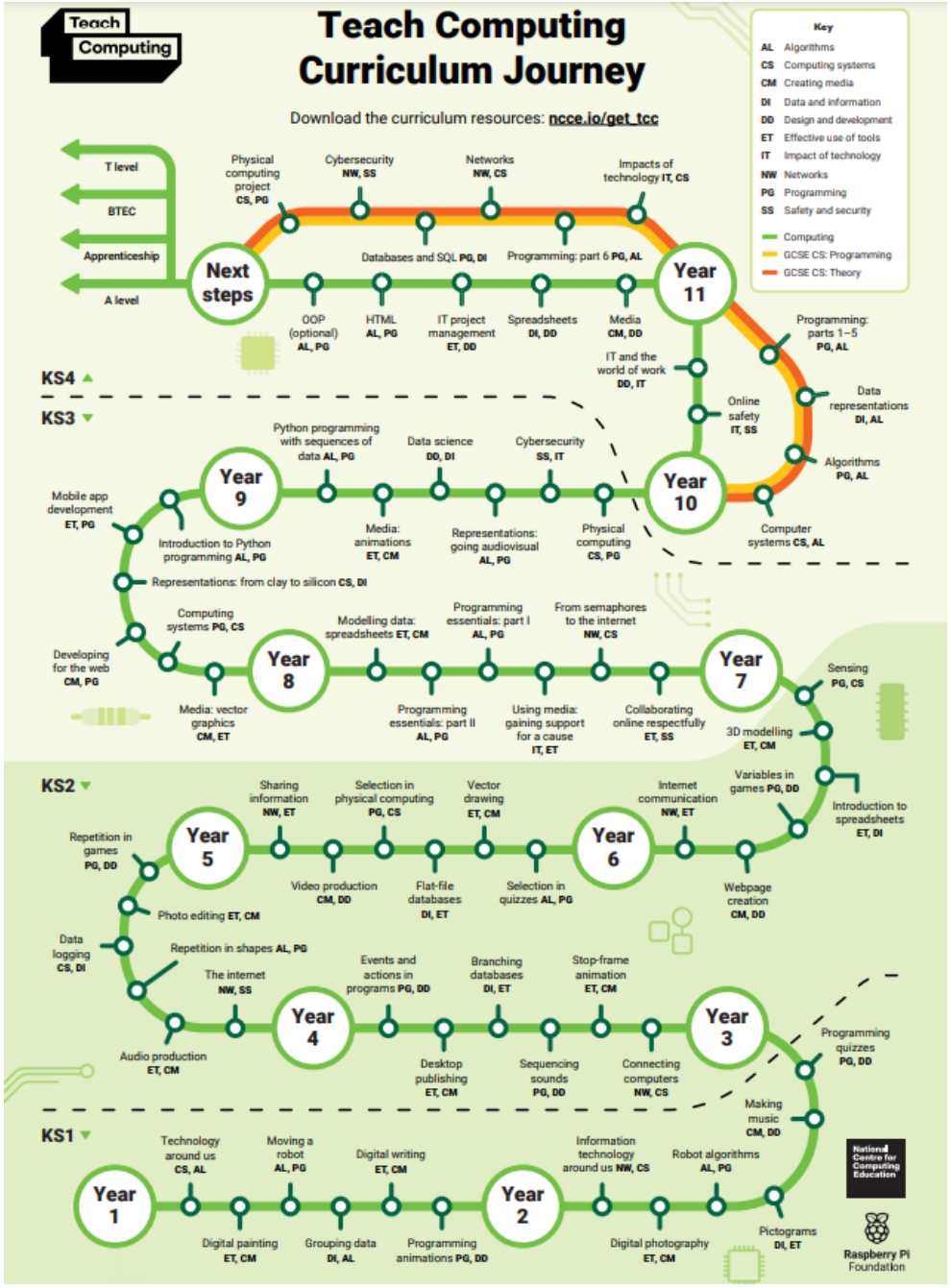


At Wantage CE Primary School, we follow the Teach Computing Curriculum which is built around an innovative progression framework where computing content has been organised into interconnected networks to meet the National Curriculum objectives. The Teach Computing Curriculum has been created by subject experts, using the latest pedagogical research and teacher feedback to ensure the learning is both enjoyable and inspirational for young minds.

The Teach Computing Curriculum has broken down the teaching of Computing into ten strands which are:

- Algorithms — Be able to comprehend, design, create, and evaluate algorithms
- Computer networks — Understand how networks can be used to retrieve and share information, and how they come with associated risks
- Computer systems — Understand what a computer is, and how its constituent parts function together as a whole
- Creating media — Select and create a range of media including text, images, sounds, and video
- Data and information — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
- Design and development — Understand the activities involved in planning, creating, and evaluating computing artefacts
- Effective use of tools — Use software tools to support computing work
- Impact of technology — Understand how individuals, systems, and society as a whole interact with computer systems
- Programming — Create software to allow computers to solve problems
- Safety and security — Understand risks when using technology, and how to protect individuals and systems

The Teach Computing Curriculum follows a spiral curriculum journey which means that each of the ten themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly. It also ensures that connections are made even if different teachers are teaching the units within a theme in consecutive years.


Teach Computing
Teach Computing Curriculum Journey
Download the curriculum resources: ncce.io/get_tcc
Key
AL Algorithms
CS Computing systems
CM Creating media
DI Data and information
DD Design and development
ET Effective use of tools
IT Impact of technology
NW Networks
PG Programming
SS Safety and security
Computing
GCSE CS: Programming
GCSE CS: Theory
T level
BTEC
Apprenticeship
A level
Next steps
Physical computing project CS, PG
Cybersecurity NW, SS
Networks NW, CS
Impacts of technology IT, CS
Databases and SQL PG, DI
Programming: part 6 PG, AL
OOP (optional) AL, PG
HTML AL, PG
IT project management ET, DD
Spreadsheets DI, DD
Media CM, DD
Year 11
Programming: parts 1–5 PG, AL
IT and the world of work DD, IT
Online safety IT, SS
Data representations DI, AL
Algorithms PG, AL
Computer systems CS, AL
KS4
KS3
Year 10
Python programming with sequences of data AL, PG
Data science DD, DI
Cybersecurity SS, IT
Physical computing CS, PG
Representations: going audiovisual AL, PG
Media: animations ET, CM
Year 9
Mobile app development ET, PG
Introduction to Python programming AL, PG
Representations: from clay to silicon CS, DI
Computing systems PG, CS
Developing for the web CM, PG
Media: vector graphics CM, ET
Year 8
Modelling data: spreadsheets ET, CM
Programming essentials: part I AL, PG
From semaphores to the internet NW, CS
Programming essentials: part II AL, PG
Using media: gaining support for a cause IT, ET
Collaborating online respectfully ET, SS
Year 7
Sensing PG, CS
3D modelling ET, CM
Variables in games PG, DD
Introduction to spreadsheets ET, DI
Webpage creation CM, DD
KS2
Year 6
Internet communication NW, ET
Vector drawing ET, CM
Selection in quizzes AL, PG
Flat-file databases DI, ET
Video production CM, DD
Selection in physical computing PG, CS
Sharing information NW, ET
Year 5
Repetition in games PG, DD
Photo editing ET, CM
Data logging CS, DI
Repetition in shapes AL, PG
The internet NW, SS
Audio production ET, CM
Year 4
Events and actions in programs PG, DD
Branching databases DI, ET
Stop-frame animation ET, CM
Desktop publishing ET, CM
Sequencing sounds PG, DD
Connecting computers NW, CS
Year 3
Programming quizzes PG, DD
Making music CM, DD
KS1
Year 1
Technology around us CS, AL
Moving a robot AL, PG
Digital writing ET, CM
Digital painting ET, CM
Grouping data DI, AL
Programming animations PG, DD
Year 2
Information technology around us NW, CS
Robot algorithms AL, PG
Digital photography ET, CM
Pictograms DI, ET
National Centre for Computing Education
Raspberry Pi Foundation

Inclusive and ambitious, the Teach Computing Curriculum has been written to support all pupils. Each lesson is sequenced so that it builds on the learning from the previous lesson, and where appropriate, activities are scaffolded so that all pupils can succeed and thrive. Scaffolded activities provide pupils with extra resources, such as visual prompts, to reach the same learning goals as the rest of the class. Exploratory tasks foster a deeper understanding of a concept, encouraging pupils to apply their learning in different contexts and make connections with other learning experiences. As well as scaffolded activities, embedded within the lessons are a range of pedagogical strategies which support making computing topics more accessible. The Teach Computing Curriculum is underpinned by the latest computing research, to demonstrate effective pedagogical strategies throughout. To remain up-to-date as research continues to develop, every aspect of the Teach Computing Curriculum is reviewed each year and changes are made as necessary.

