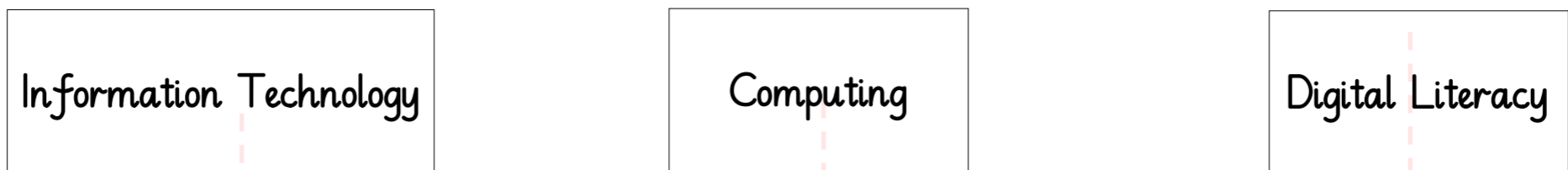


Progression of Skills in COMPUTING



Year Group	Key Vocabulary
6	<p>Pong</p> <p>Variables, Switch Backdrop, Forever (Iteration/Loops)</p> <p>IF—THEN, Angles, X and Y Position, Change set variables using + and -</p> <p>Pac-man</p> <p>Switch costume, animations, frames, glide to x() y()</p>
5	<p>Apple Drop</p> <p>Comments (explaining the function of computer code) Coordinates, X Axis, Y Axis, Pick Random Position, Mathematical Operations (=, +, -, /, >, <)</p> <p>Sensing, If—else—then, Variables.</p> <p>Snake</p> <p>Cloning.</p> <p>HTML Programming</p> <p>Debugging, hyperlinks, tags, navigation, notepad, HTML.</p>
4	<p>Interactive Quiz</p> <p>IF—THEN—ELSE, Say, Ask, Iteration (loops) Variable.</p>
3	<p>Animations and Sequencing</p> <p>When green flag is clicked, Broadcast Message 1,2,3</p> <p>When I receive message 1,2,3, New Message.</p> <p>Layers, Nodes</p> <p>Scratch</p> <p>Costumes</p>
2	<p>We are Astronauts</p> <p>X Axis, Y Axis, Follow Mouse Pointer, Flip Image, Turn Right, Turn Left, Sprites, Background, Events, Motion</p> <p>Maze Game</p> <p>IF—THEN—ELSE, Eraser, Fill Tool</p>
1	<p>Computer Hardware</p> <p>Monitor, Keyboard, Computer Mouse, Keyboard and System Unit.</p> <p>Mouse Skills</p> <p>Select, Click, Click and hold, double click and drag and drop.</p> <p>Basic Algorithms (BeeBot)</p> <p>Forward, Turn Left, Turn Right, Pause and Stop.</p> <p>Basic Algorithms (Angry Bird)</p> <p>North, South, East, West and Compass, Move Forward, Turn Right, Turn Left and Repeat.</p>
EYFS	<p>Pattern—Grouping things, comparing, spotting similarities and differences, working out rules.</p> <p>Making— Making things, checking and fixing things</p> <p>Exploring</p> <p>Instructions</p> <p>Sequencings</p> <p>Storylines</p> <p>Steps</p>

YEAR 6

Pong
Chn develop the classic Pong game. 2 paddles are controlled using various keyboard input.

Pacman
Chn learn how to write code to control a sprite which has limited movement. Chn use variables and code events which ends when all the dots have been consumed.

BBC Micro: bit
Chn learn to use the block editor to code the BBC.

FLOWOL
Chn develop logical reasoning and problem solving talents, develop programming skills and explore the world of automatic, autonomous systems and robots.

Google Space Shelter

Collaborating Online

What is your online data?

Secure Passwords

What is Spam?

How have computers changed our lives?

YEAR 5

Snake
Chn create an adapted version of the classic game, 'Snake' developed by Nokia in the 90s—The snake has a range of control: moves up, down, left and right.

Apple Drop
Chn program a game which uses a range of variables. This unit builds on skills gained in previous year (IF—THEN—ELSE. Chn discuss the events

HTML Programming
Chn create webpages writing HTML code using Notepad.

Snake

Computer Networks
What does Rush Green's network looks like? And what hardware connects it all together.

Data Representation
Chn learn how to convert whole numbers into binary code (4 digit numbers)

Movie editing with Movavi—text, and images only

Manipulating of Images
Chn learn about surrealism and create their own surreal art using graphics editing software

YEAR 4

Interactive maths quiz

Interactive Toy
Chn learn about inputs and outputs and move onto creating their own interactive toy.

Interactive Maths Quiz
Chn logically plan how the quiz will operate e.g. ask question > user types response > response is checked—This unit reinforces skills required for

INTERLAND

Is information on the Web always reliable?

What does being respectful and responsible look like?

Computer Networks
Chn learn about what makes the internet and the different types of network topologies that can be used to create a network (Ring, Star and BUS)

Manipulation of Images
Chn learn how to alter images using graphics editing software—chn make their own movie poster. Chn learn about Vector graphics and how to create their own.

Data Representation
Chn learn how sound is represented by computers when an analogue signal is converted to a digital signal. Chn learn how to convert whole numbers into binary code (3 digit numbers)

YEAR 3

Animation with Scratch

Animations and Sequencing
Chn create an animation which uses speech bubbles to show a text based conversation between 2 sprites. They will using a numbered system with the text to control the speech (When I receive and broadcast)

Band Runner

Digital Footprints

Band Runner

Digital Footprints

YEAR 2

LOOPS WITH LAUREL

We are Astronauts
Chn control a sprite using Scratch Code. Basic movement of sprite such as Move Up, Move Down, Move Left, Move Right, Turn Right, Turn Left.

