



## Contents

Curriculum Overview.....	2
Rolling Computing Programme .....	4
What to teach when.....	5
Blossom Class – Computing Programme of Study .....	6
Vocabulary.....	6
Computer Science .....	6
Information Technology .....	7
Digital Literacy .....	8
Willow Class – Computing Programme of Study.....	9
Vocabulary.....	9
Computer Science .....	9
Information Technology .....	10
Digital Literacy .....	11
Oak Class – Computing Programme of Study.....	13
Vocabulary.....	13
Computer Science .....	13
Information Technology .....	14
Digital Literacy .....	16
Progression in Computing .....	17
Computer Science .....	17
Information Technology .....	18
Digital Literacy .....	20
Progression in Vocabulary.....	21

# Curriculum Overview

- Our computing curriculum develops our pupils' skills and knowledge in three distinct areas. We call these 'key elements':
  - **Computer Science:** this covers programming (both block-based and text-based), including computational thinking using web-based software such as Scratch. Pupils will write code to program physical and on-screen objects, interactive games and use text-based language, such as HTML and Python.
  - **Information Technology:** this covers the use of applications to create digital content, including document creation and editing, video making, digital art, graphic design, animation, 3D modelling and website building.
  - **Digital Literacy:** this covers skills to find, evaluate, utilise and share using technologies and the Internet. This includes important e-safety and internet research skills, as well as an understanding of computer networks.
- Unlike other subjects, which are organised by topics, the skills and knowledge in our music curriculum are organised by the three key elements above. Further, the length of different units of work precludes Computing from being grouped into distinct terms/topics.
- Much of our science curriculum must be taught sequentially so that pupils develop the knowledge and skills required to progress onto their next stage of learning. What pupils are taught and when is detailed in the Computing Programme section of this document. Some topics can be classed as 'standalone', that is to say pupils will encounter them at some point during their time in each class.
- Where we have 'standalone' topics, they form part of our rolling programme of learning. The length of the rolling programmes varies between classes:
  - **Blossom Class** (EYFS and Year 1): Two year rolling programme
  - **Willow Class** (Year 2 and Year 3): Two year rolling programme
  - **Oak Class** (Year 4, Year 5, and Year 6): Three year rolling programme
- We are comfortable that there is enough difference in content for children to learn something new every year. Further, where children encounter objectives out of year group, the work will be suitably differentiated for them to apply their prior knowledge. Finally, by the end of the key stage, children will have completed the programme of study and will therefore be prepared for the next stage in their learning.
- Teaching different topics at the same time presents a challenge in our mixed-age classes. To support teachers, we use the iLearn2 Primary Computing scheme of work and have based our curriculum on it.
- We recognise the increasing importance of teaching our pupils to be safe and responsible online citizens. We believe that it is important to prepare them for the future, beyond technology that they encounter now. Although e-safety is only taught once per class, it is a topic that we revisit in other areas of the curriculum, for example in PSHE.
- This document contains the following sections:

- **Computing Programme** detailing what is taught and when.
- **Computing Programme of Study** listing the key knowledge, skills and vocabulary pupils should encounter during each topic.
- **Progression in Computing Knowledge** and **Progression in Computing Vocabulary** demonstrates how knowledge and vocabulary are built sequentially throughout the computing curriculum.

# Computing Programme

Class	Year A	Year B	Year C
<b>Blossom</b>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>• Early programming</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>• Digital photos and videos*</li> <li>• Digital art and design</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>• Computer Discovery*</li> <li>• Mouse and keyboard skills</li> </ul>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>• Introduce programming</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>• Text and images*</li> <li>• Digital art</li> <li>• 3D design</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>• Mouse and keyboard skills</li> <li>• E-safety</li> </ul>	
<b>Willow</b>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>• Develop Programming</li> <li>• Scratch Jr</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>• Introduce animation</li> <li>• Data handling*</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>• Recognise Uses of IT*</li> <li>• E-safety</li> </ul>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>• Scratch</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>• Digital art</li> <li>• Music creation*</li> <li>• Document creation*</li> <li>• 3D design</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>• E-safety</li> <li>• Internet research*</li> </ul>	
<b>Oak</b>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>• Scratch</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>• 3D Design</li> <li>• Animation*</li> <li>• Data Handling</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>• E-Safety*</li> </ul>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>• Scratch</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>• App design</li> <li>• Data Handling</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>• Internet research*</li> </ul>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>• Virtual reality</li> <li>• Physical devices*</li> <li>• Scratch</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>• Data detectives</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>• Computer networks*</li> </ul>

Topics are taught sequentially in year groups unless denoted by an asterisk \*.