Impact

Pupils at Wantage CE Primary School 'learn for life' and develop an accurate and holistic view of Computing as a part of our society that is now interwoven within our culture. Through the implementation of an engaging Computing Curriculum, our students can demonstrate their knowledge of the impact of technology on the world around us, have developed a sound understanding of computer systems and networks as well as having a comprehensive awareness of safety and security when using any technology.

In addition, our students are able to design their own algorithms, use electronic tools effectively to create their own documents and digital media, store data and retrieve information as well as use algorithms to programme computers or robots.

Learn. Inspire. Flourish. Enjoy.

Computing at Wantage CE Primary

September 2022

Skills Key: **Computer Science – Theory and Programming,** **Information Technology,** **Digital Literacy.**

Year/ Term	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 1	Technology Around Us • Technology in our classroom • Using technology • Developing mouse skills • Using a computer keyboard • Developing keyboard skills • Using a computer responsibly **National Curriculum:** ✓ Recognise common uses of information technology beyond school ✓ Use technology purposefully to create, organise, store, manipulate, and retrieve digital content ✓ 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	Digital Painting • How can we paint using computers? • Using shape and lines • Making careful choices • Why did I choose that? • Painting all by myself • Comparing computer art and painting **National Curriculum:** ✓ Use technology purposefully to create, organise, store, manipulate, and retrieve digital content **KS1 Art and Design:** Pupils should be taught: ✓ To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space ✓ About the work of a range of artists, craft makers, and designers, describing the differences and similarities	Digital Writing • Exploring the keyboard • Adding and removing text • Exploring the toolbar • Making changes to text • Explaining my choices • Pencil or keyboard **National Curriculum:** ✓ Use technology purposefully to create, organise, store, manipulate, and retrieve digital content ✓ Use technology safely and respectfully, keeping personal information private **English – writing (Y1)** ✓ Write sentences by: ✓ saying out loud what they are going to write about ✓ composing a sentence orally before writing it	Grouping Data • Label and match • Group and count • Describe an object • Making different groups • Comparing groups • Answering questions **National Curriculum:** ✓ Use technology purposefully to create, organise, store, manipulate, and retrieve digital content ✓ Use technology safely and respectfully	Moving a robot • Buttons • Directions • Forwards and backwards • Four directions • Getting there • Routes **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 ✓ Recognise common uses of information technology beyond school	Introduction to animation • Comparing tools • Joining blocks • Make a change • Adding sprites • Project design • Following my design **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

	other online technologies. **Knowledge & Skills:** ✓ I can explain technology as something that helps us ✓ I can locate examples of technology in the classroom ✓ I can explain how these technology examples help us ✓ I can name the main parts of a computer ✓ I can switch on and log into a computer ✓ I can use a mouse to click and drag ✓ I can use a mouse to open a program ✓ I can click and drag to make objects on a screen ✓ I can use a mouse to create a picture ✓ I can say what a keyboard is for ✓ I can type my name on a computer ✓ I can save my work to a file ✓ I can open my work from a file	between different practices and disciplines and making links to their own work **Knowledge & Skills:** ✓ I can make marks on a screen and explain which tools I used ✓ I can draw lines on a screen and explain which tools I used ✓ I can use the paint tools to draw a picture ✓ I can use the shape and line tools effectively. ✓ I can choose appropriate shapes ✓ I can make appropriate colour choices ✓ I can say which tools were helpful and why ✓ I can change the colour and brush sizes ✓ I can use dots of colour to create a picture in the style of an artist on my own ✓ I can spot the differences between painting on a computer and on paper	**Knowledge & Skills:** ✓ I can open a word processor ✓ I can identify and find keys on a keyboard ✓ I can enter text into a computer ✓ I can use letter, number, and Space keys ✓ I can use Backspace to remove ✓ I can type capital letters ✓ I can explain what the keys that I have already learnt about do ✓ I can identify the toolbar and use bold, italic, and underline ✓ I can select a word by double-clicking ✓ I can select all of the text by clicking and dragging ✓ I can change the font	**Knowledge & Skills:** ✓ I can describe objects using labels ✓ I can match objects to groups ✓ I can identify the label for a group of objects ✓ I can count objects ✓ I can group objects ✓ I can count a group of objects ✓ I can describe an object ✓ I can describe a property of an object ✓ I can find objects with similar properties ✓ I can group similar objects ✓ I can group objects in more than one way ✓ I can count how many objects share a property ✓ I can choose how to group objects ✓ I can describe groups of objects ✓ I can record how many objects are in a group	**Knowledge & Skills:** ✓ I can predict the outcome of a command on a device ✓ I can match a command to an outcome ✓ I can run a command on a device ✓ I can follow an instruction ✓ I can recall words that can be acted out ✓ I can give directions ✓ I can compare forwards and backwards movements ✓ I can start a sequence from the same place ✓ I can predict the outcome of a sequence involving forwards and backwards commands ✓ I can compare left and right turns ✓ I can experiment with turn and move commands to move a robot ✓ I can predict the outcome of a	**Knowledge & Skills:** ✓ I can find the commands to move a sprite ✓ I can use commands to move a sprite ✓ I can compare different programming tools ✓ I can use more than one block by joining them together ✓ I can use a **Start** block in a program ✓ I can run my program ✓ I can find blocks that have numbers ✓ I can change the value ✓ I can say what happens when I change a value ✓ I can show that a project can include more than one sprite ✓ I can delete a sprite ✓ I can add blocks to each of my sprites ✓ I can choose appropriate artwork for my project ✓ I can decide how each sprite will move ✓ I can create an algorithm for each sprite ✓ I can use sprites that match my design

	✓ I can use the arrow keys to move the cursor ✓ I can delete letters ✓ I can open my work from a file ✓ I can use the arrow keys to move the cursor ✓ I can delete letters ✓ I can identify rules to keep us safe and healthy when we are using technology in and beyond the home ✓ I can give examples of some of these rules ✓ I can discuss how we benefit from these rules **Education for a Connected World links:** **Health, well-being and lifestyle** ✓ I can identify rules that help keep us safe and healthy in and beyond the home when using technology ✓ I can give some simple examples **Copyright and ownership** ✓ I know that the work I create belongs to me ✓ I can name my work so that others know it belongs to me	✓ I can say whether I prefer painting using a computer or using paper	**Education for a Connected World links:** **Privacy and security** I can give reasons why I should only share information with people I choose to and can trust. (Y1)	✓ I can decide how to group objects to answer a question ✓ I can compare groups of objects ✓ I can record and share what I have found **Education for a Connected World links:** **Copyright and ownership** ✓ I know that work I create belongs to me (Y1) ✓ I can name my work so that others know it belongs to me (Y1)	sequence involving up to four commands ✓ I can explain what my program should do ✓ I can choose the order of commands in a sequence ✓ I can debug my program ✓ I can identify several possible solutions ✓ I can plan two programs ✓ I can use two different programs to get to the same place	✓ I can add programming blocks based on my algorithm ✓ I can test the programs I have created

