COTHERSTONE
PRIMARY SCHOOL

A member of
Bowes Cotherstone Federation

Computing

Cotherstone Primary School

Rationale

· To provide a relevant, challenging and enjoyable curriculum for Computing for all pupils.
· Meet the requirements of the National Curriculum programmes of study for Computing.
· To respond to new developments in technology.
· To develop a wide range of fundamental skills, knowledge and understanding needed in modern day life.
· To become confident global citizens.
· To develop 'Computational thinking', a skill that enables effective participation in the digital world.
· To enable pupils to understand and apply the most important principles and concepts of computer science.
· To equip children to use information technology to create programs, systems and a range of content.
· To ensure pupils become digitally literate.
· To enable pupils to use technology effectively, and express themselves and develop their ideas through, information and communication technology and as active participants in a digital world.
· To develop the understanding of responsible use of the Internet and of the potential dangers of using the Internet and measures they can take to keep themselves safe in school and in the wider world.

Rationale

The National Curriculum defines three clear aspects of computing: Computer Science (CS), Information Technology (IT) and Digital Literacy (DL).

COMPUTER SCIENCE (CS) How computers and their systems work and how they are designed and programmed.
INFORMATION TECHNOLOGY (IT) The use of programs to develop products for a purpose.
DIGITAL LITERACY (DL) The knowledge, skills and understanding needed to participate safely in an increasingly digital world.

Across our 2 year Long Term Planning cycle, Computing lessons will cover the content for each of these strands. Learning is sequenced to build knowledge, skills and vocabulary. Throughout units of work teachers will make links and encourage children to make links between past learning and new content. We recognise prior learning and build on it with memorable learning experiences with targeted support where necessary.

Each unit meets the needs of the National Curriculum and is broken down to cover every element of each of the three strands of Computing. Due to mixed age groups, planning is on a 2-year rolling cycle.

Alongside our local authority Computing advisor we have created a comprehensive progression document for staff to follow to best embed and cover every element of the computing curriculum. The progression of knowledge and skills statements build year on year to deepen and challenge our learners.

Rationale

Our Information Technology strand is split into a variety of areas. Key Stage One begin both of their yearly cycles with a Key Computer Skills unit so that our youngest learners are equipped with the basic skills of turning a computer on, using a mouse and keyboard and saving their own work. They then learn how to use Microsoft Word and PowerPoint and how to use Paint software. In Lower Key Stage Two they build on these skills by broadening their knowledge of Word, PowerPoint and Publisher. They begin to explore Animation and use a Book Creator App on iPads. Upper Key Stage Two develop skills using PowerPoint, Word and Excel, create Films, create websites and use software to edit Photos. Each year learning is sequential to build on previous knowledge and skills.

Within the Digital Literacy strand we use Common Sense Media, Think U Know, Child Net and a variety of age-appropriate Internet Safety Books. We use Project Evolve to ensure coverage of the new Education for a Connected World document. Pupils deliver whole school assemblies to teach other pupils key internet safety messages.

Pupils develop their Computer Science knowledge and skills sequentially throughout their time at Cotherstone. In Key Stage One they begin programming through use of Bee Bots (EYFS and KS1) and through using Turtle Logo and Scratch Jr. In Lower Key Stage Two they continue to broaden their knowledge and skills using Turtle Logo and Scratch and begin to use Hour of Code. In Upper Key Stage Two they use Scratch, Hour of Code, Flowol and Kodu. Each year children build upon the knowledge and skills in Computer Science across a wide variety of programs.

Rationale

In line with our whole-school curriculum intent, Computing will be taught both discretely as a core subject once per week as well as being used daily across other aspects of our school curriculum, with one example being the use of Times Tables Rockstar's during Maths lessons.

Where appropriate, Computing will be linked to class topics.

Whole- school Internet Safety days are timetabled within the school year. Parents are updated via the newsletter/School Facebook page of Internet Safety updates and guidance.

Computing work is saved electronically in the children's own network area; which can be accessed by Staff.

Whole class floor books are used to evidence computing work, and allow children to reflect on their learning throughout the year

Rationale

The impact of our Computing curriculum is that children build on the knowledge and skills from previous learning. We ensure that every child can become a confident user of technology, while being able to use it to accomplish a wide variety of goals, both at home and in school. Children will have a secure and comprehensive knowledge of how technology works in the world around them and will develop their understanding of how to deal with online situations safely.
Children will become confident **global citizens.**

