



**Computing Curriculum - Skills and Knowledge Progression**

# Computing - Curriculum Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KS1 Year A	Online Safety and Saving Files	Grouping, Sorting and Pictograms	Coding (Lego Builders and Maze Explorers)	Animated Story Books	Coding Events and Making Computer Programs	Technology outside of school
KS1 Year B	Online Safety and Using Computers	Spreadsheets	Coding with Algorithms and Objects	Questioning and Effective Searching	Creating Picture	Making Music
LKS2 Year A (2022-2023)	Online Safety and The Internet	Programming Sequences in Music (Scratch)	Data Logging (Data Logger & PM 2Graph)	Audio Editing (Audacity)	Animation (stickman animator)	Programming Events and Actions (Scratch)
LKS2 Year B (2023-2024)	Online Safety and Computer Networks	Programming Repetition in Shapes (logo)	Branching Databases (PM 2question & J2E)	Photo Editing (paint.net)	Desktop Publishing (PM 2Publish & Microsoft Publisher)	Programming Repetition in Games (Scratch)
UKS2 Year A (2022-2023)	Online Safety and Sharing Information	Vector Drawing (Google Drawings)	Flat-file Databases (J2Data & PM)	Video Editing (Win10 Video Editor)	Selection in physical computing (Crumbles)	Selection in Quizzes (Scratch & PM 2Quiz)
UKS2 Year B (2023 - 2024)	Online Safety and Communication	3D Modelling (tinkercad)	Spreadsheets (Googlesheets, PM or Excel)	Webpage Creation (Googlesites)	Sensing (microbit)	Variables in games (Scratch)

**Multimedia Text and Images**   **Multimedia Sound and Motion**   **Technology in Our Lives**  
**Coding and Programming**   **Online Safety**   **Handling Data**

## Early Years - National Curriculum Expectations

### Wren Class

- Show resilience and perseverance in the face of a challenge.
- Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'.
- Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
- Explore, use and refine a variety of artistic effects to express their ideas and feelings.

## Key Stage 1 - National Curriculum Expectations

### Owl Class

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions;
- Create and debug simple programs;
- Use logical reasoning to predict the behaviour of simple programs;
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content;
- Recognise common uses of information technology beyond school;
- 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.

## Key Stage 2 - National Curriculum Expectations

### Woodpecker and Red Kite Class

- 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;
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content;
- 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;
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

# Multimedia Text and Images

KS1 - Owl Class	LKS2 - Woodpecker Class	UKS2 - Red Kite Class
<p>Pupils use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p> <p>Pupils can:</p> <ol style="list-style-type: none"> <li>1. Add text strings, text boxes and show and hide objects and images, manipulating the features;</li> <li>2. Use various tools, such as brushes, pens, eraser, stamps and shapes, and set the size, colour and shape;</li> <li>3. Use applications and devices in order to communicate ideas, work, messages and demonstrate control;</li> <li>4. Save, retrieve and organise work;</li> <li>5. Use key vocabulary to demonstrate knowledge and understanding in this strand: paint, colour, brush, tools, settings, undo, redo, text, image, size, poster, launch, application, software, window, minimise, restore, size, move, screen, close, click, drag, log on, log off, keyboards, keys, mouse, click, button, double click, drag, present.</li> </ol>	<p>Pupils 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 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.</p> <p>Pupils can:</p> <ol style="list-style-type: none"> <li>1. Create different effects with different technological tools, demonstrating control;</li> <li>2. Use appropriate keyboard commands to amend text on a device;</li> <li>3. Use applications and devices in order to communicate ideas, work, and messages;</li> <li>4. Save, retrieve and evaluate work, making amendments;</li> <li>5. Insert a picture/text/graph/hyperlink from the internet or a personal file;</li> <li>6. Use key vocabulary to demonstrate knowledge and understanding in this strand: draw, object, shape, line, line colour, fill colour, group, ungroup, font, size, text box, format, image, wrap text, plan, link, image, object, link, hyperlink, minimise, restore, size, move, screen, split, create, organise, file, folder, close, exit, search, print, password, screenshot, snipping tool, shift, undo, redo, menu, dictionary, highlight, cursor, toolbar, spellcheck.</li> </ol>	<p>Pupils 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.</p> <p>Pupils can:</p> <ol style="list-style-type: none"> <li>1. Use the skills already developed to create content using unfamiliar technology;</li> <li>2. Select, use and combine the appropriate technology tools to create effect;</li> <li>3. Review and improve their own work and support others to improve their work;</li> <li>4. Save, retrieve and evaluate their work, making amendments;</li> <li>5. Insert a picture/text/graph/hyperlink from the internet or personal file;</li> <li>6. Use key vocabulary to demonstrate knowledge and understanding in this strand: window, layout, text, font, colour, format, heading, hyperlink, 2D shape, 3D shape, orbit, pan, zoom, eraser, dimension, measurement, guide.</li> </ol>