Computing at Wantage CE Primary

September 2022

Skills Key: **Computer Science – Theory and Programming, Information Technology, Digital Literacy.**

Year/ Term	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 2	**Computing Systems and Networks – IT around us** • What is IT? • IT in school • IT in the world • The benefits of IT • Using IT safely • Using IT in different ways **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; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	**Creating Media – Digital Photography** • Taking photographs • Landscape or portrait? • What makes a good photograph? • Lighting • Effects • Is it real? **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; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	**Creating Media – making music** • How music makes us feels • Rhythms and patterns • How music can be used • Notes and tempo • Creating digital music • Reviewing and editing music **National Curriculum:** ✓ Use technology purposefully to create, organise, store, manipulate and retrieve digital content	**Pictograms** • Counting • Enter the data • Creating pictograms • What is an attribute? • Comparing people • Presenting information **National Curriculum:** ✓ Use technology purposefully to create, organise, store, manipulate and retrieve digital content ✓ 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	**Programming A – Robot algorithms** • Giving instructions • Same but different • Making predictions • Mats and routes • Algorithm design • Debugging **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 ✓ Use technology safely and respectfully, keeping personal information private; identify where to	**Programming B – An introduction to quizzes** • ScratchJr recap • Outcomes • Using a design • Changing a design • Designing and creating a program • Evaluating **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

	Knowledge & Skills:	**KS1 Art and Design:** Pupils should be taught: ✓ To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space **Knowledge & Skills:**	**KS1 Music:** ✓ Play tuned and untuned instruments musically ✓ Listen with concentration and understanding to a range of high-quality live and recorded music ✓ Experiment with, create, select and combine sounds using the inter-related dimensions of music **Knowledge & Skills:**	**KS1 Maths:** ✓ Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: 'equal to', 'more than', 'less than' ('fewer'), 'most', 'least' ✓ interpret and construct simple pictograms, tally charts, block diagrams and simple tables ✓ ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ✓ ask and answer questions about totalling and comparing categorical data **Knowledge & Skills:**	go for help and support when they have concerns about content or contact on the internet or other online technologies. **Knowledge & Skills:**	**Knowledge & Skills:**

	✓ I can identify examples of computers ✓ I can describe some uses of computers ✓ I can identify that a computer is a part of IT ✓ I can identify examples of IT ✓ I can sort school IT by what it's used for ✓ I can identify that some IT can be used in more than one way ✓ I can find examples of information technology ✓ I can sort IT by where it is found ✓ I can talk about uses of information technology ✓ I can recognise common types of technology ✓ I can demonstrate how IT devices work together ✓ I can say why we use IT ✓ I can list different uses of information technology ✓ I can talk about different rules for using IT ✓ I can say how rules can help keep me safe ✓ I can identify the choices that I make when using IT	✓ To use a digital device to take a photograph ✓ I can recognise what devices can be used to take photographs ✓ I can talk about how to take a photograph ✓ I can explain what I did to capture a digital photo ✓ I can explain the process of taking a good photograph ✓ I can take photos in both landscape and portrait format ✓ I can explain why a photo looks better in portrait or landscape format ✓ I can identify what is wrong with a photograph ✓ I can discuss how to take a good photograph ✓ I can improve a photograph by retaking it ✓ I can explore the effect that light has on a photo ✓ I can experiment with different light sources ✓ I can explain why a picture may be unclear ✓ I can recognise that images can be changed	✓ I can identify simple differences in pieces of music ✓ I can listen with concentration to a range of music (links to the Music curriculum) ✓ I can describe how music makes me feel, e.g. happy or sad ✓ I can create a rhythm pattern ✓ I can play an instrument following a rhythm pattern ✓ I can explain that music is created and played by humans ✓ I can connect images with sounds ✓ I can use a computer to experiment with pitch and duration ✓ I can relate an idea to a piece of music ✓ I can identify that music is a sequence of notes ✓ I can use a computer to create a musical pattern using three notes ✓ I can refine my musical pattern on a computer ✓ I can describe an animal using sounds ✓ I can explain my choices ✓ I can save my work	✓ I can record data in a tally chart ✓ I can represent a tally count as a total ✓ I can compare totals in a tally chart ✓ I can enter data onto a computer ✓ I can use a computer to view data in a different format ✓ I can use pictograms to answer simple questions about objects ✓ I can organise data in a tally chart ✓ I can use a tally chart to create a pictogram ✓ I can explain what the pictogram shows ✓ I can tally objects using a common attribute ✓ I can create a pictogram to arrange objects by an attribute ✓ I can answer 'more than'/'less than' and 'most/least' questions about an attribute ✓ I can choose a suitable attribute to compare people ✓ I can collect the data I need ✓ I can create a pictogram and	✓ To describe a series of instructions as a sequence ✓ I can follow instructions given by someone else ✓ I can choose a series of words that can be enacted as a sequence ✓ I can give clear and unambiguous instructions ✓ To explain what happens when we change the order of instructions ✓ I can create different algorithms for a range of sequences (using the same commands) ✓ I can use an algorithm to program a sequence on a floor robot ✓ I can show the difference in outcomes between two sequences that consist of the same commands ✓ To use logical reasoning to predict the outcome of a program (series of commands) ✓ I can follow a sequence ✓ I can predict the outcome of a sequence	✓ To explain that a sequence of commands has a start ✓ I can identify the start of a sequence ✓ I can identify that a program needs to be started ✓ I can show how to run my program ✓ To explain that a sequence of commands has an outcome ✓ I can predict the outcome of a sequence of commands ✓ I can match two sequences with the same outcome ✓ I can change the outcome of a sequence of commands ✓ To create a program using a given design ✓ I can work out the actions of a sprite in an algorithm ✓ I can decide which blocks to use to meet the design ✓ I can build the sequences of blocks I need ✓ To change a given design ✓ I can choose backgrounds for the design ✓ I can choose characters for the design

	✓ I can use IT for different types of activities ✓ I can explain the need to use IT in different ways **Education for a Connected World links:** **Health, well-being and lifestyle** ✓ I can identify rules that help keep us safe and healthy in and beyond the home when using technology ✓ I can give some simple examples	✓ I can use a tool to achieve a desired effect ✓ I can explain my choices ✓ I can apply a range of photography skills to capture a photo ✓ I can recognise which photos have been changed ✓ I can identify which photos are real and which have been changed **Education for a Connected World links:** ✓ To identify that some images are not real (fake)	✓ I can reopen my work ✓ I can explain how I made my work better ✓ I can listen to music and describe how it makes me feel **Education for a Connected World links:** **Copyright and ownership** ✓ I know that work I create belongs to me.	draw conclusions from it ✓ I can use a computer program to present information in different ways ✓ I can share what I have found out using a computer ✓ I can give simple examples of why information should not be shared **Education for a Connected World links:** **Self-image and identity** ✓ I can recognise that I can say 'no'/'please stop'/'I'll tell'/'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset ✓ I can explain how this could be either in real life or online ✓ If something happens that makes me feel sad, worried, uncomfortable, or frightened I can give examples of when and how to speak to an adult I can trust **Health, wellbeing and lifestyle**	✓ I can compare my prediction to the program outcome ✓ To explain that programming projects can have code and artwork ✓ I can explain the choices I made for my mat design ✓ I can identify different routes around my mat ✓ I can test my mat to make sure that it is usable ✓ To design an algorithm ✓ I can explain what my algorithm should achieve ✓ I can create an algorithm to meet my goal ✓ I can use my algorithm to create a program ✓ To design an algorithm ✓ I can explain what my algorithm should achieve ✓ I can create an algorithm to meet my goal ✓ I can use my algorithm to create a program ✓ I can plan algorithms for different parts of a task ✓ I can test and debug each part of the program	✓ I can create a program based on the new design ✓ To create a program using my own design ✓ I can choose the images for my own design ✓ I can create an algorithm ✓ I can build sequences of blocks to match my design To decide how my project can be improved ✓ I can compare my project to my design ✓ I can improve my project by adding features ✓ I can debug