Whole School Long Term Plan
Cycle A

	Autumn			Spring			Summer		
Years 1 & 2	**IT** Parts of a Computer Key Basic Computer Skills Typing Skills Mouse Skills	**Digital Literacy** Expressing Online Worries Going Places Safely	**Computer Science**	**IT** Word Processing Skills	**Digital Literacy** Internet Safety Day	**Computer Science** Programming Toys BeeBots	**IT** Painting Using and applying skills	**Digital Literacy**	**Computer Science** Programming- Turtle Logo and Scratch
Years 3 & 4	**IT** Word Processing Skills	**Digital Literacy** Personal and Private Information	**Computer Science** Hour of Code- Course D Sequencing and Events	**IT** Drawing and Desktop Publishing	**Digital Literacy** The Key to Keywords Is seeing believing?	**Computer Science** Programming Turtle Logo and Scratch	**IT** Animation	**Digital Literacy** Powerful Passwords	**Computer Science** Hour of Code Course D Loops and Conditionals
Years 5 & 6	**IT** Microsoft Publisher	**Digital Literacy** Cyberbullying	**Computer Science** Scratch- Animated Stories	**IT** Radio Station	**Digital Literacy** Internet Safety Day	**Computer Science** Kodu	**IT** Microsoft Excel Electronic Yearbook – make contribution (imovie, pic collage, Morfo, pages etc...) Use several different apps and integrate their use	**Digital Literacy** Recognising a good Media Balance	**Computer Science** Hour of Code: Course F

Education for a Connected World- *Project Evolve will be used across the school during PHSCE, Computing and Class Assembly time to teach the education for a connected world content.*

Whole School Long Term Plan
Cycle B

	Autumn			Spring			Summer		
Years 1 & 2	**IT** Parts of a Computer Key Computer Skills Typing Skills Mouse Skills	**Digital Literacy** Expressing Online Worries Keeping it Private	**Computer Science**	**IT** PowerPoint	**Digital Literacy** Internet Safety Day	**Computer Science** Programming Toys- Bee Bots	**IT** Using and applying skills	**Digital Literacy** Searching	**Computer Science** Programming- Scratch Jr
Years 3 & 4	**IT** Word Processing Skills	**Digital Literacy** Recognising and reporting unacceptable behaviour	**Computer Science** Hour of Code Course C	**IT** PowerPoint	**Digital Literacy** Recognising a good media balance Internet Safety Day	**Computer Science** Programming- Turtle Logo	**IT** Using and applying skills to accomplish given goals: Book Creator Morfo App	**Digital Literacy**	**Computer Science** Scratch
Years 5 & 6	**IT** Editing a Photo	**Digital Literacy** Digital Friendships	**Computer Science** Scratch- Developing Games	**IT** Film Making	**Digital Literacy** Effective Searching Bias and Trust Internet Safety Day	**Computer Science** Controlling Devices-Flowol	**IT** Electronic Yearbook – make contribution (imovie, pic collage, Morfo, pages etc...) Use several different apps and integrate their use	**Digital Literacy** Fake News	**Computer Science** Hour of Code Course E

Education for a Connected World- *Project Evolve will be used across the school during PHSCE, Computing and Class Assembly time to teach the education for a connected world content.*

Long Term Plan– Year 1 and 2– Cycle A

	Autumn	Spring	Summer
Year 1 and 2 Cycle A	**Information Technology** **Key Computer Skills** **End Point:** Use key basic computer skills (appropriate to their year group) **Knowledge and Skills:** **Year 1:** • Be able to log onto a computer Or use a QR code to evidence work on a tablet • Be able to navigate around the screen with a mouse or touchpad • Know how to type text using space bar for separate words to create something meaningful • Be able to independently find and use an app on a tablet for instance to take and view a video or photograph **Year 2:** • Be able to save, retrieve and print work PC or Tablet • Know how to type and format text including basic punctuation and capital letters. • Be able to confidently use pointing device Mouse, Touchpad. Key Computer Skills *Repeat on both cycles https://www.j2e.com/jit5# Typing Skills https://www.topmarks.co.uk/Christmas/ChristmasGames.aspx - mouse skills linked to Christmas.	**Computer Science** Programming Toys – Bee Bots **End Points:** Program a robot to follow a simple sequence or instructions, make simple predictions about an algorithm and be able to debug the program. (Y1) Program a robot to achieve a set goal and be able to debug more complex problems. (Y2) **Knowledge and Skills:** **Year 1:** • Know which button on a device represents which action e.g. Bee Bot • Know how to program a robot to follow simple sequence of instructions (1- 2 turns) • Make a simple sequence of instructions / algorithm • Be able to make simple predications about an algorithm and a program. The Bee Bot will go.... • Be able to change (debug) the program to improve the route **Year 2:** • Know how to program a robot to achieve set goal (sequence of 6-7 instructions: maze, point collecting). • Be able to debug more complex problems e.g. a route on a Bee Bot. **Digital Literacy & Citizenship** **Internet Safety Day**	**Computer Science** Programming- Turtle Logo and Scratch **End Points:** Make a simple sequence of instructions/algorithm and be able to debug the program (Y1) Begin to use block programming to complete a simple program and be able to debug more complex problems. (Y2) **Knowledge and Skills:** **Year 1:** • Know which button on a device represents which action. • Know how to program a robot to follow simple sequence of instructions (1- 2 turns) • Make a simple sequence of instructions / algorithm • Be able to make simple predications about an algorithm and a program. • Be able to change (debug) the program to improve the route **Year 2:** • Know how to program a robot to achieve set goal (sequence of 6-7 instructions: maze, point collecting) • Begin to use block programming e.g. Scratch Junior to complete a simple program. • Be able to debug more complex problems.

