COMPUTING

INTENT

At The Queenswell Federation, our computing curriculum equips pupils with critical thinking skills to creatively and innovatively solve computational problems, develop an insight into natural and artificial systems and, participate responsibly and safely in the digital world. Our curriculum has deep links with all areas of the curriculum and provides children with the necessary skills for adult life and employment within the ever-changing technological environment we live in.

IMPLEMENTATION

The computing curriculum is ingrained in all aspects of the pupil's learning. It allows them to use programs and games to support and inspire creative learning in all areas of the curriculum. Pupils use different devices e.g. iPads and Chromebooks. They have individual Google accounts and can access their learning anywhere and anytime. To help enrich the learning experience, all classrooms are equipped with interactive touch boards and audio equipment. Our long-term curriculum map sets out the specific skills and knowledge children will learn in each year group, in order to ensure pupils become digitally literate and develop necessary skills suitable for the future workplace and actively participate in the digital world.

LINKS TO EYFS

Understanding the World

Intent

It is important to us that all children have the opportunity to make sense of the world around them through first hand experiences. This includes their physical world as well as their community. We are a culturally diverse school and we aim to educate children about and celebrate what is important to the children and families that we serve. Our physical environment at Queenswell allows children to connect with nature through our Environmental Education and Forest School approach. These first-hand experiences help to enrich and widen the children's vocabulary, supporting communication and Language; and later reading comprehension as well.

Implementation

We provide a *culturally, socially, technologically and ecologically* diverse environment. This includes:

- continuous provision that includes use of technological toys or devices.
- use of a range of technological programmable toys such as bee-bots.
- children learn about online safety – suitable websites, what to do if they see something online that they don't like and what information not to share

YEAR 1		
Strand	**Intent (Learning Questions)**	**Implementation (**Skills Progression & Activities, **Reading +** *Vocabulary***)**
Information Technology	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Can I click and drag using the touchpad on a Chromebook? Can I use a range of tools to create digital paintings? **Vocabulary** Chromebook, touchpad, mouse, click, double (2x) click, drag, paint program, paintbrush, undo, fill, erase
Computer Science - programming	• Create and debug simple programs.	Can I write code to make an object move across the screen? **Vocabulary** code, instructions, run, up, down, left, right, direction, object, action, click
Computer Science - theory	• Recognise common uses of information technology beyond school.	Can I explain technology as something that helps us? Can I name the main parts of a computer? **Vocabulary** technology, help, screen, keyboard, base unit, mouse, trackpad, desktop, laptop
Digital Literacy	• 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.	Review Online Safety Rules and Pupil Online Safety AUA. Whole class sign A3 rules for display in class - Aut 1 Anti-bullying week - Do I know how to spread kindness? Aut 2 Safer Internet Day - Spr 1 Jessie and Friends Episode 2 Do I understand that photos can be shared online and the importance of seeking permission before sharing a photo? - Spr 2 Do I understand how to navigate the internet safely to find information? Research 'topic' using 2 agreed websites. Children navigate the websites, discuss which buttons they can/can't click.- Sum 1 Do I understand what kind of behaviour others value both on and off line? Use traditional tales internet safety discussion PowerPoint. Relate the different kinds of behaviour to real life too. Use discussion cards from Twinkl linked to PP. - Sum 2 **Vocabulary** Online Safety, rules, kindness, shared, permission, photo, website, click, behaviours, value