				✓ I can identify rules that help keep us safe and healthy in and beyond the home when using technology ✓ I can give some simple examples **Privacy and security** ✓ I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location) ✓ I can describe the people I can trust and can share this with; I can explain why I can trust them ✓ I can recognise more detailed examples of information that is personal to me (e.g. where I live, my family's names, where I go to school)	✓ I can put together the different parts of my program	

Computing at Wantage CE Primary

September 2022

Skills Key: **Computer Science – Theory and Programming,** **Information Technology,** **Digital Literacy.**

Year/ Term	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 3	Computing systems and networks – Connecting computers • How does a digital device work? • What parts make up a digital device? • How do digital devices help us? • How am I connected? • How are computers connected? • What does our school network look like? **National Curriculum:** ✓ use sequence, selection, and repetition in programs; work with variables and various forms of input and output ✓ 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	Creating Media - Animation • Can a picture move? • Frame by frame • What's the story? • Picture perfect • Evaluate and make it great • Lights, camera, action! **National Curriculum:** ✓ 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.	Desktop Publishing • Words and pictures • Can you edit it? • Great template! • Can you add content? • Lay it out • Why desktop publishing? **National Curriculum:** ✓ 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	Branching Databases • Yes or no questions • Making groups • Creating a branching database • Structuring a branching database • Presenting information **National Curriculum:** ✓ 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	Programming A – Sequence in Music • Introduction to Scratch • Programming Sprites • Sequences • Ordering commands • Looking good • Making an instrument **National Curriculum:** ✓ 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	Programming B – Events and Actions • Moving a sprite • Maze movement • Drawing lines • Adding features • Debugging movement • Making a project **National Curriculum:** ✓ 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

	✓ 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 **Maths:** **Number and place value:** ✓ solve number problems and practical problems involving these ideas **Art** ✓ to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay] **Knowledge & Skills:** ✓ To explain how digital devices function ✓ I can explain that digital devices accept inputs ✓ I can explain that digital devices produce outputs	**Literacy:** ✓ Pupils should be taught to: draft and write by: in narratives, creating settings, characters and plot ✓ Pupils should be taught to: proof-read for spelling and punctuation errors **History:** ✓ The Roman Empire and its impact on Britain **Knowledge & Skills:** ✓ To explain that animation is a sequence of drawings or photographs ✓ I can draw a sequence of pictures ✓ I can create an effective flip book—style animation ✓ I can explain how an animation/flip book works ✓ To relate animated movement with a sequence of images ✓ I can predict what an animation will look like ✓ I can explain why little changes are needed for each frame ✓ I can create an effective stop-frame animation	presenting data and information **Literacy:** ✓ Pupils should be taught to draft and write by: in non-narrative material, using simple organisational devices [for example, headings and subheadings] ✓ Evaluate and edit by assessing the effectiveness of their own and others' writing and suggesting improvements ✓ Proofread for spelling and punctuation errors **Knowledge & Skills:** ✓ To recognise how text and images convey information ✓ I can explain the difference between text and images	presenting data and information ✓ Use technology safely, respectfully, and responsibly **Knowledge & Skills:** ✓ To create questions with yes/no answers ✓ I can investigate questions with yes/no answers	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 **Knowledge & Skills:** ✓ To explore a new programming environment ✓ I can identify the objects in a Scratch project (sprites, backdrops)	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 **Knowledge & Skills:** ✓ To explain how a sprite moves in an existing project ✓ I can explain the relationship between an event and an action ✓ I can choose which keys to use for

	✓ I can follow a process ✓ To identify input and output devices ✓ I can classify input and output devices ✓ I can describe a simple process ✓ I can design a digital device ✓ To recognise how digital devices can change the way that we work ✓ I can explain how I use digital devices for different activities ✓ I can recognise similarities between using digital devices and using non-digital tools ✓ I can suggest differences between using digital devices and using non-digital tools ✓ To explain how a computer network can be used to share information ✓ I can recognise different connections ✓ I can explain how messages are passed through multiple connections ✓ I can discuss why we need a network switch ✓ To explore how digital devices can be connected	✓ To plan an animation ✓ I can break down a story into settings, characters and events ✓ I can describe an animation that is achievable on screen ✓ I can create a storyboard ✓ To identify the need to work consistently and carefully ✓ I can use onion skinning to help me make small changes between frames ✓ I can review a sequence of frames to check my work ✓ I can evaluate the quality of my animation ✓ To review and improve an animation ✓ I can explain ways to make my animation better ✓ I can evaluate another learner's animation ✓ I can improve my animation based on feedback ✓ To evaluate the impact of adding other media to an animation ✓ I can add other media to my animation ✓ I can explain why I added other media to my animation ✓ I can evaluate my final film **Education for a Connected World links:** **Managing online information**	✓ I can recognise that text and images can communicate messages clearly ✓ I can identify the advantages and disadvantages of using text and images ✓ To recognise that text and layout can be edited ✓ I can change font style, size, and colours for a given purpose ✓ I can edit text ✓ I can explain that text can be changed to communicate more clearly ✓ To choose appropriate page settings ✓ I can explain what 'page orientation' means ✓ I can recognise placeholders and say why they are important ✓ I can create a template for a particular purpose ✓ To add content to a desktop publishing publication ✓ I can choose the best locations for my content ✓ I can paste text and images to create a magazine cover ✓ I can make changes to content after I've added it ✓ To consider how different layouts can suit different purposes	✓ I can make up a yes/no question about a collection of objects ✓ I can create two groups of objects separated by one attribute ✓ To identify the object attributes needed to collect relevant data ✓ I can select an attribute to separate objects into groups ✓ I can create a group of objects within an existing group ✓ I can arrange objects into a tree structure ✓ To create a branching database ✓ I can select objects to arrange in a branching database ✓ I can group objects using my own yes/no questions ✓ I can prove my branching	✓ I can explain that objects in Scratch have attributes (linked to) ✓ I can recognise that commands in Scratch are represented as blocks ✓ To identify that commands have an outcome ✓ I can identify that each sprite is controlled by the commands I choose ✓ I can choose a word which describes an on-screen action for my plan ✓ I can create a program following a design ✓ To explain that a program has a start ✓ I can start a program in different ways ✓ I can create a sequence of connected commands ✓ I can explain that the objects in my project will respond exactly to the code ✓ To recognise that a sequence of commands can have an order ✓ I can explain what a sequence is	actions and explain my choices ✓ I can identify a way to improve a program ✓ To create a program to move a sprite in four directions ✓ I can choose a character for my project ✓ I can choose a suitable size for a character in a maze ✓ I can program movement ✓ To adapt a program to a new context ✓ I can use a programming extension ✓ I can consider the real world when making design choices ✓ I can choose blocks to set up my program ✓ To develop my program by adding features ✓ I can identify additional features (from a given set of blocks) ✓ I can choose suitable keys to turn on additional features ✓ I can build more sequences of commands to make my design work ✓ To identify and fix bugs in a program

