Computing 7 Year Overview

Intent: *For pupils to embrace the opportunities of technology and to use it purposefully, creatively and responsibly.*

Strands:		
Programming	***Information Technology***	***Digital Literacy***

Purpose									
Networks	***Creating Media***	***Data and Information***	***Design and Development***	***Computing systems***	***Impact of Technology***	***Algorithms***	***Programming***	***Effective use of tools***	***Safety and Security***

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Rec	Identify algorithms used in everyday life. Begin to sequence instructions. Recognise, use and understand directional language. Perform a simple program on the floor robot. Recognise that a string of instructions or commands placed together can create a simple program. Record the program used using symbols.		Use digital technology to store and access content with some support. Create content using digital technology. Begin to use a mouse to navigate around a computer screen.		Describe what personal information is. Understand the importance of asking for help from an adult when on the internet. Identify some ways technology is used at home and in school.	
Key Stage 1: At KS1, pupils should be taught to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. They should create and debug simple programs. They should use logical reasoning to predict the behaviour of simple programs. They should use technology purposefully to create, organise, store, manipulate and retrieve digital content. They should recognise common uses of information technology beyond school. They should 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.						
Year 1: Laptops iPads Unplugged	Unit name: Technology around us Purpose: Computer systems and networks Lessons: 1. To identify technology 2. To identify a computer and its main parts 3. To use a mouse in different ways 4. To use a keyboard to type 5. To use the keyboard to edit text 6. To create rules to use technology responsibly Education for a Connected World Links: Health, well-being and lifestyle Copyright and ownership	Unit name: Digital painting Purpose: Creating Media Soft ware: https://paintz.app/ or Paint Lessons: 1. To describe what different free hand tools do 2. To use the shape tool and the line tool 3. To make careful choices when painting a digital picture 4. To explain why I chose the tools I did 5. To use a computer on my own to paint a picture 6. To compare painting a picture on a computer and on paper	Unit name: Moving a robot Purpose: Programming Hardware: Bee-Bots Lessons: 1. To explain what a given command will do 2. To act out a given word 3. To combine forwards and backwards commands to create a sequence 4. To combine four direction commands to create a sequence 5. To plan a simple program 6. To find more than one solution to a problem	Unit name: Grouping data Purpose: Data and information Lessons: 1. To label objects 2. To recgonise that objects can be counted 3. To describe objects in different ways 4. To count objects with the same properties 5. To compare groups of objects 6. To answer questions about groups of objects Education for a Connected World Links: Copyright and ownership	Unit name: Digital writing Purpose: Creating Media Soft ware: Microsoft Word Lessons: 1. To use a computer to write 2. To add and remove text 3. To change the look of a text 4. To make careful choices when changing text 5. To explain why I used the tools that U chose 6. To compare typing on a computer to writing on paper Education for a Connected World Links: Privacy and security	Unit name: Programming animations Purpose: Programming Soft ware: Scratch Jr Logins Lessons: 1. To choose a command for a given purpose 2. To show that a series of commands can be joined together 3. To identify the effect of changing a value 4. To explain that each sprite has its own instructions 5. To design the parts of a project 6. To use an algorithm to create a program
Year 2 Laptops iPads Unplugged	Unit name: IT around us Purpose: Computing systems/ networks Lessons: 1. To recognise the uses and features of information technology 2. To identify the uses of information technology in the school 3. To identify information technology beyond school 4. To explain how information technology helps us 5. To explain how to use information technology safely 6.To recognise that choices are made when using information technology Education for a Connected World Links: Health, well-being and lifestyle	Unit name: Digital photography Purpose: Creating media Soft ware: PixLR App Lessons: 1. To use a digital device to take a photograph 2. To make choices when taking a photograph 3. To describe what makes a good photograph 4. To decide how photographs can be improved 5. To use tools to change an image 6.To recognise that photos can be changed Education for a Connected World Links: Self-image and identity	Unit name: Robot algorithms Purpose: Programming Hardware: Bee-Bots/ Bee-Bot App Lessons: 1. To describe a series of instructions as a sequence 2. To explain what happens when we change the order of instructions 3. To use logical reasoning to predict the outcome of a program 4. To explain that programming projects can have code and artwork 5. To design an algorithm 6. To create and debug a program that I have written	Unit name: Pictograms Purpose: Data and Information Software: https://www.j2e.com/jit#pictogram Lessons: 1. To recognise that we can count and compare objects using tally charts 2. To recognise that objects can be represented as pictures 3. To create a pictogram 4. To select objects by attribute and make comparisons 5. To recognise that people can be described by attributes 6. To explain that we can present information using a computer Education for a Connected World Links: Privacy and security	Unit name: Digital music Purpose: Creating media Soft ware: https://musiclab.chromeexperiments.com/ Lessons: 1. To say how music can make us feel 2. To identify that there are patterns in music 3. To experiment with sound using a computer 4. To use a computer to create a musical pattern 5. To create music for a purpose 6. To review and refine our computer work Education for a Connected World Links: Copyright and ownership	Unit name: Programming quizes Purpose: Programming Soft ware: Scratch Jr Logins Lessons: 1. To explain that a sequence of commands has a start 2. To explain that a sequence of commands has an outcome 3. To create a program using a given design 4. To change a given design 5. To create a program using my own design 6. To decide how my project can be improved

