Ferryhill Station Primary School

Computing Curriculum

Planning Progression and Resources

2020

KS1 (Objectives in bold)	Class 2 Overview	Autumn	Spring	Summer
Computer Science	I can understand what algorithms are and how they are implemented as programs on digital devices and that they understand that programmes execute by following precise and unambiguous instructions. I can use logical reasoning to predict the behaviour of simple programs I can create simple programs I can debug simple programs	**I can use logical reasoning to predict the behaviour of simple programs (A)** • Predict the behaviour of a simple programmed bee bot. **I can create simple programs (B)** • Create a program for a bee bot to follow. Plan this and carry it out. Increase the complexity for different abilities e.g. distance/number of turns. • GD – Create a sequence using a probot (degrees). Link to maths and 2D shapes. **I can debug simple programs (A)** • Identify and correct errors in bee bot programs. • Improve bee bot program e.g. make the route more efficient/use less commands. • Make a simple set of instructions.	**I can understand what algorithms are and how they are implemented as programs on digital devices and that they understand that programmes execute by following precise and unambiguous instructions. (B)** • Children follow simple instructions and understand this as an algorithm. Create a set of instructions for another person to follow e.g. verbally asking someone to draw a set of shapes on a page. • Children write a simple algorithm for something they do in everyday life e.g. putting on their jumper, taking a photo on an ipad etc.	**I can understand what algorithms are and how they are implemented as programs on digital devices and that they understand that programmes execute by following precise and unambiguous instructions.** • Increase the complexity of the algorithms used, across a range of devices and apps. **(A)** • Use Scratch, Hour of Code website. **(A)** • Introduction to creating simple animation using Scratch Jnr i.e. move a character from one position to another. Be able to explain their program. **(B)**
Online Safety	I can use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	**I can use technology safely and respectfully (A)** • Can explain which websites, apps and games are safe and appropriate to use. • Knows about PEGI games ratings **(A)** **Going Places Safely – Common Sense Media** https://www.commonsensemedia.org/educators/lesson/going-places-safely-k-2 **(B)** Smartie the penguin http://www.childnet.com/resources/smartie-the-penguin	**I can keep personal information private when using technology.** • Knows that not everyone is who they say they are on the Internet. • Can explain what information is private and should not be shared with strangers • Knows that apps and programs can share personal data, and that settings can be used to control it **(A)** Jessie and Friends Think U Know – Ep1 and 2 https://www.thinkuknow.co.uk/professionals/resources/jessie-and-friends/ (B) **CEOP** - Hector's World https://www.thinkuknow.co.uk/Teachers/Resources/	**I can ask for help if they feel unsure about any online content or contact and who to ask** • Knows to ask a trusted adult if they are worried or upset about anything they see on the internet • Knows how to ask for help online. **(A)** Digi Duck - http://www.kidsmart.org.uk/teachers/ks1/sourcesduck/projet/digiduck-ebook.pdf **(B)** **Lee and Kim – CEOP** https://www.thinkuknow.co.uk/professionals/resources/lee-and-kim/

I T (Use this to fit into subjects across the curriculum)	I can use technology purposefully to create, organise, store, manipulate and retrieve digital content		Progression of Skills	
		I can use technology purposefully to create, organise and store digital content (A/B)	**I can use technology purposefully to retrieve and manipulate digital content (A/B)**	Use this term to address any gaps from assessments.
		Create digital content on a simple program e.g. Paint / Drawing Navigate a screen with a mouse.	Open a piece of work from the previous lessons and improve it (save, print out work, edit and redraft).	
		Create a meaningful piece of writing in Word/Publisher using the space bar for separate words, e.g. final draft of work, creating a recount from a visit.	Open a piece of work and manipulate it e.g. font/colour etc.	
		Create a piece of writing (Word/Publisher) and add in photographs/images to that file.	Manipulate work across a range of devices e.g. Book creator, Keynote, PowerPoint	

CS Resources

Autumn

https://play.kahoot.it/#/k/ea695e81-b3b2-450a-8fd7-c47b620b77fa   Making predictions (initial assessment for bee bot knowledge)

Bee bot planning (see folder on shared area).

Spring

http://code-it.co.uk/ks1/crane/humancrane   Human Crane (see folder on shared area)

Summer

http://code-it.co.uk/sjmovinggame   Scratch Junior

http://code-it.co.uk/pathway   Pathway task using Scratch Junior (see folder on shared area)