	✓ I can recognise that a computer network is made up of a number of devices ✓ I can demonstrate how information can be passed between devices ✓ I can explain the role of a switch, server, and wireless access point in a network ✓ To recognise the physical components of a network ✓ I can identify how devices in a network are connected together ✓ I can identify networked devices around me ✓ I can identify the benefits of computer networks	✓ I can use key phrases in search engines. ✓ I can use search technologies effectively. **Copyright and ownership** ✓ I can explain why copying someone else's work from the internet without permission can cause problems. ✓ I can give examples of what those problems might be. ✓ When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. ✓ I can give some simple examples. ✓ I can give examples of content that is permitted to be reused. ✓ I can demonstrate the use of search tools to find and access online content which can be reused by others.	✓ I can identify different layouts ✓ I can match a layout to a purpose ✓ I can choose a suitable layout for a given purpose ✓ To consider the benefits of desktop publishing ✓ I can identify the uses of desktop publishing in the real world ✓ I can say why desktop publishing might be helpful ✓ I can compare work made on desktop publishing to work created by hand **Education for a Connected World links:** **Managing online information:** ✓ I can use key phrases in search engines ✓ I can use search technologies effectively	database works ✓ To explain why it is helpful for a database to be well structured ✓ I can create yes/no questions using given attributes ✓ I can explain that questions need to be ordered carefully to split objects into similarly sized groups ✓ I can compare two branching database structures ✓ To identify objects using a branching database ✓ I can select a theme and choose a variety of objects ✓ I can create questions and apply them to a tree structure ✓ I can use my branching database to answer questions ✓ To compare the information	✓ I can combine sound commands ✓ I can order notes into a sequence ✓ To change the appearance of my project ✓ I can build a sequence of commands ✓ I can decide the actions for each sprite in a program ✓ I can make design choices for my artwork ✓ To create a project from a task description ✓ I can identify and name the objects I will need for a project ✓ I can relate a task description to a design ✓ I can implement my algorithm as code	✓ I can test a program against a given design ✓ I can match a piece of code to an outcome ✓ I can modify a program using a design ✓ To design and create a maze-based challenge ✓ I can make design choices and justify them ✓ I can implement my design ✓ I can evaluate my project

			Copyright and ownership: ✓ When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it ✓ I can demonstrate the use of search tools to find and access online content which can be reused by others	shown in a pictogram with a branching database ✓ I can explain what a pictogram tells me ✓ I can explain what a branching database tells me ✓ I can compare two ways of presenting information		

Computing at Wantage CE Primary

September 2022

Skills Key: **Computer Science – Theory and Programming,** **Information Technology,** **Digital Literacy.**

Year/ Term	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 4	**Computing systems and networks – The Internet** • Connecting networks • What is the internet made of? • Sharing information • What is a website? • Who owns the web? • Can I believe what I read? **National Curriculum:** ✓ 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	**Creating Media – Audio editing** • Digital recording • Recording sounds • Creating a podcast • Editing digital recordings • Combining audio • Evaluating podcasts **National Curriculum:** ✓ 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 **Science:**	**Creating media – Photo editing** • Changing digital images • Changing the composition of images • Changing images for different uses • Retouching images • Fake images • Making and evaluating a publication **National Curriculum:** ✓ Use search technologies effectively ✓ 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.	**Data and information – Data logging** • Answering questions • Data collection • Logging • Analysing data • Data for answers • Answering my question **National Curriculum:** ✓ ...work with various forms of input ✓ 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	**Programming A – Repetition in shapes** • Programming a screen turtle • Programming letters • Patterns and repeats • Using loops to create shapes • Breaking things down • Creating a program **National Curriculum:** ✓ 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	**Programming B – Repetition in games** • Using loops to create shapes • Different loops • Animate your name • Modifying a game • Designing a game • Creating our games **National Curriculum:** ✓ 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

	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. **PSHE:** ✓ Evaluating content for honesty and accuracy	✓ Sound: Find patterns between the volume of a sound and the strength of the vibrations that produced it ✓ Sound: Recognise that sounds get fainter as the distance from the sound source increases **English:** ✓ **Writing – composition:** Plan their writing by discussing and recording ideas ✓ **Writing – draft and write by:** In non-narrative material, using simple organisational devices [for example, headings and subheadings] ✓ **Writing:** Read aloud their own writing, to a group or the whole class, using appropriate intonation and controlling the tone and volume so that the meaning is clear **Music:** ✓ Improvise and compose music for a range of purposes using the interrelated dimensions of music		**Science:** ✓ making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers ✓ They should learn how to use new equipment, such as data loggers, appropriately. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.	✓ Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs ✓ Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	✓ Use 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

Computing at Wantage CE Primary

September 2022

	Knowledge & Skills:	Knowledge & Skills:	Knowledge & Skills:	Knowledge & Skills:	Knowledge & Skills:	Knowledge & Skills:
	✓ To describe how networks physically connect to other networks ✓ I can describe the internet as a network of networks ✓ I can demonstrate how information is shared across the internet ✓ I can discuss why a network needs protecting ✓ To recognise how networked devices make up the internet ✓ I can describe networked devices and how they connect ✓ I can explain that the internet is used to provide many services ✓ I can recognise that the World Wide Web contains websites and web pages ✓ To outline how websites can be shared via the World Wide Web (WWW) ✓ I can explain the types of media that can be shared on the WWW ✓ I can describe where websites are stored when uploaded to the WWW ✓ I can describe how to access websites on the WWW ✓ To describe how content can be added and accessed on the World Wide Web (WWW)	✓ To identify that sound can be digitally recorded: ✓ I can identify digital devices that can record sound and play it back ✓ I can identify the inputs and outputs required to play audio or record sound ✓ I can recognise the range of sounds that can be recorded ✓ To use a digital device to record sound: ✓ I can use a device to record audio and play back sound ✓ I can suggest how to improve my recording ✓ I can discuss what other people include when recording sound for a podcast ✓ To explain that a digital recording is stored as a file: ✓ I can plan and write the content for a podcast ✓ I can discuss why it is useful to be able to save digital recordings ✓ I can save a digital recording as a file ✓ To explain that audio can be changed through editing: ✓ I can open a digital recording from a file ✓ I can discuss ways in which audio recordings can be altered ✓ I can edit sections of an audio recording	✓ To explain that digital images can be changed ✓ I can identify changes that we can make to an image ✓ I can explore how images can be changed in real life ✓ I can explain the effect that editing can have on an image ✓ To change the composition of an image ✓ I can explain what has changed in an edited image ✓ I can change the composition of an image by selecting parts of it ✓ I can consider why someone might want to change the composition of an image ✓ To describe how images can be changed for different uses ✓ I can talk about changes made to images ✓ I can choose effects to make my image fit a scenario ✓ I can explain why my choices fit a scenario ✓ To make good choices when selecting different tools ✓ I can identify how an image has been retouched ✓ I can give examples of positive and negative effects that retouching can have on an image	✓ To explain that data gathered over time can be used to answer questions ✓ I can choose a data set to answer a given question ✓ I can suggest questions that can be answered using a given data set ✓ I can identify data that can be gathered over time ✓ To use a digital device to collect data automatically ✓ I can explain that sensors are input devices ✓ I can use data from a sensor to answer a given question ✓ I can identify that data from sensors can be recorded ✓ To explain that a data logger collects 'data points' from sensors over time ✓ I can identify a suitable place to collect data ✓ I can identify the intervals used to collect data ✓ I can talk about the data that I have captured ✓ To use data collected over a long duration to find information	✓ To identify that accuracy in programming is important ✓ I can program a computer by typing commands ✓ I can explain the effect of changing a value of a command ✓ I can create a code snippet for a given purpose ✓ To create a program in a text-based language ✓ I can use a template to draw what I want my program to do ✓ I can write an algorithm to produce a given outcome ✓ I can test my algorithm in a text-based language ✓ To explain what 'repeat' means ✓ I can identify repetition in everyday tasks ✓ I can identify patterns in a sequence ✓ I can use a count-controlled loop	✓ To develop the use of count-controlled loops in a different programming environment ✓ I can list an everyday task as a set of instructions including repetition ✓ I can predict the outcome of a snippet of code ✓ I can modify a snippet of code to create a given outcome ✓ To explain that in programming there are infinite loops and count-controlled loops ✓ I can modify loops to produce a given outcome ✓ I can choose when to use a count-controlled and an infinite loop ✓ I can recognise that some programming languages enable more than one process to be run at once ✓ To develop a design that includes two or more loops which