# Multimedia Sound and Motion

## KS1 - Owl Class

Pupils use technology purposefully to create, organise, store, manipulate and retrieve digital content.

Pupils can:

1. Use software to record sounds;
2. Change sounds recorded;
3. Save, retrieve and organise work;
4. Use key vocabulary to demonstrate knowledge and understanding in this strand: commands, add sound.

## LKS2 - Woodpecker Class

Pupils 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.

Pupils can:

1. Use software to record, create and edit sounds and capture still images;
2. Change recorded sounds, volume, duration and pauses;
3. Use software to capture video for a purpose;
4. Crop and arrange clips to create a short film;
5. Plan an animation and move items within each animation for playback;
6. Use key vocabulary to demonstrate knowledge and understanding in this strand: audio, sound, video, movie, embed, link, file format, animate, animation, still image, thaumatrope, zoetrope, zoopraxiscope, stereoscope, flip book, frame, onion skinning, loop, frame rate, record, stop, play, stop motion, stop frame.

## UKS2 - Red Kite Class

Pupils 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.

Pupils can:

1. Collect audio from a variety of resources including own recordings and internet clips;
2. Use a digital device to record sounds and present audio;
3. Trim, arrange and edit audio levels to improve quality;
4. Publish their animation and use a movie editing package to edit/refine and add titles;
5. Use key vocabulary to demonstrate knowledge and understanding in this strand: audio, record, edit, play stop, skip, waveform, input, output, record, edit, play podcast, digital content, downloadable, backing track, voiceover, mute, gain, production, post-production, documentary, project, evaluation, screening, ceremony, upload.

# Technology in Our Lives

## KS1 - Owl Class

## LKS2 - Woodpecker Class

## UKS2 - Red Kite Class

Pupils recognise common uses of technology beyond school. They use technology safely and respectfully, keeping personal information private; they identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Pupils can:

1. Recognise ways that technology is used in the home and community, e.g. taking photos, blogs, shopping;
2. Use links to websites to find information;
3. Recognise age-appropriate websites;
4. Use safe search filters;
5. Use key vocabulary to demonstrate knowledge and understanding in this strand: filter, Google, search engine, image, keyboard, email, internet, subject, address, communicate, sender, safe, secure.

Pupils 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 use search technologies effectively, appreciate how results are selected and ranked, and are discerning in evaluating digital content.

Pupils can:

1. Explain ways to communicate with others online;
2. Describe the world wide web as the part of the internet that contains websites;
3. Add websites to a favourites list;
4. Use search tools to find and use an appropriate website and content;
5. Use strategies to improve results when searching online;
6. Use key vocabulary to demonstrate knowledge and understanding in this strand: filter, Google, search engine, image, keyboard, email, subject, address, communicate, sender, safe, secure, internet, world wide web, social media.

Pupils 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 use search technologies effectively, appreciate how results are selected and ranked, and are discerning in evaluating digital content.

Pupils can:

1. Search for information using appropriate websites and advanced search functions within Google;
2. Use strategies to check the reliability of information (cross-check with another source such as books);
3. Talk about the way search results are selected and ranked;
4. Check the reliability of a website, including the photos on site;
5. Tell you about copyright and acknowledge the sources of information;
6. Use key vocabulary to demonstrate knowledge and understanding in this strand: world wide web, search, search engine, advanced search, results, Google, browser, terms of use, bias, authority, citation, plagiarism, source, website, secure, https, site, domain, website, browser, address bar.