Long Term Plan– Year 1 and 2– Cycle A

	Digital Literacy & Citizenship **Going Places Safely** **End Point:** Know that devices enable direct communication between people through images and text. Pupils learn that they can go to exciting places online, but they need to follow certain rules to stay safe. Common Sense Media- Going Places Safely Jessie and Friends Think U Know- Episode 3 Playing Games **Expressing Online Worries** **End Point:** Know what to do if they are unsure of something they see whilst using the internet. Smartie the Penguin Jessie and Friends- Think U Know Episode 1 (Watching Videos) Episode 2 (Sharing Pictures)	**Information Technology** Word Processing Skills **End point:** Create a word document. Basic typing and word processing skills. Learn to type with two hands, use the shift, space and enter key properly, and edit work by using the backspace, delete and arrow keys. Children will then learn how to use undo and redo and to select and format text. **Knowledge and Skills:** **Year 1:** • Be able to log onto a computer Or use a QR code to evidence work on a tablet • Be able to navigate around the screen with a mouse or touchpad • Know how to type text using space bar for separate words to create something meaningful • Be able to independently find and use an app on a tablet **Year 2:** • Be able to save, retrieve and print work PC or Tablet • Know how to type and format text including basic punctuation and capital letters. • Be able to confidently use pointing device Mouse, Touchpad • Be able to add and create simple images • Be able to combine simple text and graphics, for instance create a poster for a purpose **Typing Skills Game** http://primarygamesarena.com/Play/Keyboard-2030	**Information Technology** Painting **End Point:** Use basic painting skills in a painting application on a tablet or computer. Use basic painting skills in a painting application on a computer or tablet device. Children will use the painting program to paint with different colours and brushes, create shapes, fill areas, undo and redo and add text.

Long Term Plan– Year 1 and 2– Cycle B

	Information Technology	Computer Science	Computer Science
Year 1 and 2 Cycle B	Computer Skills Teaching of key computer skills. **End Point:** Use key basic computer skills. **Knowledge and Skills:** **Year 1:** • Be able to log onto a computer or use a QR code to evidence work on a tablet • Be able to navigate around the screen with a mouse or touchpad • Know how to type text using space bar for separate words to create something meaningful • Be able to independently find and use an app on a tablet for instance to take and view a video or photograph **Year 2:** • Be able to save, retrieve and print work PC or Tablet • Know how to type and format text including basic punctuation and capital letters. • Be able to confidently use pointing device Mouse, Touchpad. Key Computer Skills Link https://www.j2e.com/jit5# Typing Skills https://www.topmarks.co.uk/Christmas/ChristmasGames.aspx - mouse skills linked to Christmas. *Repeat on both Cycles	Programming Toys- Bee Bot **End Points:** Program a robot to follow a simple sequence or instructions, make simple predictions about an algorithm and be able to change (debug) the program to improve the route. (Y1) Program a robot to achieve a set goal and be able to debug more complex problems. (Y2) **Knowledge and Skills:** **Year 1:** • Know which button on a device represents which action e.g. Bee Bot • Know how to program a robot to follow simple sequence of instructions (1- 2 turns) • Make a simple sequence of instructions / algorithm • Be able to make simple predications about an algorithm and a program. The Bee Bot will go.... • Be able to change (debug) the program to improve the route **Year 2:** • Know how to program a robot to achieve set goal (sequence of 6-7 instructions: maze, point collecting). • Be able to debug more complex problems e.g. a route on a Bee Bot **Digital Literacy & Citizenship** **Internet Safety Day**	Scratch Jr **End Points:** Make a simple sequence of instructions/algorithm and begin to be able to fix errors (debug) in the program. (Y1) Begin to use block programming to complete a simple program. Be able to debug more complex problems and use logical reasoning to predict the behavior of simple programs (Y2) **Knowledge and Skills:** **Year 1:** • Know which button on a device represents which action. • Know how to program a robot to follow simple sequence of instructions (1- 2 turns) • Make a simple sequence of instructions / algorithm • Be able to make simple predications about an algorithm and a program. • Be able to change (debug) the program to improve the route **Year 2:** • Know how to program a robot to achieve set goal (sequence of 6-7 instructions: maze, point collecting) • Begin to use block programming e.g. Scratch Junior to complete a simple program. • Be able to debug more complex problems.