KS2 (Objectives in bold) (red – covered in y5/6)	Class 3	Autumn	Spring	Summer
Computer Science	I can design, write and debug programs **that accomplish specific goals, including controlling or simulating physical systems;** solve problems by decomposing them into smaller parts I can use sequence, selection, and repetition in programs; **work with variables and various forms of input and output** I can **use logical reasoning to** explain how some simple algorithms work and to detect and correct errors in algorithms and programs I can understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	**I can use sequence (A)** • Sequence simple directions e.g. bee bot (for emerging y3) and Scratch (y3/4). • Sequence a PowerPoint (see IT planning) with animations. • Sequence a PowerPoint with multiple animations and pages. **Hour of Code** https://studio.code.org/flappy/1 **I can collaborate and communicate using technology. (B)** • QR codes treasure hunt. Create messages to decode at a later stage **I understand the basic workings of the internet (B)** • Can explain how data is broken into packs • Can explain how packets are routed around the internet	**I can solve problems in writing programs by decomposing them into smaller parts (A)** • Create a simple animation in scratch. **SCRATCH – Simple animation or Dressing up game** http://code-it.co.uk/scratch/dressingup/dressingupoverview • Create complex programs, e.g. within the animation, create sounds/speech/movement. • Create a simple interactive activity in Scratch. **I can use selection and repetition (B)** • Use simple repetition e.g. create loops in Scratch making 2D shapes. **Scratch** – Drawing shapes http://code-it.co.uk/goldshape/ up to basic procedures **Scratch** – Shapes Continuing basic work started in Y3 but to include work on procedures and nested loops. http://code-it.co.uk/goldshape/ • Create moving animation in Scratch (walking boy) using the keys. • Create an interactive game with a moving object, e.g. Kodu, build a simple world and control using keys. • Pro Bot – Using loops and nested loops to create geometric patterns	**I can debug programs (B)** • Debug sequential apps. • Debug animations created in Scratch. **I can explain how simple algorithms work and detect and correct errors in them. (A/B)** • Annotate a simple screenshot to explain how it works (Scratch). Longer program for GD.
Online Safety	I can use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	**I can understand the importance of using technology respectfully and responsibly** • Knows that pictures and text shared on an app can end up with strangers (A) **Google – Be an Internet Legends** Series of lessons about many aspects of being safe online. https://beinternetlegends.withgoogle.com/en_uk/toolkit	**I can understand the importance of using technology safely** • Can use a simple password • Is able to reliably use a password to access resources **(B)** **Smart Crew Videos and lesson resources.** Covering a range of areas) Video :- http://www.childnet.com/resources/the-adventures-of-kara-winston-and-the-smart-	**I can appreciate how search results are ranked and evaluate digital content. (A/B)** • Can use a search engine choosing appropriate key words to find information • Effectively use a search engine with multiple criteria e.g. AND , OR to refine their search • Can select useful websites following a simple web search • Be able to compare websites when finding information

		Cyber-Detectives – Teacher led lesson where children solve a mystery.https://esafety.gov.au/education-resources/classroom-resources/cybersmart-detectives • Is aware of their digital footprint and knows what has been posted and typed cannot be undone (B) **This is Me** Common Sense Media *My online presence* https://www.commonsense.org/education/digital-citizenship/lesson/this-is-me	crew **(A)** Be able to log in and out of websites used at school *e.g. Lexia Time Tables rockstars etc.* **Password Power Up** Common Sense Media https://www.commonsense.org/education/digital-citizenship/lesson/password-power-up	Know what the key words are to enter into a Search engine to find information they want. Consider using firs few lessons from Google https://www.google.com/insidesearch/searcheducation/lessons.html
I **T**	**I can select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information**		**Progression of Skills**	
		I can create content that accomplishes given goals. A/B	**I can present information A/B**	**I can select, use and combine a variety of software (including internet services) on a range of digital devices A/B**
		Log on to a device and find own documents in a personal folder. Create simple content such as a poster or picture.	Create a simple presentation (PowerPoint)	Create a brochure/flier using Publisher.
		Create a video story using Photostory	Create a simple presentation (PowerPoint) and add images and appropriate text.	Use fonts, backgrounds, shapes, spellcheck.
		Add narration/content to Photostory.	Create an appropriate and effective presentation by sequencing. Link to topics. Deliver this presentation to their peers.	

CS Resources

Autumn

http://code-it.co.uk/scratch/dressingup/dressingupoverview   Introduction to Scratch, sequence costume changes.

http://code-it.co.uk/scratch/smoking_car/smokingcaroverview   Build upon this to create sequence to make a car move