## What to teach when

- The tables below detail:
  - When pupils should be taught different units of work
  - Which units are ‘standalone’ and can therefore be taught at any stage during the pupil’s time in each class

Class	Reception	Year 1	Standalone
Blossom (YR and Y1)	• Early programming	• Introduce programming	<ul style="list-style-type: none"> <li>• Digital photos and videos</li> <li>• Text and images</li> <li>• Computer discovery</li> <li>• E-safety</li> </ul>
	• Digital art and design	<ul style="list-style-type: none"> <li>• Digital art</li> <li>• 3D design</li> </ul>	
	• Mouse and keyboard skills	• Mouse and keyboard skills	

Class	Year 2	Year 3	Standalone
Willow (Y2 and Y3)	• Develop programming	• 3D design	<ul style="list-style-type: none"> <li>• Data handling</li> <li>• Recognise uses of IT</li> <li>• Music creation</li> <li>• Document creation</li> <li>• Internet research</li> </ul>
	• Scratch Jr	• Scratch	
	• Introduce animation	• Digital art	
	• E-safety	• E-safety	

Class	Year 4	Year 5	Year 6	Standalone
Oak (Y4, Y5, Y6)	• Scratch	• Scratch	• Scratch	<ul style="list-style-type: none"> <li>• Animation</li> <li>• E-safety</li> <li>• Internet research</li> <li>• Physical devices</li> <li>• Computer networks</li> </ul>
	• 3D design	• App design	• Virtual reality	
	• Data handling	• Data handling	• Data detectives	

# Blossom Class - Computing Programme of Study

Class	Year A	Year B	Year C
Blossom	<u>Computer Science</u> <ul style="list-style-type: none"> <li>• Early programming</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>• Digital photos and videos</li> <li>• Digital art and design</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>• Computer Discovery</li> <li>• Mouse and keyboard skills</li> <li>• E-safety</li> </ul>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>• Introduce programming</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>• Text and images</li> <li>• Digital art</li> <li>• 3D design</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>• Mouse and keyboard skills</li> <li>• E-safety</li> </ul>	

## Vocabulary

**EYFS (Three- and Four-year-olds):** computer, mouse, photo, video

**EYFS (Reception):** cursor, home row, left button, online safety, scroll wheel, trackpad, trust

**Year 1:** 3D, algorithm, arrange, check, debug, execute, fill, flip, grid, pixels, rotate, sequence

Additionally, children will learn topic specific vocabulary relating, for example, to the style of music or instruments encountered.

## Computer Science

Knowledge	Skills
<u>Introduce Programming</u> <ul style="list-style-type: none"> <li>• Computers and digital devices have a sequence of instructions to make them work</li> <li>• This sequence of instructions is called a programme</li> </ul>	<u>Introduce Programming</u> <ul style="list-style-type: none"> <li>• Place instructions into the correct order (sequence) to make something work.</li> <li>• Use direction arrows to move an on-screen object (character/sprite) to achieve an objective.</li> <li>• Predict a route and sequence direction commands (algorithm) to achieve an objective. Correct the errors if necessary (debug).</li> </ul>

Knowledge	Skills
	<ul style="list-style-type: none"> <li>• Predict a route and sequence distance commands to program an on-screen object to achieve an objective.</li> <li>• Predict and sequence movement and pen commands to program the drawing of different 2D shapes.</li> <li>• Sequence code blocks, including movements and execute (start program) blocks to write a program to achieve an objective.</li> </ul>
<p><b>Early Learning Goal:</b> Children at the expected level of development will:</p> <ul style="list-style-type: none"> <li>•</li> </ul>	<p><u>Three- and Four-Year-Olds</u></p> <ul style="list-style-type: none"> <li>• Knows how to operate simple equipment (30-50 months)</li> <li>• Give explanations (Speaking 30-50 months)</li> </ul> <p><u>Children in Reception</u></p> <ul style="list-style-type: none"> <li>•</li> </ul>