Long Term Plan– Year 1 and 2 – Cycle B

	Digital Literacy and Citizenship	Information Technology	Digital Literacy & Citizenship
	Expressing Online Worries **End Point:** Know that they should tell a trusted adult if they are upset or worried about anything on a device. Pupils learn how to express their concerns if they see something that worries them online. Digi Duck- Kids Smart Common Sense Media- How Technology Makes You Feel Common Sense Media- Internet Traffic Light **Keeping it Private** **End Point:** Know what personal information is and that they should never share this with anyone they don't know. Pupils learn how to keep information private whilst online. CEOP- Hectors World Common Sense Media- That's Private!	Presentation Skills **End Point:** Use technology purposely to create a PowerPoint Presentation. Recap on key computer skills needed for safe and effective computer use and introduce further skills using folders, searching for files and printing. Year 2 children learn to create presentations, with Year 1 creating a simple presentation with a piece of text and an image. **Knowledge and Skills:** **Year 1:** • Be able to log onto a computer Or use a QR code to evidence work on a tablet • Be able to navigate around the screen with a mouse or touchpad • Know how to type text using space bar for separate words to create something meaningful • Be able to independently find and use an app on a tablet **Year 2:** • Be able to save, retrieve and print work PC or Tablet • Know how to type and format text including basic punctuation and capital letters. • Be able to confidently use pointing device Mouse, Touchpad • Be able to add and create simple images • Be able to combine simple text and graphics, for instance create a poster for a purpose.	**Searching** **End Point:** With support from an adult be able to find information on the internet. Pupils search for pictures online by clicking on letters of the alphabet. They learn that directory sites with alphabetical listing offer one way to find things on the internet. Research linked to topic work. Common Sense Media- ABC Searching SWGFL- Swiggle Child Friendly Search Site **Information Technology** Using and Applying our Skills **End Point:** Use the knowledge and skills taught throughout the year to create a final piece of work. This unit reinforces the skills taught throughout the year/previous years across all areas of Computing.

Long Term Plan– Year 3 and 4– Cycle A

Year 3 and 4 Cycle A	**Information Technology** Word Processing Skills **End Point:** Create a word document for a purpose using a variety of key skills. **Knowledge and Skills** **Year 3:** • Be able to log in to computer system as themselves and can find their documents (personal drive) • Know how to open shared documents and pictures. • Know how to use software to create a simple brochure or poster. • Create a meaningful document that contains both pictures and text **Year 4:** **As Above and.** Be able to save a document in a shared folder and retrieve this to continue working on it. • Know how to change font size and style; include shapes and backgrounds and to use the Spellcheck function **Digital Literacy and Citizenship** **Personal and Private Information** **End Point:** Know that pictures and text shared online can end up with strangers. Common Sense Media- Personal and Private Information Smart Crew- What should you keep safe?	**Information Technology** Drawing and Desktop Publishing **End Point:** Use a programme to draw and present information. Children will learn to draw, order, group and manipulate objects to make a picture. They will also learn to evaluate and create effective layouts, combining text and images. **Other opportunities:** *Other use of skills learnt throughout year/KS1* - leaflet/museum guide/catalogue of artefacts/newspaper article e.g. Tutankhamen' tomb/a guide to mummification for beginners. Interview a tomb builder. Compose Egyptian music. Photograph artefacts. Egyptian adventure programs. **Presentation** on an aspect of ancient Egypt **Digital Literacy and Citizenship** **The Key to Keywords** **End Point:** Know what the key words are to enter into a Search Engine to find information they want. Common Sense Media- The Key to Keywords Use these skills to find information for Topic Work. **Is Seeing Believing?** **End Point:** Know which websites are useful and begin to understand that all might not be trustworthy **Common Sense Media- Is seeing believing** **Internet Safety Day** Know that some people are the internet should not be trusted	**Information Technology** Animation **End Point:** Create an animation. Children learn the basic principles and techniques of simple animation. Beginning with the history of animation, children research some of the early animation techniques used before the use of computers. The lessons then compare a range of free animation software and children incorporate the different techniques into their own animation. After experimenting, children are then given the opportunity to evaluate their experiences in the final lesson . **Digital Literacy and Citizenship** ***Powerful Passwords*** **End Point:** Create and use a simple password' 'reliably use a more complex password to access resources Comon Sense Media- Password Power Up Be Internet Legends- Protect your Stuff