YEAR 2

Strand	Intent (Learning Questions)	Implementation (Skills Progression & Activities, **Reading +** *Vocabulary*)
Information Technology	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Can I use an iPad to take different types of photos? Can I find the correct keys on the keyboard using BBC Dance Mat Typing? Can I log onto my Google account? Can I use my keyboard skills in Google Docs? Vocabulary iPad, device, camera, photograph, portrait, landscape, focus, background, foreground, keys, keyboard, pointing fingers, Google account, username, password, BBC Dance Mat Typing, Google Docs, finger space, space bar, backspace
Computer Science - programming	• Understand what algorithms are. • how they are implemented as programs on digital devices. • Programs execute by following precise and unambiguous instructions. • Create and debug simple programs • use logical reasoning to predict the behaviour of simple programs.	Can I program objects to perform actions when a key is pressed using a key press event? Can I program objects to perform an action when a button is clicked? **Vocabulary** Key press event, action, object, button, program, clicked
Computer Science - theory	• recognise common uses of information technology beyond school	What is information technology? **Vocabulary** Information technology, computer, devices
Digital Literacy	• 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.	Review Online Safety Rules and Pupil Online Safety AUA. Whole class sign A3 rules for display in class - Aut 1 Anti-bullying week Do I know how to spread kindness? - Aut 2 Safer Internet Day - Spr 1 Can I use the internet purposefully to answer specific questions? Spr 2 https://www.bbc.co.uk/newsround/39032291 watch this short video clip to help children understand not everything online is true Do I know how to report inappropriate content to a trusted adult in school and at home? - Sum 1 Read Buddy the Dog Internet Safety story. Use the discussion cards and quiz from Twinkl. Do I understand how to treat others with respect and can show respect for their privacy? - Sum 2

		Read DigiDuck story online. Create thought bubbles of how the pig in the story was feeling. Record speech bubble of what DigiDuck should do to make it right. **Vocabulary** Internet, information, online, trust, truth, web address, browser, search engine, respect, privacy, inappropriate
YEAR 3		
Strand	**Intent (Learning Questions)**	**Implementation (**Skills Progression & Activities, **Reading +** *Vocabulary***)**
Information Technology	• Use a variety of software to create a range of content that accomplish given goals, including presenting information.	Learn how to type accurately using an online touch typing software, e.g. Doorway Online or BBC Dance Mat Typing. Type text into Google Docs and change its style by applying a range of font effects. Introduction to Presentation Skills: Create a presentation in Google Slides, adding text and images. Vocabulary Google Docs, Google Slides, font style, font size, font colour, text box, image
Computer Science - programming	• Use logical reasoning to write simple algorithms explaining the sequence commands should run in. Program a sequence of actions using timings to create a simple animation. Write code that includes conditional events. Debug programs independently so they run correctly.	Coding Year 3/1 Create simple animations, using time events to make objects perform actions in a sequence and explain how their program runs. Learn that code can be programmed to execute at different times. Vocabulary time, sequence, function box, button, control, run, click events, after, execute, algorithm, simulation Coding Year 3/2 Learn to code with 'if statements', which select different pieces of code to execute depending on what happens to other objects. Fix the mistakes in the code. Vocabulary conditional if statement, keys, wall, condition, if/then, background
Computer Science - theory	• 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.	Do I understand how computers are connected? What does our school network look like? Vocabulary WAP, iPad, PC, network socket, server, switch, printer, laptop, chromebook

Digital Literacy	• Use technology safely, respectfully and responsibly. • Recognise acceptable/unacceptable behaviour. • Identify a range of ways to report concerns about content and contact.	Review Online Safety Rules and Pupil Online Safety AUA. Whole class sign A3 rules for display in class - Aut 1 Anti-bullying week - Aut 2 Safer Internet Day - Spr 1 Google Be Internet Legends Online Safety Be Internet Kind: Respect Each Other - How can I stand up to others online? - Spr 2 Activity 1: Taking care of yourself and others Vocabulary Bullying, bystander, upstander, block Be Internet Secure: Protect Your Stuff - How do I build a strong password? - Sum 1 Activity 1: How to build a strong password Vocabulary Privacy, security, password, hacker, scammer Digital Citizen Do I know the different ways children can communicate online? - Sum 2 Vocabulary "TA" trusted adult, hacked, password, scam, phishing, suspicious, kindness, unkindness
YEAR 4		
Strand	**Intent (Learning Questions)**	**Implementation (**Skills Progression & Activities, **Reading +** *Vocabulary***)**
Information Technology	• Use a variety of software to create a range of content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	Developing Presentation Skills: Create a presentation about L.J. in Google Slides, adding text, images and transitions. Change and edit photos and consider the impact that editing images can have. Create a simple spreadsheet, enter data, create a chart and analyse data. Vocabulary Google Sheets, cell, column, row, data, information, column chart, analyse Photo, image, edit, reuse, impact Slides, font style, font size, font colour, text box, image
Computer Science - programming	• Use logical reasoning to create simple flow charts explaining the sequence commands should run in. • Create games and apps that include variables in them (e.g. as a score counter).	Coding Year 4/1 Learn how computers use variables to count things and keep track of what is going on. Learn to create simple games which use a score variable. Fix the mistakes in the code. Vocabulary