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Key Stage 2:
Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. They should use sequence, selection, and repetition in programs; work with variables and various forms of input and output. They should use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. They should 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. They should use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. They should 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. They should use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Year 3 Laptops iPads Unplugged	Unit name: Connecting Computers Purpose: Computing systems/ networks Soft ware: https://paintz.app/ Lessons: 1. To explain how digital devices function 2. To identify input and output devices 3. To recognise how digital devices can change the way that we work 4. To explain how a computer network can be used to share information 5. To explore how digital devices can be connected 6. To recognise the physical components of a network	Unit name: Stop-frame animation Purpose: Creating media Software: imotion App Lessons: 1. To explain that animation is a sequence of drawings or photographs 2. To relate animated movement with a sequence of images 3. To plan an animation 4. To identify the need to work consistently and carefully 5. To review and improve an animation 6. To evaluate the impact of adding other media to an animation Education for a Connected World Links: Copyright and ownership Managing online information	Unit name: Sequencing sounds Purpose: Programming Soft ware: Scratch logins Lessons: 1. To explore a new programming environment 2. To identify that commands have an outcome 3. To explain that a program has a start 4. To recognise that a sequence of commands can have an order 5. To change the appearance of my project 6. To create a project from a task description	Unit name: Branching databases Purpose: Data and Information Software: https://www.j2e.com/jit5?fileId=FDrqUQoSY1jKiBHN#branch Lessons: 1. To create questions with yes/no answers 2. To identify the attributes needed to collect data about an object 3. To create a branching database 4. To explain why it is helpful for a database to be well structured 5. To plan the structure of a branching database 6. To independently create an identification tool	Unit name: Desktop publishing Purpose: Creating media Software: Adobe Spark or Publisher Lessons: 1. To recognise how text and images convey information 2. To recognise that text and layout can be edited 3. To choose appropriate page settings 4. To add content to a desktop publishing publication 5. To consider how different layouts can suit different purposes 6. To consider the benefits of desktop publishing Education for a Connected World Links: Copyright and ownership Managing online information	Unit name: Events and actions in programs Purpose: Programming Soft ware: Scratch logins Lessons: 1. To explain how a sprite moves in an existing project 2. To create a program to move a sprite in four directions 3. To adapt a program to a new context 4. To develop my program by adding features 5. To identify and fix bugs in a program 6. To design and create a maze-based challenge
Year 4 Laptops iPads	Unit name: The Internet Purpose: Computing systems/ networks Software: https://scratch.mit.edu/projects/63473366/editor/ Lessons: 1. To describe how networks physically connect to other networks 2. To recognise how networked devices make up the internet 3. To outline how websites can be shared via the World Wide Web (WWW) 4. To describe how content can be added and accessed on the World Wide Web (WWW) 5. To recognise how the content of the WWW is created by people 6. To evaluate the consequences of unreliable content	Unit name: Audio Production Purpose: Creating media Software/ Hardware: Audactity/ headphones Lessons: 1. To identify that sound can be recorded 2. To explain that audio recordings can be edited 3. To recognise the different parts of creating a podcast project 4. To apply audio editing skills independently 5. To combine audio to enhance my podcast project 6. To evaluate the effective use of audio Education for a Connected World Links: Copyright and ownership	Unit name: Repetition in shapes Purpose: Programming Software: https://turtleacademy.com/playground https://fmslogo.sourceforge.io/ Lessons: 1. To identify that accuracy in programming is important 2. To create a program in a text-based language 3. To explain what 'repeat' means 4. To modify a count-controlled loop to produce a given outcome 5. To decompose a task into small steps 6. To create a program that uses count-controlled loops to produce a given outcome	Unit name: Data logging Purpose: Data and information Hardware: Data Loggers/ temperature sensor Lessons: 1. To explain that data gathered over time can be used to answer questions 2. To use a digital device to collect data automatically 3. To explain that a data logger collects 'data points' from sensors over time 4. To recognise how a computer can help us analyse data 5. To identify the data needed to answer questions 6. To use data from sensors to answer questions	Unit name: Photo editing Purpose: Creating media Hardware: https://paint.net/ Lessons: 1. To develop the use of count-controlled loops in a different programming environment 2. To explain that in programming there are infinite loops and count-controlled loops 3. To develop a design that includes two or more loops which run at the same time 4. To modify an infinite loop in a given program 5. To design a project that includes repetition 6. To create a project that includes repetition Education for a Connected World Links: Self-image and identity Copyright and ownership	Unit name: Repetition in games Purpose: Programming Software: Scratch logins Lessons: 1. To develop the use of count-controlled loops in a different programming environment 2. To explain that in programming there are infinite loops and count-controlled loops 3. To develop a design that includes two or more loops which run at the same time 4. To modify an infinite loop in a given program 5. To design a project that includes repetition 6. To create a project that includes repetition
Year 5 Laptops iPads	Unit name: Systems and searching Purpose: Computing systems/ networks Lessons: 1. To explain that computers can be connected together to form systems 2. To recognise the role of computer systems in our lives	Unit name: Video production Purpose: Creating media Software: iMovie/ Green screen App Lessons: 1. To explain what makes a video effective 2. To use a digital device to record video 3. To capture video using a range of techniques 4. To create a storyboard	Unit name: Selection in physical computing Purpose: Programming Hardware: Crumble controller+starter kit+ motor Software: Crumble software Lessons: 1. To control a simple circuit connected to a computer	Unit name: Flat-file databases Purpose: Data and information Software: https://www.j2e.com/data/examples/countries j2e logins Lessons: 1. To use a form to record information 2. To compare paper and computer-based databases 3. To outline how you can answer questions by grouping and then sorting data 4. To explain that tools can be used to select specific data 5. To explain that computer programs can be used to compare data visually	Unit name: Introduction to vector graphics Purpose: Creating media Software: Google Drawings App/ Logins Lessons: 1.To identify that drawing tools can be used to produce different outcomes 2. To create a vector drawing by combining shapes 3. To use tools to achieve a desired effect	Unit name: Selection in quizzes Purpose: Programming Software: Scratch logins Lessons: 1. To explain how selection is used in computer programs 2. To relate that a conditional statement connects a condition to an outcome 3. To explain how selection directs the flow of a program