	✓ I can explain what media can be found on websites ✓ I can recognise that I can add content to the WWW ✓ I can explain that internet services can be used to create content online ✓ To recognise how the content of the WWW is created by people ✓ I can explain that websites and their content are created by people ✓ I can suggest who owns the content on websites ✓ I can explain that there are rules to protect content ✓ To evaluate the consequences of unreliable content ✓ I can explain that not everything on the World Wide Web is true ✓ I can explain why some information I find online may not be honest, accurate, or legal ✓ I can explain why I need to think carefully before I share or reshare content **Education for a Connected World links:** **Managing online information** ✓ I can analyse information to make a judgement about probable accuracy, and I	✓ To show that different types of audio can be combined and played together: ✓ I can discuss sounds that other people combine ✓ I can choose suitable sounds to include in a podcast ✓ I can use editing tools to arrange sections of audio ✓ To evaluate editing choices made: ✓ I can explain that digital recordings need to be exported to share them ✓ I can discuss the features of a digital recording I like ✓ I can suggest improvements to a digital recording **Education for a Connected World links:** **Copyright and ownership:** ✓ I can explain why copying someone else's work from the internet without permission can cause problems (Y3)	✓ I can choose appropriate tools to retouch an image ✓ To recognise that not all images are real ✓ I can sort images into 'fake' or 'real' and explain my choices ✓ I can combine parts of images to create new images ✓ I can talk about fake images around me ✓ To evaluate how changes can improve an image ✓ I can consider the effect of adding other elements to my work ✓ I can compare the original image with my completed publication ✓ I can evaluate the impact of my publication on others through feedback **Education for a Connected World links:** **Self-image and identity:** ✓ I can describe ways in which people might make themselves look different online. **Copyright and ownership:** ✓ When searching on the internet for content to use, I can explain why I need to consider who	✓ I can import a data set ✓ I can use a computer to view data in different ways ✓ I can use a computer program to sort data ✓ To identify the data needed to answer questions ✓ I can propose a question that can be answered using logged data ✓ I can plan how to collect data using a data logger ✓ I can use a data logger to collect data ✓ To use collected data to answer questions ✓ I can interpret data that has been collected using a data logger ✓ I can draw conclusions from the data that I have collected ✓ I can explain the benefits of using a data logger	to produce a given outcome ✓ To modify a count-controlled loop to produce a given outcome ✓ I can identify the effect of changing the number of times a task is repeated ✓ I can predict the outcome of a program containing a count-controlled loop ✓ I can choose which values to change in a loop ✓ To decompose a task into small steps ✓ I can identify 'chunks' of actions in the real world ✓ I can use a procedure in a program ✓ I can explain that a computer can repeatedly call a procedure ✓ To create a program that uses count-controlled loops to produce a given outcome ✓ I can design a program that includes count-controlled loops	run at the same time ✓ I can choose which action will be repeated for each object ✓ I can explain what the outcome of the repeated action should be ✓ I can evaluate the effectiveness of the repeated sequences used in my program ✓ To modify an infinite loop in a given program ✓ I can identify which parts of a loop can be changed ✓ I can explain the effect of my changes ✓ I can re-use existing code snippets on new sprites ✓ To design a project that includes repetition ✓ I can evaluate the use of repetition in a project ✓ I can select key parts of a given project to use in my own design ✓ I can develop my own design explaining what my project will do ✓ To create a project that

	understand why it is important to make my own decisions regarding content and that my decisions are respected by others. ✓ I can explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't. ✓ I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, or influencers). ✓ I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.	✓ I can give examples of what those problems might be (Y3) ✓ When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it (Y4) ✓ I can give some simple examples (Y4)	owns it and whether I have the right to reuse it.		✓ I can make use of my design to write a program ✓ I can develop my program by debugging it	includes repetition ✓ I can refine the algorithm in my design ✓ I can build a program that follows my design ✓ I can evaluate the steps I followed when building my project

Computing at Wantage CE Primary

September 2022

Skills Key: **Computer Science – Theory and Programming, Information Technology, Digital Literacy.**

Year/ Term	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 5	Computing systems and networks – Sharing information • Systems • Computer systems and us • Transferring information • Working together • Better working together • Shared working **National Curriculum:** ✓ 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 ✓ Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration ✓ Select, use and combine a variety of software	Creating Media – Vector drawing • The drawing tools • Create a vector drawing • Being effective • Layers and objects • Manipulating objects • Get designing **National Curriculum:** ✓ 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.	Creating Media – Video editing • What is video? • Filming techniques • Using a storyboard • Planning a video • Importing and editing video • Video evaluation **National Curriculum:** ✓ 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	Data and information – Flat-file databases • Creating a paper-based database • Computer databases • Using a database • Using search tools • Comparing data visually • Databases in real life • **National Curriculum:** ✓ 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	Programming A – Selection in physical computing • Connecting crumbles • Combining output components • Controlling with conditions • Starting with selection • Drawing designs • Writing and testing algorithms **National Curriculum:** ✓ 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	Programming B – Selection in quizzes • Exploring conditions • Selecting outcomes • Asking questions • Planning a quiz • Testing a quiz • Evaluating a quiz **National Curriculum:** ✓ 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

	(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 **Knowledge & Skills:** ✓ To explain that computers can be connected together to form systems ✓ I can explain that systems are built using a number of parts ✓ I can describe that a computer system features inputs, processes, and outputs ✓ I can explain that computer systems communicate with other devices ✓ To recognise the role of computer systems in our lives ✓ I can identify tasks that are managed by computer systems ✓ I can identify the human elements of a computer system	**Knowledge & Skills:** ✓ To identify that drawing tools can be used to produce different outcomes ✓ I can recognise that vector drawings are made using shapes ✓ I can identify the main drawing tools ✓ I can discuss how a vector drawing is different from paper-based drawings ✓ To create a vector drawing by combining shapes ✓ I can identify the shapes used to make a vector drawing ✓ I can explain that each element	range of ways to report concerns about content and contact ✓ Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour **Knowledge & Skills:** ✓ To explain what makes a video effective ✓ I can explain that video is a visual media format ✓ I can identify features of videos ✓ I can compare features in different videos ✓ To use a digital device to record video ✓ I can identify and find features on a digital video recording device ✓ I can experiment with different camera angles ✓ I can make use of a microphone ✓ To capture video using a range of techniques ✓ I can suggest filming techniques for a given purpose	collecting, analysing, evaluating, and presenting data and information **Knowledge & Skills:** ✓ To outline how grouping and then sorting data allows us to answer questions ✓ I can explain how information can be grouped ✓ I can group information to answer questions ✓ I can combine grouping and sorting to answer more specific questions ✓ To explain that tools can be used to select specific data ✓ I can choose which field and value are required	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 **Science:** ✓ Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches, and buzzers **Design and Technology:** ✓ Generate, develop, model, and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces, and computer-aided design ✓ Select from and use a wider range of tools and equipment	algorithms and programs **Knowledge & Skills:** ✓ To relate that a conditional statement connects a condition to an outcome ✓ I can use selection in an infinite loop to check a condition ✓ I can identify the condition and outcomes in an 'if… then… else…' statement ✓ I can create a program with different outcomes using selection ✓ To explain how selection directs the flow of a program ✓ I can explain that program flow can