Spring

http://code-it.co.uk/scratch/mathsquiz/mathsquizoverview

Summer

http://code-it.co.uk/scratch/scratchconversation

KS2 (Objectives in bold)	Class 4 Overview	Autumn	Spring	Summer
Computer Science	●design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. ●use sequence, selection, and repetition in programs; work with variables and various forms of input and output. ●use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. ●understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.	**I can solve problems in writing programs by decomposing them into smaller parts (A)** • Write a simple program in Scratch, which breaks a problem down into smaller pieces. **Scratch** –Build a Scene http://code-it.co.uk/goldscene where code is modified to have different effects. *Or* Helicopter Game http://code-it.co.uk/goldgame/ **I can work with variables (B)** • Use a variable to keep a score in Scratch e.g. maths questions **Kodu** – Create a game where the character gets points for instance by collecting coins. **I can work with different forms of input and output (B)** • (see above scoring game) • Use a variety of outputs, e.g. change the score in a game and playing a sound. **I can collaborate and communicate using technology. (A)** • Email/Skype/Facetime?	**I can work with different forms of input and output (A)** • Create a single player game, which uses a variety of inputs to control a player. • GD – multi-player game **I can use selection and repetition in programs (B)** • Can use simple repetition e.g. Create 2D shapes in scratch using loops • Can use multiple loops e.g. Create more complex 2D shapes in scratch using loops (Spirograph patterns) Slug Trail http://code-it.co.uk/scratch/slugtrail/slugtrailoverview • Can use selection to create a scoring system e.g. when an object is bumped in Kodu • Can use selection with variables e.g. create a more complex game with multiple scoring or timing systems in Kodu (Shooting Fish with timing element), or make a Fitbit with a steps alarm with Microbit.	**I can solve problems in writing programs by decomposing them into smaller parts (B)** **I can simulate physical systems** • Use a loop and an if statement (e.g., Microbit using movement sensor) • Can accurately use procedures e.g. Lightbot or use of the broadcast command in scratch to run additional code or procedures within Microbit **Kodu** For instance a racing game with a timer **I can use logical reasoning to explain how some simple algorithms work and detect and correct errors in them. (A/B)** • Be able to annotate a simple screenshot (Scratch or Microbit Block editor) to explain how it works. • Be able to use the annotated screenshot to further develop the challenge.
Online Safety	●use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. ●use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	**I can understand the importance of using technology respectfully and responsibly (A)** • Know how to reduce the risks posed by the misuse of technology **You won't believe this!** Common Sense Media https://www.commonsense.org/education/digital-citizenship/lesson/you-wont-believe-this • Be able to explain the personal and legal consequences of misuse of technology, e.g. cyberbullying and grooming, know how to reduce the risks of the misuse of technology **(B)** **Google Internet Legends – material in file** • Is aware that apps share information and that settings need to be changed to limit visibility of personal	**I can identify a range of ways to report concerns about content and contact** • Knows that concerns can be passed to a trusted adult • Knows how to screenshot and report bullying and block users • Is aware of reporting tools on apps and websites **(A) Play Like Share – CEOP** https://www.thinkuknow.co.uk/professionals/resources/play-like-share/ **(A) What is Cyberbullying?** Common Sense Media https://www.commonsense.org/education/digital-citizenship/lesson/whats-cyberbullying	**I can appreciate how search results are ranked** **I am discerning in evaluating digital content (A)** • Can use a search engine using appropriate key words to find information • Effectively use a search engine with multiple criteria e.g. AND , OR to refine their search **Google Search Lessons** https://sites.google.com/site/gwebsearcheducation/lessonplans **(B)** • Understand how results can be manipulated by adverts, recognise adverts in searches • Be able to compare websites when finding information Know that some news is 'fake.'

		information Can confidently explain the importance of privacy settings when using websites and apps	(B) Livestreaming – good and bad attention https://www.thinkuknow.co.uk/professionals/resources/live-streaming/	http://fakenews.lgfl.net • Explain how they validated their information (e.g. checking on more than one site) **Trust Me** https://www.lgfl.net/online-safety/trust-me **Reliability of Websites** www.allaboutexplores.com **Other A Creators Rights and Responsibilities** Common Sense Media https://www.commonsense.org/education/digital-citizenship/lesson/a-creators-rights-and-responsibilities
I T	•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.		**Progression of Skills**	
		I can select, use and combine a variety of software (including internet services) on a range of digital devices (A/B)	I can analyse and evaluate information and data (A/B)	I can present data and information (A/B)
		Create a brochure/flier using Publisher.	Is able to enter data into a pre-prepared spreadsheet to answer simple questions e.g. excel	Can independently create and show a simple presentation e.g. PowerPoint
		Can use another program to create content for presentation (e.g. edit a picture for use in PowerPoint)	Can confidently spreadsheet and calculations to produce a graphs and solve problems (link to stats in maths)	Can confidently develop and present ideas to a group and match the work to the needs of the audience
		Can use multiple programmes to create content e.g. develop and embed a video in a presentation	Can confidently use spreadsheets and calculations to produce a graphs and solve problems (link to reasoning problems in maths – GD)	Can confidently develop and present ideas to a group and match the work to the needs of the audience using a range of material e.g. video, presentation handouts

CS Resources

Autumn

http://code-it.co.uk/scratch/tablesgame/tablesgameoverview   Times Table Quiz Planning

http://code-it.co.uk/scratch/coins/coinsoverview   Input and Output

Spring

http://code-it.co.uk/wp-content/uploads/2018/03/ShapesPlanExpandedv4.pdf   Shapes continued from Class 3 (Spirograph)

Kodu planning https://www.cs.cmu.edu/~dst/Kodu/Curriculum/

Summer

http://code-it.co.uk/scratch/slugtrail/slugtrailoverview

http://code-it.co.uk/scratch/crabmaze (challenge)