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	3.To identify how to use a search engine 4. To describe how search engines select results 5. To explain how search results are ranked 6. To recognise why the order of results is important, and to whom	5. To identify that video can be improved through reshooting and editing 6. To consider the impact of the choices made when making and sharing a video Education for a Connected World Links: Self-image and identity Online relationships Online reputation Managing online information	2. To write a program that includes count-controlled loops 3. To explain that a loop can stop when a condition is met 4. To explain that a loop can be used to repeatedly check whether a condition has been met 5. To design a physical project that includes selection 6. To create a program that controls a physical computing project	6. To use a real-world database to answer questions	**4.** To recognise that vector drawings consist of layers **5.** To group objects to make them easier to work with **6.** To apply what I have learned about vector drawings Education for a Connected World Links: Copyright and ownership	4. To design a program that uses selection 5. To create a program that uses selection 6. To evaluate my program
Year 6 Laptops iPads	Unit name: Communication and collaboration Purpose: Computing systems/ networks Software: Google Drive/ Slides (Work collaboratively) Lessons: 1. To explain the importance of internet addresses 2. To recognise how data is transferred across the internet 3. To explain how sharing information online can help people to work together 4. To evaluate different ways of working together online https://scratch.mit.edu/projects/343870811 5. To recognise how we communicate using technology 6. To evaluate different methods of online communication Education for a Connected World Links: Managing information online	Unit name: Web page creation Purpose: Creating media Software: Google Sites Lessons **1.** To review an existing website and consider its structure **2.** To plan the features of a web page **3.** To consider the ownership and use of images (copyright) **4.** To recognise the need to preview pages **5.** To outline the need for a navigation path **6.** To recognise the implications of linking to content owned by other people Education for a Connected World Links: Online relationships Copyright and ownership	Unit name: Variables in games Purpose: Programming Software: ncce.io/scorechange or /scoreboard ncce.io/pongstarter or fruit catcher or catchertemplate or chatbocode/ bananas Lessons: 1. To define a 'variable' as something that is changeable 2. To explain why a variable is used in a program 3. To choose how to improve a game by using variables 4. To design a project that builds on a given example 5. To use my design to create a project 6. To evaluate my project	Unit name: Introduction to spreadsheets Purpose: Data and information Software: Microsoft Xcel Lessons: 1. To create a data set in a spreadsheet 2. To build a data set in a spreadsheet 3. To explain that formulas can be used to produce calculated data 4. To apply formulas to data 5. To create a spreadsheet to plan an event 6. To choose suitable ways to present data	Unit name: 3D modelling Purpose: Creating media Software: Tinkercad login Lessons: 1. To recognise that you can work in three dimensions on a computer 2. To identify that digital 3D objects can be modified 3. To recognise that objects can be combined in a 3D model 4. To create a 3D model for a given purpose 5. To plan my own 3D model 6. To create my own digital 3D model Education for a Connected World Links: Privacy and security	Unit name: Sensing movement Purpose: Programming Hardware: Micro:bit Software: Microsoft Make Code Lessons: 1. To create a program to run on a controllable device 2. To explain that selection can control the flow of a program 3. To update a variable with a user input 4. To use an conditional statement to compare a variable to a value 5. To design a project that uses inputs and outputs on a controllable device 6. To develop a program to use inputs and outputs on a controllable device

