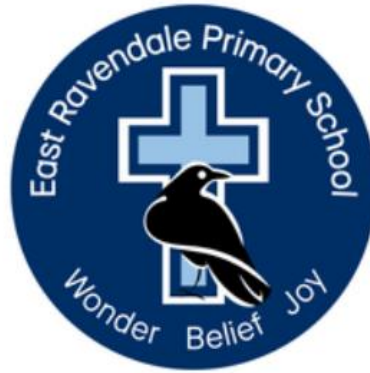




# YEAR 3 AND 4 COMPUTING CURRICULUM

## EAST RAVENDALE C OF E PRIMARY SCHOOL

At East Ravendale, we strive to develop independent, self-motivated and inquisitive learners of all ages. We celebrate our uniqueness and value all as God's children. We aim to give all members of our community opportunities to succeed, now and in the future, knowing they are safe and valued.

Our vision is underpinned by our core values of wonder, belief and joy.

"I can do all things through God who strengthens me." Philippians 4:13



## **Computing at East Ravendale**

At East Ravendale, our computing curriculum is central to achieving our vision of inspiring independent, inquisitive and self-motivated learners who know they are safe, valued and wonderfully unique as God's children. Guided by our Christian foundation and the words *"I can do all things through God who strengthens me"* (Philippians 4:13), we equip pupils with the confidence, skills and moral purpose to thrive in a rapidly evolving digital world.

Through an engaging, inclusive and progressive computing curriculum, pupils develop the knowledge and understanding needed to become confident, responsible and creative users of technology. By the time pupils leave East Ravendale, they are equipped with the skills, understanding and character to flourish in the 21st century. They use technology safely and responsibly, apply their learning with confidence, and embody our values in all that they do—ready to become positive change-makers in an ever-connected world.

### **Wonder**

We inspire wonder by encouraging pupils to explore, question and discover the possibilities of technology. Through engaging and creative experiences, pupils develop curiosity about how digital tools work and how they can be used to solve problems and express ideas across the curriculum.

### **Belief**

We build belief by supporting pupils to become confident and independent users of technology. Through a structured and progressive curriculum, pupils develop resilience, trust in their abilities and the understanding that, with effort and determination, they can succeed and thrive in a digital world.

### **Joy**

We promote joy by creating a positive, inclusive environment where pupils enjoy learning, creating and collaborating with technology. Pupils celebrate their achievements, work together with kindness and enthusiasm, and experience the excitement of using their skills to make a meaningful impact.

***"I can do all things through God who strengthens me." Philippians 4:13***



## Year 3/4 Computing Curriculum Cycle A

|                    | <b><u>Autumn</u><br/><u>1</u></b>                                | <b><u>Autumn</u><br/><u>2</u></b>                              | <b><u>Spring</u><br/><u>1</u></b>                              | <b><u>Spring</u><br/><u>2</u></b>          | <b><u>Summer</u><br/><u>1</u></b>          | <b><u>Summer</u><br/><u>2</u></b> |
|--------------------|------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------|--------------------------------------------|-----------------------------------|
| Programme of Study | Computing Systems & Networks – Connecting Computers/The Internet | Creating Media - Audio Production                              | Programming- Events and Actions – micro:bit Digital Flashcards | Data & Information - Data Logging          | Creating Media - Stop Frame Animation      | Programming - Repetition in Games |
| Area of Computing  | Computer Science                                                 | Computer Science<br>Information Technology<br>Digital Literacy | Computer Science<br>Information Technology                     | Computer Science<br>Information Technology | Information Technology<br>Digital Literacy | Computer Science                  |



## Year 3/4 Computing Curriculum Cycle B

|                    | <b><u>Autumn</u><br/><u>1</u></b>                                | <b><u>Autumn</u><br/><u>2</u></b>                              | <b><u>Spring</u><br/><u>1</u></b>          | <b><u>Spring</u><br/><u>2</u></b>        | <b><u>Summer</u><br/><u>1</u></b>          | <b><u>Summer</u><br/><u>2</u></b>          |
|--------------------|------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------|------------------------------------------|--------------------------------------------|--------------------------------------------|
| Programme of Study | Computing Systems & Networks – Connecting Computers/The Internet | Creating Media - Desktop Publishing                            | Programming - Sequencing Sounds            | Data & Information - Branching Databases | Creating Media - Photo Editing             | Programming - Repetition in Shapes         |
| Area of Computing  | Computer Science                                                 | Computer Science<br>Information Technology<br>Digital Literacy | Computer Science<br>Information Technology | Information Technology                   | Information Technology<br>Digital Literacy | Computer Science<br>Information Technology |