Long Term Plan– Year 3 and 4– Cycle A

	Computer Science Hour of Code- Course D *Sequencing and Events* **End Point:** Write programs that accomplish specific goals. **Knowledge and Skills:** **Year 3:** • Be able to use a block program to make a simple programme using sequencing and timing. • Inputs sets of instructions according to programming language and environment. • Independently be able to debug basic mistakes **Year 4:** • Be able to use a program to sequence and use a variety of inputs and outputs. • Be able to explain how their program works for instance by annotating a print out. • Be able to modify their program and be able to predict the effects of any changes • Know how to break sets of instructions into short steps to achieve a goal	**Computer Science** Programming Turtle Logo and Scratch **End Point:** Create and debug algorithms to draw regular polygons. **Knowledge and Skills:** **Year 3:** • Be able to use a block program to make a simple programme using sequencing and timing. • Inputs sets of instructions according to programming language and environment • Use repeat loops for instance to create a program to draw regular 2D shapes • Independently be able to debug basic mistakes **Year 4:** • Be able to use a program to sequence and use a variety of inputs and outputs. • Be able to explain how their program works for instance by annotating a print out. • Be able to modify their program and be able to predict the effects of any changes. • Know how to break sets of instructions into short steps to achieve a goal.	**Computer Science** Hour of Code- Course D *Loops and Conditionals* **End Point:** Design, write and debug a program to accomplish specific goals. Use repetition in programs and begin to use conditionals (Y3) As Above and.. Use conditionals and a variety of inputs and outputs. Use logical reasoning to detect and correct errors in programs. (Y4) **Knowledge and Skills:** **Year 3:** • Be able to use a block program to make a simple programme using sequencing and timing. • Inputs sets of instructions according to programming language and environment • Use repeat loops. • Independently be able to debug basic mistakes • Begin to use conditionals – If I click here then this happens. **Year 4:** • Be able to use a program to sequence, use conditionals and use a variety of inputs and outputs. • Be able to explain how their program works for instance by annotating a print out. • Be able to modify their program and be able to predict the effects of any changes. • Know how to break sets of instructions into short steps to achieve a goal.

Long Term Plan– Year 3 and 4– Cycle B

Year 3 and 4 Cycle B	**Information Technology** Word Processing Skills (Link to Topic work) **End Point:** Create a Word Document for a purpose. **Knowledge and Skills** **Year 3:** • Be able to log in to computer system as themselves and can find their documents (personal drive) • Know how to open shared documents and pictures. • Know how to use software to create a simple brochure or poster. • Create a meaningful document that contains both pictures and text **Year 4:** **As Above and..** Be able to save a document in a shared folder and retrieve this to continue working on it. • Know how to change font size and style; include shapes and backgrounds and to use the Spellcheck function **Digital Literacy and Citizenship** **Reporting and recognising unacceptable behaviour.** **End Point:** Reliably know what to do if they are exposed to unpleasant materials on any device. ***Common Sense Media- Rings of Responsibility*** ***Common Sense Media- Keeping games fun and friendly*** Know that concerns about what they see on-line should be reported to a trusted adult Smart Crew Video- Who should you tell?	**Information Technology** PowerPoint Presentation Skills (Linked to Topic Work) **End Point:** Create a PowerPoint presentation for a purpose. **Knowledge and Skills:** **Year 3:** • Be able to log in to computer system as themselves and can find their documents (personal drive) • Know how to open shared documents and pictures. • Know how to sequence and add to slides to make a simple presentation • Create a meaningful document that contains both pictures and text **Year 4:** • Be able to save a document in a shared folder and retrieve this to continue working on it. • Be able to organise their personal folder effectively for instance by organising work into folders for each year at school • Know how to change font size and style; include shapes and backgrounds and to use the Spellcheck function • To be able to use sequence to create an effective presentation. • Be able to deliver a simple presentation to their peers	**Information Technology** **Using IT skills** **End Point:** Select a variety of software to accomplish given goals, select, use and combine internet services -Book Creator -Morfo App (Take Photos/Videos and Add sound/recordings. Edit Images to include speech bubbles) **Computer Science** Scratch **End Points:** Write a program which accomplishes a specific goal, create a program that includes a logical sequence and debug a program they have written. **Knowledge and Skills:** **Year 3:** • Be able to use a block program to make a simple programme using sequencing and timing. • Inputs sets of instructions according to programming language and environment • Use repeat loops. • Independently be able to debug basic mistakes **Year 4:** • Be able to use a program to sequence, use conditionals and use a variety of inputs and outputs. • Be able to explain how their program works for instance by annotating a print out. • Be able to modify their program and be able to predict the effects of any changes. • Know how to break sets of instructions into short steps to

Long Term Plan– Year 3 and 4– Cycle B

	Computer Science	Digital Literacy and Citizenship	
	Hour of Code (Course C) **Sequencing, Loops and Events** **End Points:** Create programs with sequencing, loops, and events **Knowledge and Skills:** **Year 3:** • Be able to use a block program to make a simple programme using sequencing and timing. • Inputs sets of instructions according to programming language and environment • Use repeat loops. • Independently be able to debug basic mistakes **Year 4:** • Be able to use a program to sequence and use a variety of inputs and outputs. • Be able to explain how their program works for instance by annotating a print out. • Be able to modify their program and be able to predict the effects of any changes. • Know how to break sets of instructions into short steps to achieve a goal.	**Media Balance** **End Point:** Know that having a balance of online and offline activities is important. Common Sense Media- My Media Choices **Know that using technology can sometimes be inappropriate.** Common Sense Media- Device Free Moments **Internet Safety Day** When Charlie McButton Lost Power- Book	