GORSEY BANK PRIMARY SCHOOL

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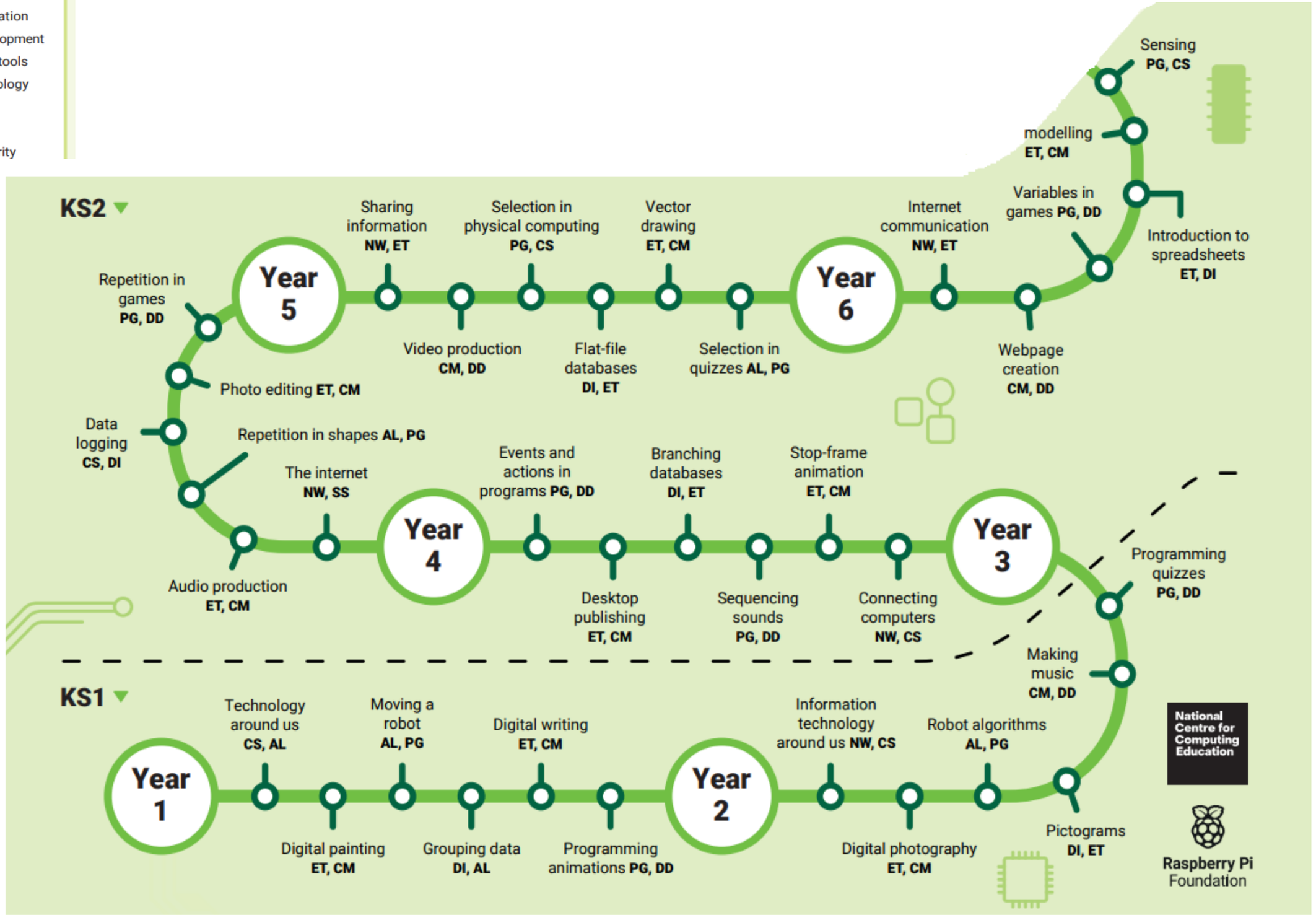
Key

- **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



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