## **Why this, why now?**

| <b><u>Year 3/4<br/>Cycle A</u></b>                                                         | <b><u>Why this, why now?</u></b>                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Autumn 1 -<br>Computing Systems<br>& Networks –<br>Connecting<br>Computers/The<br>Internet | Beginning the year with systems and networks develops pupils' understanding of how devices connect and communicate. This provides essential knowledge for safe, effective use of technology and supports all later computing learning.               |
| Autumn 2 – Creating<br>Media - Audio<br>Production                                         | Audio production allows pupils to apply their understanding of digital devices creatively. Building on prior media experiences, pupils learn to record, edit and evaluate content before moving into more complex digital creation.                  |
| Spring 1 –<br>Programming –<br>Events and Actions –<br>micro:bit Digital<br>Flashcards     | Following network and media learning, pupils begin developing programming skills through algorithms, logical reasoning and debugging. This builds on Key Stage 1 programming experiences and prepares them for more advanced coding concepts.        |
| Spring 2 – Data &<br>Information - Data<br>Logging                                         | Data logging develops pupils' understanding of collecting, analysing and interpreting data. Introducing automatic data collection here builds on earlier questioning skills and prepares pupils for databases and spreadsheets in upper Key Stage 2. |
| Summer 1 - Creating<br>Media - Stop Frame<br>Animation                                     | Pupils apply media creation skills independently through animation. This unit revisits sequencing and image manipulation while encouraging creativity, preparing learners for more sophisticated multimedia and video editing in future years.       |
| Summer 2 –<br>Programming –<br>Repetition in Games                                         | Repetition is taught after pupils have secured sequencing and event programming. Introducing loops at the end of the cycle extends computational thinking and prepares pupils for increasingly complex programming in later year groups.             |



| <b><u>Year 3/4</u></b><br><b><u>Cycle B</u></b>                                            | <b><u>Why this, why now?</u></b>                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Autumn 1 -<br>Computing Systems<br>& Networks –<br>Connecting<br>Computers/The<br>Internet | Starting with systems and networks ensures pupils understand how digital devices function, connect and share information. This foundational knowledge supports safe, responsible technology use throughout the year.                  |
| Autumn 2 – Creating<br>Media - Desktop<br>Publishing                                       | Desktop publishing builds on pupils’ earlier experiences of digital writing, images and photography. At this stage, pupils learn how effective layout and design communicate information for different audiences and purposes.        |
| Spring 1 -<br>Programming -<br>Sequencing Sounds                                           | This unit introduces pupils to a more advanced programming environment through Scratch. Focusing on sequencing strengthens understanding of algorithms and provides the foundation for later work involving repetition and debugging. |
| Spring 2 – Data &<br>Information -<br>Branching Databases                                  | Branching databases build on Key Stage 1 data handling by helping pupils organise, classify and retrieve information. This progressive step develops logical thinking before more complex database and spreadsheet work later on.     |
| Summer 1 – Creating<br>Media - Photo Editing                                               | Photo editing enables pupils to deepen their understanding of digital media by manipulating and evaluating images. It builds directly on earlier photography learning and prepares pupils for advanced graphic design tasks.          |
| Summer 2 –<br>Programming –<br>Repetition in Shapes<br>- Micro:bit – Volcano<br>Animations | Repetition is introduced once pupils are secure with sequencing and algorithm design. Using loops and decomposition develops efficiency in programming and provides a clear progression towards more complex coding concepts.         |