## Information Technology

Knowledge	Skills
<p><u>Text and Images</u></p> <ul style="list-style-type: none"> <li>• Things like magazines, newspapers and websites are made on a computer</li> <li>• Text and images are placed to make the page look interesting</li> <li>• Tools can be used to change the appearance of text and images</li> </ul> <p><u>Digital Art</u></p> <ul style="list-style-type: none"> <li>• Art can be created on a computer</li> <li>• A computer can contain lots of art tools like paintbrushes, rubbers, rulers and pencils</li> </ul> <p><u>3D Design</u></p> <ul style="list-style-type: none"> <li>• 3D is used to design everyday objects like buildings, furniture and transport</li> <li>• 3D designers use CAD (computer aided design) to allow them to view 3D objects on a 2D screen</li> <li>• CAD has tools to change how the objects look</li> </ul>	<p><u>Text and Images</u></p> <ul style="list-style-type: none"> <li>• Add, move and resize images. Add text and adjust size and placement.</li> <li>• Add, resize and place images on a page then add and position text to label and describe images.</li> <li>• Use word banks to write sentences about images.</li> </ul> <p><u>Digital Art</u></p> <ul style="list-style-type: none"> <li>• Change the colour of individual pixels to accurately re-create basic artwork.</li> <li>• Make changes where required.</li> <li>• Change the colour of individual pixels to accurately re-create detailed artwork.</li> </ul> <p><u>3D Design</u></p> <ul style="list-style-type: none"> <li>• Change the colour and pattern of elements.</li> <li>• Position and rotate objects on a design.</li> <li>• Position objects in relation to each other.</li> <li>• Resize, rotate, flip and arrange objects behind/in front of each other.</li> </ul>
<p><b>Early Learning Goal:</b> Children at the expected level of development will:</p> <ul style="list-style-type: none"> <li>•</li> </ul>	<p><u>Three- and Four-Year-Olds</u></p> <ul style="list-style-type: none"> <li>•</li> </ul>

Knowledge	Skills
	<u>Children in Reception</u> <ul style="list-style-type: none"> <li>•</li> </ul>

## Digital Literacy

Knowledge	Skills
<u>Mouse and Keyboard Skills</u> <ul style="list-style-type: none"> <li>• Computers can be controlled in different ways including touching the screen, a keyboard or a mouse</li> <li>• A mouse or a trackpad is used to select and move objects on a screen</li> <li>• A keyboard is used to type letters and numbers onto a screen</li> </ul> <u>E-Safety</u> <ul style="list-style-type: none"> <li>• Understand what personal information is and why we keep personal information private</li> <li>• Understand why websites want personal information</li> <li>• Know how to use the internet responsibly</li> </ul>	<u>Mouse and Keyboard Skills</u> <ul style="list-style-type: none"> <li>• Move the mouse or trackpad and left click to select an object.</li> <li>• Drag and drop with mouse or trackpad to move objects around the screen.</li> <li>• Find letters or numbers on a keyboard.</li> <li>• Begin touch typing with home row keys.</li> </ul> <u>E-Safety</u> <ul style="list-style-type: none"> <li>• Identify when and where to go for help when concerned.</li> <li>• Understand the dangers of sharing photos online.</li> <li>• Understand that people online are not always who they say they are.</li> <li>• Understand how to trust information online.</li> <li>• Explain why it is important to be respectful online.</li> </ul>
<b>Early Learning Goal:</b> Children at the expected level of development will: <ul style="list-style-type: none"> <li>•</li> </ul>	<u>Three- and Four-Year-Olds</u> <ul style="list-style-type: none"> <li>•</li> </ul> <u>Children in Reception</u> <ul style="list-style-type: none"> <li>•</li> </ul>

# Willow Class - Computing Programme of Study

Class	Year A	Year B	Year C
Willow	<u>Computer Science</u> <ul style="list-style-type: none"> <li>Develop Programming</li> <li>Scratch Jr</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>Introduce animation</li> <li>Data handling</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>Recognise Uses of IT</li> <li>E-safety</li> </ul>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>Scratch</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>Digital art</li> <li>Music creation</li> <li>Document creation</li> <li>3D design</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>E-safety</li> <li>Internet research</li> </ul>	

## Vocabulary

**Year 2:** Clone, execute, fill, frame, inputs and outputs, internet browser, keywords, loops, onion skin, PNG and GIF, predict, selection, webpage

**Year 3:** Bucket, chisel, hammer, and trowel, find and replace, flip, format, grid, JavaScript, personal information, rotation, spray, text wrapping, word processor, zoom

Additionally, children will learn topic specific vocabulary relating, for example, to the style of music or instruments encountered.

## Computer Science

Year	Knowledge	Skills
A	<u>Develop Programming</u> <ul style="list-style-type: none"> <li>Sequencing means putting instructions into an order</li> <li>Execute means running a program</li> <li>Debug means to find the problem with a program and to fix it</li> </ul>	<u>Develop Programming</u> <ul style="list-style-type: none"> <li>Create and debug simple programs by selecting code blocks, placing them in the correct sequence and executing a program.</li> <li>Use logical reasoning to predict the behaviour of simple programs.</li> </ul>