	● Test, debug and improve programs with support.	variable, condition, score, start, click, place, time, value, event, execute, conditional if statement <u>Coding Year 4/2</u> Learn how computers use repetition and loops to do things over and over again. Design and create an app for a specific purpose. <u>Vocabulary</u> variable, stop, timer, if... equals, condition, repetition, loops, animation, reset
Computer Science - theory	● 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.	Do I understand that the World Wide Web is part of the internet? Who created the WWW?
Digital Literacy	● Use technology safely, respectfully and responsibly. ● Recognise acceptable/unacceptable behaviour. ● Identify a range of ways to report concerns about content and contact.	Review Online Safety Rules and Pupil Online Safety AUA. Whole class sign A3 rules for display in class - Aut 1 Anti-bullying week - Aut 2 Safer Internet Day - Spr 1 Google Be Internet Legends Online Safety S of W <u>Be Internet Sharp: Think Before You Share</u> - Do I know what having a positive digital footprint means? Activity 1: Can you avoid oversharing? - Spr 2 <u>Vocabulary</u> Digital footprint, positive, negative, personal information, settings <u>Be Internet Alert: Check it's for Real</u> - What does "phishing" mean? - Sum 1 Activity 1: Don't bite that phishing hook! <u>Vocabulary</u> Phishing, spear phishing, genuine, fraud, scam <u>Digital Citizen</u> Can I explain how to be a responsible digital citizen? - Sum 2 <u>Vocabulary</u> "TA" trusted adult, hacked, password, scam, phishing, suspicious, kindness, unkindness
YEAR 5		
Strand	**Intent (Learning Questions)**	**Implementation (**Skills Progression & Activities, **Reading +** ***<u>Vocabulary</u>*****)**

Information Technology	• 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.	Introduction to Spreadsheet Formula using “SUM” formula, formatting cell width, depth, using text alignment, font formatting and borders. Use digital devices to record a jingle, advert and interview based around the theme of a radio station. Further Developing Google Slides Skills: Create a Google Slides about Women in British Computing, adding text, images, transitions and animations. <u>Vocabulary</u> Google Sheets, cell, column, row, format, formula, SUM Audacity, jingle, playback, recording, audio effects, editing, podcast, radio advert Google Slides, transition, animation
Computer Science - programming	• Design and program games that include variables (e.g. for a score counter) and changing object properties (e.g. the speed and direction of a moving car). • Generate random numbers in code. • Test, debug and improve programs independently.	<u>Coding Year 5/1</u> Learn how computers use numbers to represent things such as how fast things are moving, and where they are. Learn how to change an object 's direction and heading to create a driving game. Learn how to set friction to affect the speed and movement of a car in a driving game. Fix the mistakes in the code. <u>Vocabulary</u> numbers, debug, object, action, speed, acceleration, deceleration, angle, speed, heading, if, assign, decompose, friction, direction, condition, input <u>Coding Year 5/2</u> Learn how computers can generate random numbers and how these can be used in simulations. Learn that the value of a variable can be programmed to generate randomly and change in response to an event or at set time intervals. Learn how to code a game that uses random numbers to move objects in random directions <u>Vocabulary</u> variable, generated, random, intervals, time, simulate, random number, generate, angle, coordinates, degrees, value, condition, score, event
Computer Science - theory	• 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.	Do I know how a search engine works? What influences searching? Can I compare different search engines?