Long Term Plan– Year 5 and 6– Cycle A

Year 5 and 6 Cycle A	**Information Technology** **Microsoft Word** **End Point:** Use software to create an effective poster or leaflet ***Knowledge and Skills*** **Year 5:** • To be able to share their work from their personal folder to work collaboratively with others. • Know how to use software to create and effective poster or leaflet. • Be able to select the best program for the task. **Year 6:** • Know how to use the main features of office software to produce suitable documents and presentations for an audience. • To be able to use two or more programmes to create a final piece of work. (e.g., edit a picture before inserting into a document) **Digital Literacy and Citizenship** **Cyberbullying** **End Point:** Know how to report concerns online. Play Like Share Common-sense Media- Is it Cyberbullying? Cyberdetectives- Cyberbullying	**Information Technology** **Radio Station** **End Point:** Create and present digital content for a podcast. ***Knowledge and Skills:*** Be able to select the best program for the task. Be able to use two or more programmes to create a final piece of work. Select, use and combine software on a range of digital devices. **Digital Literacy and Citizenship** **Internet Safety Day** **End Point:** Know the risks posed to them by using Social Media, including understanding that people may not be who they say they are.	**Information Technology** **Spreadsheets** **End Point** Use Microsoft Excel to create a spreadsheet to work out the food miles/cost for a meal. ***Knowledge and Skills:*** **Year 5:** • Using software know how to add data into a prepared spreadsheet to answer simple questions. **Year 6:** • Know how to create a simple formula in a spreadsheet to work out given mathematical tasks such as adding a set of numbers. **Digital Literacy and Citizenship** **Media Balance** **End Point:** Know that having a balance of online and offline activities is important to maintain good health. Common Sense Media- Finding my Media Balance

Long Term Plan– Year 5 and 6– Cycle A

	Computer Science	Computer Science	Computer Science
	Scratch- Animated Stories **End Point:** Create an animated story using Scratch. **Knowledge and Skills:** **Year 5:** • Use customisation to change a working program to change its effect for instance backgrounds and sprite in scratch) • Uses loops to achieve goals (Scratch – shapes, letters) • Uses variables, conditional sentences (when/then), external triggers and loops to achieve set goals **Year 6:** •Use conditional sentences (when/then) to program objects. • As above but use mathematical expressions when constructing conditionals e.g. trigger winning when (If loops >5 then...) • Be able to explain what a program will do and accurately predict the effect of changes. • Be able to reliably modify existing algorithms and code to change the effect of the program. • Be able to make an efficient program by using an effective algorithm and techniques such as loops and procedures Scratch Animated Stories	**Kodu Programming** **End Point:** Design and create a simple rainforest game in Kodu (for example, planting trees v excavators) **Knowledge and Skills:** **Year 5:** • Use customisation to change a working program to change its effect for instance backgrounds and sprite in scratch) • Uses loops to achieve goals (Scratch – shapes, letters) • Uses variables, conditional sentences (when/then), external triggers and loops to achieve set goals **Year 6:** •Use conditional sentences (when/then) to program objects. • As above but use mathematical expressions when constructing conditionals e.g. trigger winning when (If loops >5 then...) • Be able to explain what a program will do and accurately predict the effect of changes. • Be able to reliably modify existing algorithms and code to change the effect of the program. • Be able to make an efficient program by using an effective algorithm and techniques such as loops and procedures Kodu Planning	**Hour of Code-** **Course F** Design and create a project with sprites, variables, and loops and discuss societal impacts of computing and the internet. **Knowledge and Skills:** **Year 5:** • Use customisation to change a working program to change its effect for instance backgrounds and sprite in scratch) • Uses loops to achieve goals (Scratch – shapes, letters) • Uses variables, conditional sentences (when/then), external triggers and loops to achieve set goals **Year 6:** •Use conditional sentences (when/then) to program objects. • As above but use mathematical expressions when constructing conditionals e.g. trigger winning when (If loops >5 then...) • Be able to explain what a program will do and accurately predict the effect of changes. • Be able to reliably modify existing algorithms and code to change the effect of the program. • Be able to make an efficient program by using an effective algorithm and techniques such as loops and procedures