Year	Knowledge	Skills
	<ul style="list-style-type: none"> <li>A program can be simplified by using a loop command to repeat something</li> </ul> <u>Scratch Jr</u> <ul style="list-style-type: none"> <li>Scratch Jr is a piece of software that helps us to write programs</li> <li>Code blocks in Scratch Jr have different jobs</li> </ul>	<ul style="list-style-type: none"> <li>Simplify a program by using a loop</li> </ul> <u>Scratch Jr</u> <ul style="list-style-type: none"> <li>Program movements.</li> <li>Program outputs for audio or text.</li> <li>Find errors in a program (debug).</li> <li>Program inputs (touch or clicking)</li> <li>Program selection/conditions (if statements).</li> </ul>
B	<u>Scratch</u> <ul style="list-style-type: none"> <li>Scratch is a piece of software that helps us to write programs</li> <li>Scratch is based on the JavaScript programming language</li> </ul>	<u>Scratch</u> <ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals.</li> <li>Use repetition in programs.</li> <li>Work with various forms of inputs; keyboard, mouse and touch screen.</li> <li>Write programs that simulate physical systems</li> </ul>

## Information Technology

Year	Knowledge	Skills
A	<u>Introduce animation</u> <ul style="list-style-type: none"> <li>Stop motion animation is a process of taking a photo of objects, moving them slightly then taking another photo.</li> <li>Computer software makes it quicker to create animation digitally because we can use the same frame over and over again, changing small parts.</li> </ul> <u>Data handling</u> <ul style="list-style-type: none"> <li>A computer can be very useful for making pictograms, bar charts, line graphs etc to show information that we have collected in a picture format.</li> <li>We add data, such as numbers from a survey, into a table and then create a chart.</li> </ul>	<u>Introduce animation</u> <ul style="list-style-type: none"> <li>Add a background and objects to a frame, including text.</li> <li>Copy/clone a frame and move objects to create an animation. Plus flip an object.</li> <li>Create screen-recording animation.</li> <li>Create stop-motion animation with photos.</li> </ul> <u>Data handling</u> <ul style="list-style-type: none"> <li>Understand what data is and collect it as a tally.</li> <li>Use software to label a pictogram and add data to each column.</li> <li>Edit a table with correct titles and numbers.</li> <li>Use software to create a bar chart/pie chart/line chart suitable for the data.</li> <li>Interpret a pictogram/bar chart/line chart.</li> </ul>
B	<u>Digital art (Year 2)</u> <ul style="list-style-type: none"> <li>Using a computer makes art tasks quicker</li> </ul> <u>Digital art (Year 3)</u> <ul style="list-style-type: none"> <li>Using a computer makes complicated tasks easier</li> <li>Tools can be used to add more detail to artwork</li> </ul>	<u>Digital art (Year 2)</u> <ul style="list-style-type: none"> <li>Use lines and fill tools to make interesting patterns.</li> <li>Add a variety of shapes (outlines and fill) and label them with text.</li> <li>Re-create graphics using pixels with different colours.</li> </ul>

Year	Knowledge	Skills
	<ul style="list-style-type: none"> <li>Digital artwork tools also allow us to undo a mistake instead of starting it all again.</li> </ul> <p><u>Music creation</u></p> <ul style="list-style-type: none"> <li>A lot of music is now created using a computer</li> <li>Programming skills of sequencing, layering, creating loops and adding variables can be used to compose and perform music</li> </ul> <p><u>Document creation</u></p> <ul style="list-style-type: none"> <li>A word processor is a piece of software on a computer that can be used to create a text document (writing)</li> <li>There are various word processors on different types of computers, such as Microsoft Word, Google Docs and Apple Pages.</li> <li>The software makes it quick to create and edit text because we can use tools such as copy &amp; paste, find and replace words and also insert images.</li> </ul> <p><u>3D design</u></p> <ul style="list-style-type: none"> <li>3D models, such as tables and chairs, can be designed using cubes using cubes,</li> <li>You can apply 3D skills to your own design</li> </ul>	<p><u>Digital art (Year 3)</u></p> <ul style="list-style-type: none"> <li>Use various lines and fill tools plus copy/paste and rotation to create pattern effects.</li> <li>Use shapes, fill, copy/paste, zoom and flip to create reflective symmetry effects.</li> <li>Use stamps, copy/paste, layers and multiple frames to create animated GIF computer graphics.</li> </ul> <p><u>Music creation</u></p> <ul style="list-style-type: none"> <li>Create ascending and descending scales.</li> <li>Add chords evenly across the scales.</li> <li>Add arpeggios and melodies.</li> <li>Add a steady and even rhythm.</li> <li>Use sampled sounds to create an effective mix.</li> <li>Build beats, melody (tones) and effects.</li> </ul> <p><u>Document creation</u></p> <ul style="list-style-type: none"> <li>Understand how word processing</li> <li>Know how to copy and paste text and images</li> <li>Know how to find and replace words</li> <li>Know how to format text for a purpose</li> <li>Know how to edit images inside documents</li> <li>Know how to add bullet points to make lists</li> <li>Know how to experiment with keyboard shortcuts</li> </ul> <p><u>3D design</u></p> <ul style="list-style-type: none"> <li>Understand and place 3D space on a grid to match another design.</li> <li>Use chisel tool to improve and adapt models.</li> <li>Colour individual blocks or whole models.</li> </ul>