Digital Literacy	• Use technology safely, respectfully and responsibly. • Recognise acceptable/unacceptable behaviour. • Identify a range of ways to report concerns about content and contact.	Review Online Safety Rules and Pupil Online Safety AUA. Whole class sign A3 rules for display in class - Aut 1 Anti-bullying week - Aut 2 Safer Internet Day - Spr 1 Google Be Internet Legends Online Safety S of W Be Internet Kind: Respect Each Other - How can I stand up to others online? - Spr 2 Activity 2: Why does kindness matter? Vocabulary Bullying, bystander, upstander, block Be Internet Secure: Protect Your Stuff - Why do privacy and security matter and how do they relate to each other? - Sum 1 Vocabulary Privacy, security, password, hacker, scammer Digital Citizen Do I know how to stay safe, healthy and happy online and when I use digital technology? - Sum 2 Vocabulary "TA" trusted adult, fake news, bullying, pressure, worry, inappropriate content, inappropriate relationships, fear
YEAR 6		
Strand	**Intent (Learning Questions)**	**Implementation (**Skills Progression & Activities, **Reading +** *Vocabulary***)**
Information Technology	• 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.	Create a digital book about the History of WWII computer codebreaking inc. Alan Turing, search for information online and copy and paste it without plagiarising anyone else's work, add images, hyperlinks, embed video & upload to Google Drive. Higher Level Presentation in Google Slides, adding text, images, transitions, animations, hyperlinks and buttons, in a non linear format. Solving Problems with Spreadsheets using "SUM" and "AVERAGE" formula, ordering and presenting data based on calculations. Creating independent data analysis, formatting cell width, depth, using text alignment, font formatting and borders. Vocabulary Digital book, Google Drive, FileBrowser, text box, image, plagiarising, hyperlinks, contents page, embed Google Slides, transition, animation, hyperlinks and buttons Google Sheets, cell, column, row, formula, SUM, AVERAGE
Computer	• Design and program games that	Coding Year 6/1

Science - programming	include conditional events, score variables, random number generators and time limits. ● Write code using a text-based language (e.g. HTML). ● Detect and correct errors in code.	Learn to use variables in more complex ways, and to manipulate inputs to create useful outputs, e.g. learn how to code functions which use formula to convert one measurement into another. Learn that the properties of an object can be dependent on a variable, and that the value of a variable can be dependent on another variable. Fix the mistakes in the code. <u>Vocabulary</u> variable, prompt, multiply, width, height, pixels, output, angle, degrees, seconds, minutes, hours, analogue, digital, miles, kilometres, imperial, inches, centimetres <u>Coding Year 6/2</u> Learn more about how computers use property values and parameters to store information about objects. Learn how to move objects around the screen by accessing and changing their parameters, e.g. speed, direction. Combine their knowledge of coordinates, conditional events, random numbers and variables together in code to create an app that uses a different way of scoring. <u>Vocabulary</u> dragend, parameter, score, variable, ev.d, ev.a, dog. heading, friction, direction, angle, speed, equal, drag, swipe, random, numbers, property, objects, location, events <u>Introduction to HTML</u> Learn the basics of HTML, e.g. identify tags, add images to a web page using HTML, explain what a style selector is and why they are useful when designing a webpage, understand what an external style (CSS) sheet is and how it is used Fix the mistakes in the code. <u>Vocabulary</u> HTML, angle brackets, tags, paragraphs, headings, images, jpgs, text, CSS, pixel, web page
Computer Science - theory	● 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.	Understand the History of WWII computer code breaking including Alan Turing. (Combine with Information Technology above.)
Digital Literacy	● Use technology safely, respectfully and responsibly. ● Recognise acceptable/unacceptable	Review Online Safety Rules and Pupil Online Safety AUA. Whole class sign A3 rules for display in class - Aut 1 Anti-bullying week - Aut 2

	behaviour. ● Identify a range of ways to report concerns about content and contact.	Safer Internet Day - Spr 1 Google Be Internet Legends Online Safety S of W Be Internet Sharp: Think Before You Share - Do I understand the potential impact of a mismanaged digital footprint? - Spr 2 Vocabulary Digital footprint, positive, negative, personal information, settings Be Internet Brave: When in Doubt, Discuss - Do I understand what types of situations call for getting help or talking things out with a trusted adult? - Sum 1 Vocabulary “TA” trusted adult, media, bystander, upstander, harassment, target, kindness, unkindness Transition to Secondary School Online Safety Unit – Sum 2 Including review of privacy settings on social media and cyberbullying.