Long Term Plan– Year 5 and 6– Cycle B

Year 5 and 6 Cycle B	**Information Technology** **PowerPoint** **End Point:** Create a Local History Power Point and a key facts handout for Topic. ***Knowledge and Skills:*** **Year 5:** • To be able to share their work from their personal folder to work collaboratively with others. • Independently, prepare an effective presentation to show their learning to others which includes some elements of timing or sequence. **Year 6:** • Know how to use the main features of office software to produce suitable documents and presentations for an audience. • To be able to use two or more programmes to create a final piece of work. **Digital Literacy and Citizenship** **Digital Friendships** **End Point:** Know how to reduce the risks posed by using Social Media by managing their friends list and privacy settings. Game On Common Sense Media- Digital Friendships	**Information Technology** **Film Making** **End Point:** Produce a storyboard and animation about the solar system. Use video software (photo story, iMovie etc.) to create a short documentary about the 1969 Moon Landings. ***Knowledge and Skills:*** **Year 5** • Be able to select the best program for the task. • Independently, prepare an effective presentation to show their learning to others which includes some elements of timing or sequence. **Year 6:** • To create and sequence a video, add sound effects, transitions and title/subtitles. • To be able to use two or more programmes to create a final piece of work. Film Making Planning	**Information Technology** Electronic Yearbook – make contribution (iMovie, pic collage, Morfo, pages etc...) Use several different apps and integrate their use *(all of the IT Strands)* **Editing a Photo** **End Point:** Using paint.net/pixlr to create a digital pop art image. ***Knowledge and Skills:*** *Know how to edit a picture* *Be able to use layers, add filters, select areas to modify, add text or other appropriate content.* **Digital Literacy and Citizenship** **Fake News** **End Point:** Know that some news is 'fake. Fake News Be Internet Legends- Check it's Real

Long Term Plan– Year 5 and 6– Cycle B

	Computer Science **Scratch 3.0 Developing Games** **End Point:** Build and edit algorithms to create a simple game. **Knowledge and Skills:** **Year 5:** • Use customisation to change a working program to change its effect for instance backgrounds and sprite in scratch) • Uses loops to achieve goals (Scratch – shapes, letters) • Uses variables, conditional sentences (when/then), external triggers and loops to achieve set goals **Year 6:** •Use conditional sentences (when/then) to program objects. • As above but use mathematical expressions when constructing conditionals e.g. trigger winning when (If loops >5 then...) • Be able to explain what a program will do and accurately predict the effect of changes. • Be able to reliably modify existing algorithms and code to change the effect of the program. • Be able to make an efficient program by using an effective algorithm and techniques such as loops and procedures *Scratch Developing Games*	**Digital Literacy and Citizenship** **Internet Safety Day** Know that hacking or misusing someone else's account is illegal. **Searching** **End Point:** Effectively use a search engine to find multiple criteria using AND/OR to refine searches. Google Search Lessons **Bias and Trusting Websites** **End Points:** Know how to compare information from different websites and know that some sites may show bias. Know how to validate information found through searches by checking more than one source. LGFL- What we can 'trust' Common Sense Media- A creator's rights and responsibilities	**Computer Science** **Hour of Code Course E** **End Point:** Design and create a game or drawing with algorithms, events, loops, conditionals, and functions ***Knowledge and Skills:*** *Solve problems by decomposing them into smaller parts; use logical reasoning to detect and correct errors in algorithms.*

Progression of Knowledge and Skills

Year 1 and 2

	Online Safety and Digital Literacy *see* Education for a Connected World	Information Technology	Computer Science
Y1	• Know that the internet is accessed all over the World and know some devices are connected to the internet. • Know that they should always ask a responsible adult if they want to use a device and ask for help if they see anything that worries them. • With support from an adult be able to find information on the internet.	• Be able to log onto a computer Or use a QR code to evidence work on a tablet • Be able to navigate around the screen with a mouse or touchpad • Know how to type text using space bar for separate words to create something meaningful • Be able to independently find and use an app on a tablet for instance to take and view a video or photograph	• Know which button on a device represents which action e.g. Bee Bot • Know how to program a robot to follow simple sequence of instructions (1- 2 turns) • Make a simple sequence of instructions / algorithm • Be able to make simple predications about an algorithm and a program. The Bee Bot will go…. • Be able to change (debug) the program to improve the route
Y2 Builds on last years skills	• Know devices that enable direct communication between people through images and text. • Know what personal information is and that they should never share this with anyone they don't know. • Know that they should tell a trusted adult if they are upset or worried about anything on a device. • With support be able to use a safe search engine e.g. swiggle	• Be able to save, retrieve and print work PC or Tablet • Know how to type and format text including basic punctuation and capital letters Any suitable software • Be able to confidently use pointing device Mouse, Touchpad • Be able to add and create simple images • Be able to combine simple text and graphics, for instance create a poster for a purpose Any suitable software	• Know how to program a robot to achieve set goal (sequence of 6-7 instructions: maze, point collecting) • Begin to use block programming e.g. Scratch Junior (Alex, Daisy Dino) to complete a simple program. • Be able to debug more complex problems e.g. a route on a Bee Bot / Blue Bot / Alex / Logo etc… maze.