## Digital Literacy

Year	Knowledge	Skills
A	<p><u>Recognise Uses of IT</u></p> <ul style="list-style-type: none"> <li>Recognise common uses of information technology beyond school;</li> <li>Understand computers store and follow instructions.</li> </ul> <p><u>E-safety</u></p>	<p><u>Recognise Uses of IT</u></p> <ul style="list-style-type: none"> <li>Spot digital technology in school or at home.</li> <li>Find a piece of computer equipment amongst day to day objects and choose the correct definition.</li> <li>Understand how different technology helps us.</li> </ul>

Year	Knowledge	Skills
	<ul style="list-style-type: none"> <li>• Understand what personal information is and why we keep personal information private</li> <li>• Understand why websites want personal information</li> <li>• Know how to use the internet responsibly</li> </ul>	<u>E-safety</u> <ul style="list-style-type: none"> <li>• Identify when and where to go for help when concerned.</li> <li>• Understand the dangers of sharing photos online.</li> <li>• Understand that people online are not always who they say they are.</li> <li>• Understand how to trust information online.</li> <li>• Explain why it is important to be respectful online.</li> </ul>
B	<u>E-safety</u> <ul style="list-style-type: none"> <li>• Know how to keep ourselves safe from people upsetting us online</li> <li>• Understand the dangers of sharing our personal information, such as our address, online.</li> </ul> <u>Internet research</u> <ul style="list-style-type: none"> <li>• The internet can be used to learn and find the information.</li> <li>• Only using websites that can help us and are suitable.</li> </ul>	<u>E-safety</u> <ul style="list-style-type: none"> <li>• Understand what to do if something upsets you online.</li> <li>• Understand why and how people can be nasty online.</li> <li>• Describe the term ‘sharing online’ and why we need to get permission to share photos and videos of other people.</li> <li>• Understand why people pretend to be someone else online.</li> <li>• Understand why we only talk to people we know in the real world, when online.</li> <li>• Understand why we should not always trust what we read online and how to check</li> <li>• Understand the importance of being kind in the real world and also online.</li> </ul> <u>Internet research</u> <ul style="list-style-type: none"> <li>• Understand how a web-page displays information in different ways; text, images, videos and interactive elements.</li> <li>• Use a web-page to answer questions by using keywords.</li> </ul>

# Oak Class - Computing Programme of Study

Class	Year A	Year B	Year C
Oak	<u>Computer Science</u> <ul style="list-style-type: none"> <li>Scratch</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>3D Design</li> <li>Animation</li> <li>Data Handling</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>E-Safety</li> </ul>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>Scratch</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>App design</li> <li>Data Handling</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>Internet research</li> </ul>	<u>Computer Science</u> <ul style="list-style-type: none"> <li>Virtual reality</li> <li>Physical devices</li> <li>Scratch</li> </ul> <u>Information Technology</u> <ul style="list-style-type: none"> <li>Data detectives</li> </ul> <u>Digital Literacy</u> <ul style="list-style-type: none"> <li>Computer networks</li> </ul>

## Vocabulary

**Year 4:** Address bar, cell, frame, frame rate, onion skin, ranking, search engine, selection, sensing, spreadsheet, timeline, transition, variables, web address

**Year 5:** Cloud computing, database, duplicate, field, firewall, hyperlinks, icons, IP address, navigation, processor, record, router, screen dimensions, server, wireless access point (WAP)

**Year 6:** Animate, broadcast, conditional formatting, formula, grouping, immersive, interactions (conditions), operators, scenes, virtual reality

Additionally, children will learn topic specific vocabulary relating, for example, to the style of music or instruments encountered.

## Computer Science

Year	Knowledge	Skills
A	<u>Scratch</u> <ul style="list-style-type: none"> <li>Know that sprites can be controlled in different ways using keyboard or touch screen inputs.</li> <li>Know that sprites can be programmed to sense other sprites or colours then make decisions.</li> </ul>	<u>Scratch</u> <ul style="list-style-type: none"> <li>Program inputs with loops, selection and sensing for interactions.</li> <li>Work with variables and various forms of input and output.</li> </ul>