# Coding and Programming

KS1 - Owl Class	LKS2 - Woodpecker Class	UKS2 - Red Kite Class
<p>Pupils understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. They create, debug and use logical reasoning to predict the behaviour of simple programs.</p> <p>Pupils can:</p> <ol style="list-style-type: none"> <li>1. Give commands one at a time to control direction and movement, including straight, forwards, backwards, turn;</li> <li>2. Control the nature of events: repeat, loops, single events and add and delete features;</li> <li>3. Give a set of instructions to follow and predict what will happen;</li> <li>4. Improve/change their sequence of commands by debugging;</li> <li>5. Use key vocabulary to demonstrate knowledge and understanding in this strand: algorithm, instruction, order, debug, program, turn, left, right, clockwise, anticlockwise, blocks, sequence, project, repeat, repeat forever, invisible, grow, shrink.</li> </ol>	<p>Pupils design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; they solve problems by decomposing them into smaller parts. They use sequence, selection, and repetition in programs and work with variables and various forms of input and output. They use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p> <p>Pupils can:</p> <ol style="list-style-type: none"> <li>1. Use logical thinking to solve an open-ended problem by breaking it up into smaller parts;</li> <li>2. Write a program, putting commands into a sequence to achieve a specific outcome;</li> <li>3. Give a set of instructions to follow and predict what will happen;</li> <li>4. Keep testing a program and recognise when it needs to be debugged;</li> <li>5. Use variables to create an effect, e.g. repetition, if, when, loop;</li> <li>6. Use key vocabulary to demonstrate knowledge and understanding in this strand: decompose, decomposing, logical sequence, flowchart, sprite, block, command, algorithm, answer, correct, errors, program, algorithm, instructions, commands, forward (fd), left (lt), right (rt), move, turn, clear screen (cs), variable.</li> </ol>	<p>Pupils design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; they solve problems by decomposing them into smaller parts. They use sequence, selection, and repetition in programs and work with variables and various forms of input and output. They use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p> <p>Pupils can:</p> <ol style="list-style-type: none"> <li>1. Use external triggers and infinite loops to demonstrate control;</li> <li>2. Follow a sequence of instructions, e.g. in a flowchart and modify a flowchart using symbols;</li> <li>3. Use conditional statements and edit variables;</li> <li>4. Decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program;</li> <li>5. Keep testing a program and recognise when it needs to be debugged;</li> <li>6. Use key vocabulary to demonstrate knowledge and understanding in this strand: flowchart, algorithm, control, output, symbol, start, stop, delay, process, decision, loop, backdrop, script, block, repeat, commentary, sequence, consequence, debug, program, Kodu, world, object, tool palette, program environment, smooth, flatten, raise.</li> </ol>



# Online Safety

## KS1 - Owl Class

## LKS2 - Woodpecker Class

## UKS2 - Red Kite Class

Pupils can use technology safely and respectfully, keeping personal information private; they identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Pupils can:

1. Identify what things count as personal information;
2. Identify what is appropriate and inappropriate behaviour on the internet;
3. Agree and follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords;
4. Seek help from an adult when they see something that is unexpected or worrying;
5. Demonstrate how to safely open and close applications and log on and log off from websites;
6. Use key vocabulary to demonstrate knowledge and understanding in this strand: safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet.

Pupils use technology safely, respectfully and responsibly. They recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.

Pupils can:

1. Reflect on their own digital footprint and behaviour online;
2. Identify what is appropriate and inappropriate behaviour on the internet, recognising the term cyberbullying;
3. Agree and follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords;
4. Seek help from an adult when they see something that is unexpected or worrying;
5. Demonstrate understanding of age-appropriate websites and adverts;
6. Use key vocabulary to demonstrate knowledge and understanding in this strand: safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, internet, world wide web, communicate, message, social media, email, password, cyberbullying/bullying, plagiarism, profiles, account, private, public.

Pupils use technology safely, respectfully and responsibly. They recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.

Pupils can:

1. Protect their password and other personal information;
2. Be a good online citizen and friend;
3. Judge what sort of privacy settings might be relevant to reducing different risks;
4. Seek help from an adult when they see something that is unexpected or worrying;
5. Discuss scenarios involving online risk;
6. Use key vocabulary to demonstrate knowledge and understanding in this strand: spam, link, privacy, virus, scam, phishing, inbox, junk, sender, subject, secure, safe, account, online, private, social media, adverts, cyberbullying, reporting, anonymous, victim, fraud/fraudulent, policy, private/personal.