	✓ I can explain the benefits of a given computer system ✓ To recognise how information is transferred over the internet ✓ I can recognise that data is transferred using agreed methods ✓ I can explain that networked digital devices have unique addresses ✓ I can explain that data is transferred over networks in packets ✓ To explain how sharing information online lets people in different places work together ✓ I can recognise that connected digital devices can allow us to access shared files stored online ✓ I can send information over the internet in different ways ✓ I can explain that the internet allows different media to be shared ✓ To contribute to a shared project online ✓ I can suggest strategies to ensure successful group work ✓ I can make thoughtful suggestions on my group's work ✓ I can compare working online with working offline ✓ To evaluate different ways of working together online	added to a vector drawing is an object ✓ I can move, resize, and rotate objects I have duplicated ✓ To use tools to achieve a desired effect ✓ I can use the zoom tool to help me add detail to my drawings ✓ I can explain how alignment grids and resize handles can be used to improve consistency ✓ I can modify objects to create different effects ✓ To recognise that vector drawings consist of layers ✓ I can identify that each added object creates a new layer in the drawing ✓ I can identify which objects are in the front layer or in the back layer of a drawing ✓ I can change the order of layers in a vector drawing ✓ To group objects to make them easier to work with ✓ I can copy part of a drawing by duplicating several objects ✓ I can group to create a single object	✓ I can capture video using a range of filming techniques ✓ I can review how effective my video is ✓ To create a storyboard ✓ I can outline the scenes of my video ✓ I can decide which filming techniques I will use ✓ I can create and save video content ✓ To identify that video can be improved through reshooting and editing ✓ I can store, retrieve, and export my recording to a computer ✓ I can explain how to improve a video by reshooting and editing ✓ I can select the correct tools to make edits to my video ✓ To consider the impact of the choices made when making and sharing a video ✓ I can make edits to my video and improve the final outcome ✓ I can recognise that my choices when making a video will impact the quality of the final outcome ✓ I can evaluate my video and share my opinions	to answer a given question ✓ I can outline how 'AND' and 'OR' can be used to refine data selection ✓ I can choose multiple criteria to answer a given question ✓ To explain that computer programs can be used to compare data visually ✓ I can select an appropriate chart to visually compare data ✓ I can refine a chart by selecting a particular filter ✓ I can explain the benefits of using a computer to create graphs ✓ To apply my knowledge of a database to ask and answer real-world questions ✓ I can ask questions that will need more than one field to answer ✓ I can refine a search in a real-world context ✓ I can present my findings to a group	to perform practical tasks [for example, cutting, shaping, joining, and finishing], accurately ✓ Select from and use a wider range of materials and components, including construction materials, textiles, and ingredients, according to their functional properties and aesthetic qualities ✓ Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work ✓ Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers, and motors] ✓ Apply their understanding of computing to program, monitor, and control their products	branch according to a condition ✓ I can design the flow of a program which contains 'if… then… else…' ✓ I can show that a condition can direct program flow in one of two ways ✓ To design a program which uses selection ✓ I can outline a given task ✓ I can use a design format to outline my project ✓ I can identify the outcome of user input in an algorithm ✓ To create a program which uses selection ✓ I can implement my algorithm to create the first section of my program ✓ I can test my program ✓ I can share my program with others ✓ To evaluate my program ✓ I can identify ways the program could be improved ✓ I can identify the setup code I need in my program ✓ I can extend my program further

	✓ I can identify different ways of working together online ✓ I can recognise that working together on the internet can be public or private ✓ I can explain how the internet enables effective collaboration **Education for a Connected World links:** ✓ I can assess and justify when it is acceptable to use the work of others ✓ I can give examples of content that is permitted to be reused	✓ I can reuse a group of objects to further develop my vector drawing ✓ To evaluate my vector drawing ✓ I create alternatives to vector drawings ✓ I can suggest improvements to a vector drawing ✓ I can apply what I have learned about vector drawings **Education for a Connected World links:** **Copyright and ownership** ✓ I can explain why copying someone else's work from the internet without permission can cause problems.			**Knowledge & Skills:** ✓ To control a simple circuit connected to a computer ✓ I can create a simple circuit and connect it to a microcontroller ✓ I can program a microcontroller to make an LED switch on ✓ I can explain what an infinite loop does ✓ To write a program that includes count-controlled loops ✓ I can connect more than one output component to a microcontroller ✓ I can use a count-controlled loop to control outputs ✓ I can design sequences that use count-controlled loops ✓ To explain that a loop can stop when a condition is met ✓ I can explain that a condition is either true or false ✓ I can design a conditional loop ✓ I can program a microcontroller to respond to an input ✓ To explain that a loop can be used to repeatedly check whether a condition has been met	

					✓ I can explain that a condition being met can start an action ✓ I can identify a condition and an action in my project ✓ I can use selection (an 'if…then…' statement) to direct the flow of a program ✓ To design a physical project that includes selection ✓ I can identify a real-world example of a condition starting an action ✓ I can describe what my project will do ✓ I can create a detailed drawing of my project ✓ To create a program that controls a physical computing project ✓ I can write an algorithm that describes what my model will do ✓ I can use selection to produce an intended outcome ✓ I can test and debug my project	

Computing at Wantage CE Primary

September 2022

Skills Key: **Computer Science – Theory and Programming,** **Information Technology,** **Digital Literacy.**

Year/ Term	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 6	Computing systems and networks - Communication • Searching the web • Selecting search results • How search results are ranked • How are searches influenced? • How we communicate • Communicating responsibly **National Curriculum:** ✓ 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	Creating Media – 3D Modelling • What is 3D modelling? • Making changes • Rotation and position • Making holes • Planning my own 3D model • Making my own 3D model **National Curriculum:** ✓ 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	Creating Media – Web page creation • What makes a good website? • How would you layout your web page? • Copyright or copyWRONG? • How does it look? • Follow the breadcrumbs • Think before you link! **National Curriculum:** ✓ 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.	Data and information - Spreadsheets • What is a spreadsheet? • Modifying spreadsheets • What's the formula? • Calculate and duplicate • Event planning • Presenting data **National Curriculum:** ✓ 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 **Maths:**	Programming A – Variables in games • Introducing variables • Variables in programming • Improving a game • Designing a game • Design to code • Improving and sharing **National Curriculum:** ✓ 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	Programming B - Sensing • The micro:bit • Go with the flow • Sensing inputs • Finding your way • Designing a step counter • Making a step counter **National Curriculum:** ✓ 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

	✓ 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 **Knowledge & Skills:** ✓ To identify how to use a search engine ✓ I can complete a web search to find specific information ✓ I can refine my search ✓ I can compare results from different search engines ✓ To describe how search engines select results ✓ I can explain why we need tools to find things online ✓ I can recognise the role of web crawlers ✓ in creating an index ✓ I can relate a search term to the search engine's index	**Art and Design:** ✓ To improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials **Design and Technology:** ✓ Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **Mathematics:** ✓ Recognise, describe and build simple 3D shapes, including making nets **Knowledge & Skills:** ✓ To use a computer to create and manipulate three-dimensional (3D) digital objects ✓ I can discuss the similarities and differences between 2D and 3D shapes ✓ I can explain why we might represent 3D objects on a computer ✓ I can select, move, and delete a digital 3D shape	**English:** ✓ Writing composition: Identifying the audience for and purpose of the writing, selecting the appropriate form, and using other similar writing as models for their own. **Knowledge & Skills:** ✓ To review an existing website and consider its structure ✓ I can explore a website ✓ I can discuss the different types of media used on websites ✓ I know that websites are written in HTML ✓ To plan the features of a web page ✓ I can recognise the common features of a web page	✓ Solve problems involving addition, subtraction, multiplication, and division ✓ Interpret and construct pie charts and line graphs, and use these to solve problems ✓ Calculate and interpret the mean as an average **Knowledge & Skills:** ✓ To identify questions which can be answered using data ✓ I can explain the relevance of data headings ✓ I can answer questions from an existing data set ✓ I can ask simple relevant	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 **Knowledge & Skills:** ✓ To define a 'variable' as something that is changeable ✓ I can identify examples of information that is variable ✓ I can explain that the way that a variable changes can be defined	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 **Knowledge & Skills:** ✓ To create a program to run on a controllable device ✓ I can apply my knowledge of programming to a new environment ✓ I can test my program on an emulator ✓ I can transfer my program to a