Year	Knowledge	Skills
	<ul style="list-style-type: none"> <li>Know how to program variables, including data variable that can used to add a scoring system.</li> </ul>	<ul style="list-style-type: none"> <li>Debug programs that accomplish goals (correcting errors).</li> <li>Use selection, data variables and operators.</li> <li>Program a virtual robot using Scratch blocks.</li> </ul>
B	<u>Scratch</u> <ul style="list-style-type: none"> <li>Know how to program variables, including random variables that can be used to make a game unpredictable.</li> </ul>	<u>Scratch</u> <ul style="list-style-type: none"> <li>Program inputs for control, selection (conditions) and sensing for interaction and data variables for scoring and a game timer.</li> <li>Program distance sensing and movement.</li> <li>Program Inputs, outputs, loops, selection, sensing and variables.</li> <li>Program list variables that chooses randomly.</li> </ul>
C	<u>Scratch</u> <ul style="list-style-type: none"> <li>Know how to program operators to add sums.</li> <li>Know how to program broadcasts, to send messages between sprites.</li> </ul> <u>Virtual reality</u> <ul style="list-style-type: none"> <li>Understand what virtual reality is and how it can be used to help people.</li> </ul> <u>Physical devices</u> <ul style="list-style-type: none"> <li>Understand that computers use physical inputs and outputs and give examples.</li> </ul>	<u>Scratch</u> <ul style="list-style-type: none"> <li>Program inputs, selection, loops and random variables (operators) for unpredictability.</li> <li>Program inputs, selection (conditions), sensing, random variables, operators for direction and data variables for scoring.</li> <li>Use inputs, selection (conditions), loops, sensing, costume changes and broadcasts.</li> <li>Work with multiple sprites to send broadcast messages between them.</li> </ul> <u>Virtual reality</u> <ul style="list-style-type: none"> <li>Add, move and resize objects in a virtual reality environment</li> <li>Animate objects for realism.</li> <li>Use code blocks to add movement (with grouping) and interactions (conditions).</li> <li>Create multiple scenes of VR environments</li> </ul> <u>Physical devices</u> <ul style="list-style-type: none"> <li>Program physical inputs, outputs (e.g program LED lights), loops and random variables (Microbit activities).</li> <li>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.</li> </ul>

## Information Technology

Year	Knowledge	Skills
A	3D Design	3D Design

Year	Knowledge	Skills
	<ul style="list-style-type: none"> <li>Understand 3D spatial awareness.</li> </ul> <p><u>Animation</u></p> <ul style="list-style-type: none"> <li>Understand that stop-motion is a series of pictures that are slightly different and they appear to move when played one after other.</li> </ul> <p><u>Data Handling</u></p> <ul style="list-style-type: none"> <li>Spreadsheets are electronic documents which are used to handle data</li> <li>There are lots of different uses for spreadsheets</li> <li>Microsoft Excel is the main spreadsheet software but there is also Google Sheets and Apple Numbers, which are very similar.</li> </ul>	<ul style="list-style-type: none"> <li>Add 3D shapes, resize, adjust height, duplicate and use the different perspective.</li> <li>Re-create different types of buildings using 3D shapes.</li> <li>Create roads/paths by adjusting the height of 3D shapes.</li> <li>Add windows and door shapes.</li> </ul> <p><u>Animation</u></p> <ul style="list-style-type: none"> <li>Know how to create a stop-motion video by duplicating slides that include backgrounds and shapes.</li> <li>Know how to use transition and animation effects in presentation software.</li> <li>Know how to animation individual parts of objects to create realistic animation.</li> <li>How to create animated pixel animation and save it as GIF file (short animation on a loop).</li> </ul> <p><u>Data Handling</u></p> <ul style="list-style-type: none"> <li>Know how to change appearance of cells in a spreadsheet (fill colour and border) then add and align text.</li> <li>Know how to Find and add data to a spreadsheet, resize cells and use the software to create a suitable chart with a title.</li> </ul>
B	<p><u>App Design</u></p> <ul style="list-style-type: none"> <li>Know how to use the tools in different presentation software (PowerPoint, Keynote, Google Slides) to design an app</li> </ul> <p><u>Data Handling</u></p> <ul style="list-style-type: none"> <li>A database is another way to organise data and we can use search skills to find the specific data we are looking for.</li> </ul>	<p><u>App Design</u></p> <ul style="list-style-type: none"> <li>Slide size and background colour.</li> <li>Text and images (including transparent images) on different pages.</li> <li>Icons and interactive hyperlinks between pages.</li> </ul> <p><u>Data Handling</u></p> <ul style="list-style-type: none"> <li>Know how to select and use non-adjacent cells plus resize multiple cell widths and copy/paste cells.</li> <li>Know how to find data and create a spreadsheet to suit it.</li> <li>Know how to use formulae to find totals, averages and maximum/minimum numbers.</li> <li>Know how to search a database for specific information.</li> </ul>
C	<p><u>Data detectives</u></p> <ul style="list-style-type: none"> <li>We can use different tools within spreadsheet software to help find data by filtering out the data we do not need and using conditional formatting to highlight cells a colour.</li> </ul>	<p><u>Data detectives</u></p> <ul style="list-style-type: none"> <li>Use comprehension skills to find clues that match the column headings of a spreadsheet.</li> <li>Use spreadsheet tools (filters and conditional formatting) to find the specific data to match the clues and select the best tool for the type of data that is being found.</li> </ul>