Progression of Knowledge and Skills

Year 3 and 4

	Online Safety and Digital Literacy *see* Education for a Connected World	Information Technology	Computer Science
Y3 Builds on last years skills	• Know that some people are the internet should not be trusted • Know that concerns about what they see on-line should be reported to a trusted adult • Create and use a simple password • Use a Search engine to find information given key words • Know which websites are useful and begin to understand all might not be trustworthy. • Be able to log in and out of websites used at school • Know that using technology can sometimes be inappropriate	• Be able to log in to computer system as themselves and can find their documents (personal drive) • Know how to open shared documents and pictures. • Know how to use software to create a simple brochure or poster. Publisher or Pages • Know how to sequence and add to slides to make a simple presentation Keynote, Powerpoint, iMovie • Create a meaningful document that contains both pictures and text	• Be able to use a block program (Scratch Jun, Scratch, Microbit Blocks)) to make a simple programme using sequencing and timing. • Inputs sets of instructions according to programming language and environment (Logo, Scratch Jnr, Microbit etc..) • Use repeat loops for instance to create a program to draw regular 2D shapes (Logo, Scratch) • Independently be able to debug basic mistakes • Begin to use conditionals – If I click here then this happens…Scratch Junior, Scratch, Microbit
Y4 Builds on last years skills	• Know that pictures and text share on-line can end up with strangers • Reliably know what to do if they are exposed to unpleasant materials on any device • Know that having a balance of online and offline activities is important. • Reliably uses a more complex password to access resources. • Know what the key words are to enter into a Search engine to find information they want. • Can select useful websites from the results of a search.	• Be able to save a document in a shared folder and retrieve this to continue working on it. Computer. On an iPad work could be shared by Airdrop or equivalent. • Be able to organise their personal folder effectively for instance by organising work into folders for each year at school • Know how to change font size and style; include shapes and backgrounds and to use the Spellcheck function • To be able to use sequence to create an effective presentation or video Keynote, Powerpoint or iMovie. • Be able to deliver a simple presentation to their peers	• Be able to use a program to sequence, use conditionals and use a variety of inputs and outputs (Scratch- steer an object by using keys /Microbit – show an image when shaken) • Be able to explain how their program works for instance by annotating a print out • Be able to modify their program and be able to predict the effects of any changes • Know how to break sets of instructions into short steps to achieve goal. For instance drawing repeated squares to make a pattern,

Progression of Knowledge and Skills

Year 5 and 6

	Online Safety and Digital Literacy *see* Education for a Connected World	Information Technology	Computer Science
Y5 Builds on last years skills	• Know the risks posed to them by using Social Media, including understanding that people may not be who they say they are. • Know that it is irresponsible to share images of friends on-line without their permission. • Know that a balance of online and offline activities is important to maintain good health. • Know how to report concerns on-line. • Effectively use a search engine to find multiple criteria using AND/OR to refine searches • Know how to compare information from different websites and know that some sites may show bias	• To be able to share their work from their personal folder to work collaboratively with others. • Know how to use software to create and effective poster or leaflet. • Be able to select the best program for the task. • Using software know how to add data into a prepared spreadsheet to answer simple questions. For instance using Excel • Independently, prepare an effective presentation to show their learning to others which includes some elements of timing or sequence. For instance in Keynote, Powerpoint, iMovie	• Use customisation to change a working program to change its effect for instance backgrounds and sprite in scratch) • Uses loops to achieve goals (Scratch – shapes, letters) • Uses variables, conditional sentences (when/then), external triggers and loops to achieve set goals (creating game in Scratch, an interactive slides in Powerpoint or Keynote for instance to create an interactive story, Creating a game in Kodu with a scoring system, Creating an electronic die with a Microbit)
Y6 Builds on last years skills	• Know how to reduce the risks posed by using Social Media by managing their friends lists and privacy settings. • Be able to maintain a healthy balance of online and offline activities and know that some activities may affect their emotional wellbeing. • Know that it is illegal to post or view 'rude' images of children. • Know that hacking or misusing someone else's account is illegal. • Know that search results can be manipulated by sponsorship and advertising. • Know how to validate information found through searches by checking more than one source. • Know that some news is 'fake.'	• Know how to use the main features of office software to produce suitable documents and presentations for an audience. Microsoft Office or Apple suite or equivalent. • Know how to edit a picture. For instance in Paint.net • Know how to create a simple formula in a spreadsheet to work out given mathematical tasks such as adding a set of numbers. • to create and sequence a video, add sound effects, transitions and title/subtitles. iMovie – much harder in Windows software. • To be able to use two or more programmes to create a final piece of work. (eg, edit a picture before inserting into a document).	• Use conditional sentences (when/then) to program objects (Kodu, Scratch, Microbit) • As above but use mathematical expressions when constructing conditionals e.g. trigger winning when (If loops >5 then…) • Be able to explain what a program will do and accurately predict the effect of changes. • Be able to reliably modify existing algorithms and code to change the effect of the program. • Be able to make an efficient program by using an effective algorithm and techniques such as loops and procedures