	✓ To explain how search results are ranked ✓ I can explain that search results are ordered ✓ I can explain that a search engine follows rules to rank relevant pages ✓ I can suggest some of the criteria that a search engine checks to decide on the order of results ✓ To recognise why the order of results is important, and to whom ✓ I can describe some of the ways that search results can be influenced ✓ I can recognise some of the limitations of search engines ✓ I can explain how search engines make money ✓ To recognise how we communicate using technology ✓ I can explain the different ways in which people communicate ✓ I can identify that there are a variety of ways of communicating over the internet ✓ I can choose methods of communication to suit particular purposes ✓ To evaluate different methods of online communication ✓ I can compare different methods of communicating on the internet ✓ I can decide when I should and should not share	✓ To compare working digitally with 2D and 3D graphics ✓ I can identify how graphical objects can be modified ✓ I can resize a 3D object ✓ I can change the colour of a 3D object ✓ To construct a digital 3D model of a physical object ✓ I can rotate a 3D object ✓ I can position 3D objects in relation to each other ✓ I can select and duplicate multiple 3D objects ✓ To identify that physical objects can be broken down into a collection of 3D shapes ✓ I can identify the 3D shapes needed to create a model of a real-world object ✓ I can create digital 3D objects of an appropriate size ✓ I can group a digital 3D shape and a placeholder to create a hole in an object ✓ To design a digital model by combining 3D objects ✓ I can plan my 3D model ✓ I can choose which 3D objects I need to construct my model ✓ I can modify multiple 3D objects ✓ To develop and improve a digital 3D model ✓ I can decide how my model can be improved ✓ I can modify my model to improve it	✓ I can suggest media to include on my page ✓ I can draw a web page layout that suits my purpose ✓ To consider the ownership and use of images (copyright) ✓ I can say why I should use copyright-free images ✓ I can find copyright-free images ✓ I can describe what is meant by the term 'fair use' ✓ To recognise the need to preview pages ✓ I can add content to my own web page ✓ I can preview what my web page looks like ✓ I can evaluate what my web page looks like on different devices and suggest/make edits. ✓ To outline the need for a navigation path ✓ I can explain what a navigation path is ✓ I can describe why navigation paths are useful ✓ I can make multiple web pages and link them using hyperlinks ✓ To recognise the implications of linking to content owned by other people ✓ I can explain the implication of linking to content owned by others ✓ I can create hyperlinks to link to other people's work	questions which can be answered using data ✓ To explain that objects can be described using data ✓ I can explain what an item of data is ✓ I can apply an appropriate number format to a cell ✓ I can build a data set in a spreadsheet application ✓ To explain that formulas can be used to produce calculated data ✓ I can explain the relevance of a cell's data type ✓ I can construct a formula in a spreadsheet ✓ I can identify that changing inputs changes outputs ✓ To apply formulas to data, including duplicating ✓ I can recognise that data can be calculated using different operations ✓ I can create a formula which includes a range of cells ✓ I can apply a formula to	✓ I can identify that variables can hold numbers or letters ✓ To explain why a variable is used in a program ✓ I can identify a program variable as a placeholder in memory for a single value ✓ I can explain that a variable has a name and a value ✓ I can recognise that the value of a variable can be changed ✓ To choose how to improve a game by using variables ✓ I can decide where in a program to change a variable ✓ I can make use of an event in a program to set a variable ✓ I can recognise that the value of a variable can be used by a program ✓ To design a project that builds on a given example ✓ I can choose the artwork for my project ✓ I can explain my design choices	controllable device ✓ To explain that selection can control the flow of a program ✓ I can identify examples of conditions in the real world ✓ I can use a variable in an if, then, else statement to select the flow of a program ✓ I can determine the flow of a program using selection ✓ To update a variable with a user input ✓ I can use a condition to change a variable ✓ I can experiment with different physical inputs ✓ I can explain that if you read a variable, the value remains ✓ To use an conditional statement to compare a variable to a value ✓ I can explain the importance of the order of conditions in else, if statements ✓ I can use an operand (e.g. <>=)

	✓ I can explain that communication on the internet may not be private **Education for a Connected World links:** ✓ I can describe and assess the benefits and the potential risks of sharing information online. ✓ I can use various additional tools to refine my searches (e.g. search filters: size, type, usage rights etc.). ✓ I can explain how to use search effectively and use examples from my own practice to illustrate this. ✓ I can explain how search engine rankings are returned and can explain how they can be influenced (e.g. commerce, sponsored results).	✓ I can evaluate my model against a given criterion **Education for a Connected World links:** **Privacy and security:** ✓ I can describe strategies for keeping my personal information private, depending on context	✓ I can evaluate the user experience of a website **Education for a Connected World links:** **Online relationships:** ✓ I can use the internet with adult support to communicate with people I know. **Managing information online:** ✓ I can navigate online content, websites, or social media feeds using more sophisticated tools to get to the information I want (e.g. menus, sitemaps, breadcrumb-trails, site search functions). **Copyright and ownership:** ✓ I can explain why copying someone else's work from the internet without permission can cause problems. ✓ I can give examples of what those problems might be. ✓ When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I	multiple cells by duplicating it ✓ To create a spreadsheet to plan an event ✓ I can use a spreadsheet to answer questions ✓ I can explain why data should be organised ✓ I can apply a formula to calculate the data I need to answer questions ✓ To choose suitable ways to present data ✓ I can produce a graph ✓ I can use a graph to show the answer to questions ✓ I can suggest when to use a table or graph **Education for a Connected World links:** **Managing information online:** ✓ I can describe how I can search for information within a wide group of technologies (e.g. social media,	✓ I can create algorithms for my project ✓ To use my design to create a project ✓ I can create the artwork for my project ✓ I can choose a name that identifies the role of a variable ✓ I can test the code that I have written ✓ To evaluate my project ✓ I can identify ways that my game could be improved ✓ I can extend my game further using more variables ✓ I can share my game with others	in an if, then statement ✓ I can modify a program to achieve a different outcome ✓ To design a project that uses inputs and outputs on a controllable device ✓ I can decide what variables to include in a project ✓ I can design the algorithm for my project ✓ I can design the program flow for my project ✓ To develop a program to use inputs and outputs on a controllable device ✓ I can create a program based on my design ✓ I can test my program against my design ✓ I can use a range of approaches to find and fix bugs

			have the right to reuse it. ✓ I can give some simple examples. ✓ I can assess and justify when it is acceptable to use the work of others. ✓ I can give examples of content that is permitted to be reused. ✓ I can demonstrate the use of search tools to find and access online content which can be reused by others. ✓ I can demonstrate how to make references to and acknowledge sources I have used from the internet. ✓ I can explain the principles of fair use and apply this to case studies	image sites, video sites) ✓ I can use different search technologies ✓ I can evaluate digital content and can explain how I make choices from search results		