## Digital Literacy

Year	Knowledge	Skills
A	<u>E-Safety</u> <ul style="list-style-type: none"> <li>• Know how to keep ourselves safe online</li> <li>• Understand to keep personal information private</li> <li>• Know what to do if we are concerned</li> <li>• Understand in-app purchases</li> </ul>	<u>E-Safety</u> <ul style="list-style-type: none"> <li>• Respect and protect against online bullies.</li> <li>• Understand the consequences of sharing photo/videos online.</li> <li>• Understand the term digital footprint.</li> <li>• Check online content is trustworthy.</li> <li>• Understand how, where and who can we report concerns we have to.</li> <li>• Understand the pitfalls of in-app purchases.</li> </ul>
B	<u>Internet Research</u> <ul style="list-style-type: none"> <li>• Know how to use search engines effectively,</li> <li>• Understand how the results you see are selected and ranked</li> <li>• Know which results to trust and which to question</li> </ul>	<u>Internet Research</u> <ul style="list-style-type: none"> <li>• Understand how search results are selected and ranked and show awareness of different strategies for finding specific information.</li> <li>• Understand the features of an Internet Browser.</li> <li>• Use search technologies (different websites) to find specific pieces of information.</li> <li>• Reference the correct source of information.</li> <li>• Be discerning in evaluating digital content.</li> <li>• Check the internet for fake news by cross-referencing facts.</li> </ul>
C	<u>Computer Networks</u> <ul style="list-style-type: none"> <li>• Know that a network is a series of computers sharing resources</li> </ul>	<u>Computer Networks</u> <ul style="list-style-type: none"> <li>• Understand the different equipment needed for a computer network and how they help.</li> <li>• Understand the advantages of a computer network (share information, troubleshoot computers, do not need to use the same computer to access files).</li> <li>• Understand why a computer network needs to be secure.</li> <li>• Understand the term 'cloud computing' and the advantages of it.</li> </ul>

# Progression in Computing

## Computer Science

Class	Knowledge - Meeting age-related expectations by the end of each class
Blossom (EYFS)	<ul style="list-style-type: none"><li>•</li></ul>
Blossom Y1	<ul style="list-style-type: none"><li>• Computers and digital devices have a sequence of instructions to make them work</li><li>• This sequence of instructions is called a programme</li></ul>
Willow Y2, Y3	<ul style="list-style-type: none"><li>• Sequencing means putting instructions into an order</li><li>• Execute means running a program</li><li>• Debug means to find the problem with a program and to fix it</li><li>• A program can be simplified by using a loop command to repeat something</li><li>• Scratch Jr is a piece of software that helps us to write programs</li><li>• Code blocks in Scratch Jr have different jobs</li><li>• Scratch is a piece of software that helps us to write programs</li><li>• Scratch is based on the JavaScript programming language</li></ul>
Oak Y4, Y5, Y6	<ul style="list-style-type: none"><li>• Know that sprites can be controlled in different ways using keyboard or touch screen inputs.</li><li>• Know that sprites can be programmed to sense other sprites or colours then make decisions.</li><li>• Know how to program variables, including data variable that can used to add a scoring system.</li><li>• Know how to program variables, including random variables that can be used to make a game unpredictable.</li><li>• Know how to program operators to add sums.</li><li>• Know how to program broadcasts, to send messages between sprites.</li><li>• Understand what virtual reality is and how it can be used to help people.</li><li>• Understand that computers use physical inputs and outputs and give examples.</li></ul>

## Information Technology

Class	Knowledge - Meeting age-related expectations by the end of each class
<b>Blossom (EYFS)</b>	<ul style="list-style-type: none"> <li>•</li> </ul>
<b>Blossom Y1</b>	<ul style="list-style-type: none"> <li>• Things like magazines, newspapers and websites are made on a computer</li> <li>• Text and images are placed to make the page look interesting</li> <li>• Tools can be used to change the appearance of text and images</li> <li>• Art can be created on a computer</li> <li>• A computer can contain lots of art tools like paintbrushes, rubbers, rulers and pencils</li> <li>• 3D is used to design everyday objects like buildings, furniture and transport</li> <li>• 3D designers use CAD (computer aided design) to allow them to view 3D objects on a 2D screen</li> <li>• CAD has tools to change how the objects look</li> </ul>
<b>Willow Y2, Y3</b>	<ul style="list-style-type: none"> <li>• Stop motion animation is a process of taking a photo of objects, moving them slightly then taking another photo.</li> <li>• Computer software makes it quicker to create animation digitally because we can use the same frame over and over again, changing small parts.</li> <li>• A computer can be very useful for making pictograms, bar charts, line graphs etc to show information that we have collected in a picture format.</li> <li>• We add data, such as numbers from a survey, into a table and then create a chart.</li> <li>• Using a computer makes art tasks quicker</li> <li>• Using a computer makes complicated tasks easier</li> <li>• Tools can be used to add more detail to artwork</li> <li>• Digital artwork tools also allow us to undo a mistake instead of starting it all again.</li> <li>• A lot of music is now created using a computer</li> <li>• Programming skills of sequencing, layering, creating loops and adding variables can be used to compose and perform music</li> <li>• A word processor is a piece of software on a computer that can used to create a text document (writing)</li> <li>• There are various word processors on different types of computers, such as Microsoft Word, Google Docs and Apple Pages.</li> <li>• The software makes it quick to create and edit text because we can use tools such as copy &amp; paste, find and replace words and also insert images.</li> <li>• 3D models, such as tables and chairs, can be designed using cubes using cubes,</li> <li>• You can apply 3D skills to your own design</li> </ul>