Maze Game
Chn use their skills to develop a simple maze game where the sprite they create need to be navigated

Jessie and Friends (CEOP)

How to keep our personal information Private

What are digital photos and video

Machine Learning
Chn learn about data sets and how adding drawings to this helps machines learn.

Data Representation
Chn learn how whole numbers can be represented by computers using binary code. Chn learn how to convert whole numbers into binary code (2 digit numbers)

YEAR 1

SEQUENCING WITH SCRAT

Machine Learning (Artificial Intelligence)
Chn learn what machine learning is and how it could be used to clean up our oceans.

Basic algorithms (BeeBot)
Chn write simple algorithms to control a BeeBot (Move Forward and Turn Right, Turn Left, Pause and Stop)

Basic algorithms (Angry Bird)
Chn write simple algorithms to control an Angry Bird (N,S,E,W)

Basic Algorithms (Angry Bird)
Chn write simple algorithms to control an Angry Bird. (Move Forward and Turn Right and Turn

How can we trust a website?

Mouse Skills
Chn develop their mouse skills using online games

Keyboard Skills
Chn learn to use they keyboard correctly with using both hands.

Data Representation
Chn learn that images are made of tiny pixels. Chn create simple images using individual pixels

What is a Computer System?

EYFS

Personal, Social and Emotional Development

Understanding the World/Physical Development

Expressive Arts and Design

Personal, Social and Emotional Development

Understanding the World/Physical Development

Expressive Arts and Design

Nursery: Chn use 'Dashcams' and Voice recorders to develop the communication skills during role play. Children have access to 2 laptops which have painting software and 'Google Earth'. Nursery teacher and support staff show Chn how to use this.

Reception: Chn learn how to use the mouse and keyboard so they can draw their own picture. (Taught by Computing Teacher) Chn are introduced to how correctly use the keyboard with two hands—chn type basic words and edit them using paint editing programs (2simple)

Computational Thinking in Nursery:
Chn explore why some objects float and some don't (Pebble vs Cork) Chn look at patterns of letters and spot errors e.g. A,B, A,B, A,B, A, b, A, B.

Chn learn to follow 2-3 part instructions e.g. "Please get your bag to the carpet and take out your book" Chn use shape sorters to explore problem solving through trial and error.

Computational Thinking in Reception:
Chn have an area where they have the opportunity to play and explore (Tinkering) Chn have the opportunity to create many things e.g. treasure maps (Instructions, sequencing and algorithms)

Chn identify patterns by comparing, spotting similarities and differences. Chn learn to provide logical reasoning for why they have created something s certain way e.g. if a ramp does not have an incline, the toy car will no be able to travel a distance when pushed.

Year Group	Wider Opportunities and Experiences
6	<p>Bletchley Park - Virtual tour and session for students in Primary, Secondary, FE and HE. Your new virtual codebreaking experience includes a virtual tour of the Park, an Enigma demonstration and workshop session.</p> <p>Tour - An immersive 360-degree virtual tour of Bletchley Park's WW2 history with a learning specialist.</p> <p>Demonstration - A short virtual demonstration of a WW2 working Enigma Machine from our handling collection.</p>
5	<p>National Museum of Computing - The National Museum of Computing, has virtually opened its doors for anyone to visit and take a tour of the world's largest collection of working historic computers. 3D and virtual curated tours let learners explore the codebreaking machines of WWII, those maintaining the world's oldest working digital computers.</p>
4	<p>DRONEdays - provide ALL of the equipment for the workshop and ALL of the expertise. Schools need to provide the venue (hall/gym) Health and Safety is extremely paramount. Children work in small teams to consider algorithms and write, develop, debug and improve code in order to achieve progressively challenging tasks. Each group has an iPad and drone, working collaboratively whilst competing against the other teams!</p>
3	<p>Legoland Windsor Resort - In pairs, students build and program their own interactive model. Covering key Computing topics such as algorithms, Boolean, repetition in programs, debugging & inputs and outputs. Students will learn key terms in computer programming and understand their role in day to day life. Through effectively working in pairs, students will collaborate to follow numbered building instructions to create and program their model, bringing it to life.</p>
2	<p>Minecraft Education - A bespoke cross-curricular education workshops are incredibly successful at creating engagement and enthusiasm around a topic. They offer chn opportunities to apply knowledge and learning, work collaboratively and get creative.</p> <p>3D Printing Workshops - TechFun offers a hands-on CAD and 3D printing workshop for primary school-aged children. With an easy to use CAD program for designing and bring in 3D printers to see the objects being manufactured.</p>
1	<p>Legoland Discovery Centre - Chn use LEGO WDo2 kits, which allow them to design a LEGO model that can then be controlled via computer tablet. In this workshop chn can develop key computing aspects including writing and debugging programs by building and programming.</p>
EYFS	<p>Little City - Children explore a mobile and roleplay in a mobile city</p> <p>Nursery: Children learn about upsetting images, unreliable information and talking to strangers online. Chn learn how to stay safe on the Internet through an online story Com</p> <p>Reception: CEOP Website. Chn learn about how they feel when they watch videos online e.g. if a video makes them feel worried scared or sad they should TAG (Tell A Grown Up)</p>

Early Learning

Personal, Social and Emotional Development

Expressive Arts and Design

Creating with Materials

Managing Self