# Handling Data

## KS1 - Owl Class

Pupils use to navigate, add to, move and edit simple spreadsheet software and create data, pictograms and simple graphs

Pupils can:

1. Talk about how data is organised in a simple spreadsheet.
2. Use a spreadsheet to count objects.
3. Make simple pictograms, tables and graphs using data they have collected.

## LKS2 - Woodpecker Class

Pupils 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.

Pupils can:

1. Talk about the different ways data can be organised;
2. Sort and organise information to use in other ways;
3. Search a ready-made database to answer questions;
4. Use key vocabulary to demonstrate knowledge and understanding in this strand: Google Docs, insert, table.

## UKS2 - Red Kite Class

Pupils 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.

Pupils can:

1. Construct data on the most appropriate application;
2. Know how to interpret data, including spotting inaccurate data and comparing data;
3. Use keyboard shortcuts and functions to input data on spreadsheets and create formulas for spreadsheets;
4. Add data to an existing database;
5. Use key vocabulary to demonstrate knowledge and understanding in this strand: Google Docs, insert, table, spreadsheet, cell, row, column, formula/formulas, calculate, format, edit, insert, ascending, descending.

## Progression of Vocabulary

Unit	KS1 - Owl Class	LKS2 - Woodpecker Class	UKS2 - Red Kite Class
<b>Multimedia Text and Images</b>	paint, colour, brush, tools, settings, undo, redo, text, image, size, poster, launch, application, software, window, minimise, restore, size, move, screen, close, click, drag, log on, log off, keyboards, keys, mouse, click, button, double click, drag, present.	draw, object, shape, line, line colour, fill colour, group, ungroup, font, size, text box, format, image, wrap text, plan, link, image, object, link, hyperlink, minimise, restore, size, move, screen, split, create, organise, file, folder, close, exit, search, print, password, screenshot, snipping tool, shift, undo, redo, menu, dictionary, highlight, cursor, toolbar, spellcheck.	window, layout, text, font, colour, format, heading, hyperlink, 2D shape, 3D shape, orbit, pan, zoom, eraser, dimension, measurement, guide.
<b>Multimedia Sound and Motion</b>	commands, add sound.	audio, sound, video, movie, embed, link, file format, animate, animation, still image, thaumatrope, zoetrope, zoopraxiscope, stereoscope, flip book, frame, onion skinning, loop, frame rate, record, stop, play, stop motion, stop frame.	audio, record, edit, play stop, skip, waveform, input, output, record, edit, play podcast, digital content, downloadable, backing track, voiceover, mute, gain, production, post-production, documentary, project, evaluation, screening, ceremony, upload.
<b>Technology in Our Lives</b>	filter, Google, search engine, image, keyboard, email, internet, subject, address, communicate, sender, safe, secure.	filter, Google, search engine, image, keyboard, email, subject, address, communicate, sender, safe, secure, internet, world wide web, social media.	world wide web, search, search engine, advanced search, results, Google, browser, terms of use, bias, authority, citation, plagiarism, source, website, secure, https, site, domain, website, browser, address bar.
<b>Coding and Programming</b>	algorithm, instruction, order, debug, program, turn, left, right, clockwise, anticlockwise, blocks, sequence, project, repeat, repeat forever, invisible, grow, shrink.	decompose, decomposing, logical sequence, flowchart, sprite, block, command, algorithm, answer, correct, errors, program, algorithm, instructions, commands, forward (fd), left (lt), right (rt), move, turn, clear screen (cs), variable.	flowchart, algorithm, control, output, symbol, start, stop, delay, process, decision, loop, backdrop, script, block, repeat, commentary, sequence, consequence, debug, program, Kodu, world, object, tool palette, program environment, smooth, flatten, raise.
<b>Online Safety</b>	safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet.	safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, internet, world wide web, communicate, message, social media, email, password, cyberbullying/bullying, plagiarism, profiles, account, private, public.	spam, link, privacy, virus, scam, phishing, inbox, junk, sender, subject, secure, safe, account, online, private, social media, adverts, cyberbullying, reporting, anonymous, victim, fraud/fraudulent, policy, private/personal.
<b>Handling Data</b>	data, insert.	Google Docs, insert, table.	Google Docs, insert, table, spreadsheet, cell, row, column, formula/formulas, calculate, format, edit, insert, ascending, descending.