Class	Knowledge - Meeting age-related expectations by the end of each class
Oak Y4, Y5, Y6	<ul style="list-style-type: none"><li>• Understand 3D spatial awareness.</li><li>• Understand that stop-motion is a series of pictures that are slightly different, and they appear to move when played one after other.</li><li>• Spreadsheets are electronic documents which are used to handle data</li><li>• There are lots of different uses for spreadsheets</li><li>• Microsoft Excel is the main spreadsheet software but there is also Google Sheets and Apple Numbers, which are very similar.</li><li>• Know how to use the tools in different presentation software (PowerPoint, Keynote, Google Slides) to design an app</li><li>• A database is another way to organise data and we can use search skills to find the specific data we are looking for.</li><li>• We can use different tools within spreadsheet software to help find data by filtering out the data we do not need and using conditional formatting to highlight cells a colour.</li></ul>

## Digital Literacy

Class	Knowledge - Meeting age-related expectations by the end of each class
<b>Blossom (EYFS)</b>	<ul style="list-style-type: none"> <li>•</li> </ul>
<b>Blossom Y1</b>	<ul style="list-style-type: none"> <li>• Computers can be controlled in different ways including touching the screen, a keyboard or a mouse</li> <li>• A mouse or a trackpad is used to select and move objects on a screen</li> <li>• A keyboard is used to type letters and numbers onto a screen</li> <li>• Understand what personal information is and why we keep personal information private</li> <li>• Understand why websites want personal information</li> <li>• Know how to use the internet responsibly</li> </ul>
<b>Willow Y2, Y3</b>	<ul style="list-style-type: none"> <li>• Recognise common uses of information technology beyond school;</li> <li>• Understand computers store and follow instructions.</li> <li>• Understand what personal information is and why we keep personal information private</li> <li>• Understand why websites want personal information</li> <li>• Know how to use the internet responsibly</li> <li>• Know how to keep ourselves safe from people upsetting us online</li> <li>• Understand the dangers of sharing our personal information, such as our address, online.</li> <li>• The internet can be used to learn and find the information.</li> <li>• Only using websites that can help us and are suitable.</li> </ul>
<b>Oak Y4, Y5, Y6</b>	<ul style="list-style-type: none"> <li>• Know how to keep ourselves safe online</li> <li>• Understand to keep personal information private</li> <li>• Know what to do if we are concerned</li> <li>• Understand in-app purchases</li> <li>• Know how to use search engines effectively,</li> <li>• Understand how the results you see are selected and ranked</li> <li>• Know which results to trust and which to question</li> <li>• Know that a network is a series of computers sharing resources</li> </ul>

## Progression in Vocabulary

For a child to have met expectations, they will have developed the following vocabulary in each year group. Please note that this may be by the end of their time in each class because of our mixed age year groups.

Blossom Class			Willow Class		Oak Class		
EYFS (3- and 4- year-olds)	EYFS Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
computer mouse photo video	cursor home row left button online safety scroll wheel trackpad trust	3d algorithm arrange check debug execute fill flip grid pixels rotate sequence	Clone Execute Fill Frame Inputs and outputs Internet browser Keywords Loops Onion skin PNG and GIF Predict Selection Webpage	Bucket Chisel, hammer, and trowel Find and replace Flip Format Grid JavaScript Personal information Rotation Spray Text wrapping Word processor Zoom	Address bar Cell Frame Frame rate Onion skin Ranking Search engine Selection Sensing Spreadsheet Timeline Transition Variables Web address	Cloud computing Database Duplicate Field Firewall Hyperlinks Icons IP address Navigation Processor Record Router Screen dimensions Server Wireless Access Point (WAP)	Animate Broadcast Conditional formatting Formula Grouping Immersive Interactions (conditions) Operators Scenes Virtual reality

Alongside this, children will learn topic specific vocabulary.