## **Cycle A - Autumn 1 – Computer Systems and Networks**

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prior Knowledge         | <p>Connecting Computers – This unit progresses learners’ knowledge and understanding of technology by focusing on digital and non-digital devices, from the following units; Technology around me Year 1 and IT around us Year 2 and introducing the concept of computers connected as a network.</p> <p>The Internet - This unit progresses students’ knowledge and understanding of networks from that developed in the Year 3 Connecting Computers unit.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Objectives to be taught | <ul style="list-style-type: none"><li>• 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</li><li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li><li>• 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</li><li>• Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li><li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li></ul> |



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|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Core Knowledge         | <ul style="list-style-type: none"> <li>▪ To explain how a computer network can be used to share information</li> <li>▪ To explore how digital devices are connected</li> <li>▪ To recognise the physical components of a network</li> <li>▪ To describe how networks physically connect to other networks</li> <li>▪ To recognise how networked devices make up the internet</li> <li>▪ To outline how websites can be shared via the World Wide Web (WWW)</li> </ul> |
| Teach Computing Module | <p>Year 3 – Connecting Computers</p> <p><a href="#">Lesson 4 – How am I connected?</a></p> <p><a href="#">Lesson 5 – How are computers connected?</a></p> <p><a href="#">Lesson 6 – What does our school network look like?</a></p> <p>Year 4 – The Internet</p> <p><a href="#">Lesson 1 – Connecting Networks</a></p> <p><a href="#">Lesson 2 – What is the internet made of?</a></p> <p><a href="#">Lesson 3 – Sharing Information</a></p>                          |
| Vocabulary             | <p>connection, network, network switch, server, wireless access point (WAP), network cables, network sockets, internet, router, network security, website, web page, web address, routing, web browser</p>                                                                                                                                                                                                                                                            |



## **Cycle A - Autumn 2 – Audio Production**

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|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prior Knowledge         | This unit progresses students' knowledge and understanding of creating media, by focusing on the recording and editing of sound to produce a podcast.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Objectives to be taught | <ul style="list-style-type: none"><li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li><li>• 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</li><li>• Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li></ul> |
| Core Knowledge          | <ul style="list-style-type: none"><li>▪ To identify that sound can be recorded</li><li>▪ To explain that audio recordings can be edited</li><li>▪ To recognise the different parts of creating a podcast project</li><li>▪ To apply audio editing skills independently</li><li>▪ To combine audio to enhance my podcast project</li><li>▪ To evaluate the effective use of audio</li></ul>                                                                                                                                                                                                                                                                                  |



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|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Teach Computing Module | <p>Year 4 – Creating Media – Audio Production</p> <p>Lesson 1 – Recording Sound</p> <p>Lesson 2 – Editing Audio</p> <p>Lesson 3 – Planning a Podcast</p> <p>Lesson 4 – Creating a Podcast</p> <p>Lesson 5 – Behind the Scenes</p> <p>Lesson 6 – Evaluating Podcasts</p> <p><b>TO NOTE:</b></p> <p>Alternative applications which can be used include Twisted Wave or Audio Mass for Chromebooks, and GarageBand for iPads. It's advisable to use headphones in a classroom setting, as they make it easier for learners to hear their recordings whilst also reducing the overall background noise.</p> <p>Use Audio Mass instead of Audacity – forum post on STEM Learning with guidance and resources for this program linked - <a href="#">Teach Computing Curriculum - Share your adapted units for Year 4   Teaching and Leading Primary Computing</a></p> |
| Vocabulary             | <p>audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |



## **Cycle A - Spring 1 – Events and Actions**

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|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prior Knowledge         | This unit assumes that learners will have some prior experience of programming; via the KS1 NCCE units. They will have experienced programming via floor robots; Moving A Robot Year 1 and Robot algorithms Year 2, alongside the use of ScratchJr through Programming animations Year 1 and Programming quizzes Year 2.                                                                                                                                                                                                                                                                                             |
| Objectives to be taught | <ul style="list-style-type: none"><li>• can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation</li><li>• can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems</li><li>• can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems</li><li>• are responsible, competent, confident and creative users of information and communication technology</li></ul> |
| Core Knowledge          | <ul style="list-style-type: none"><li>▪ To know and understand what algorithms are</li><li>▪ To use abstraction when planning LED images</li><li>▪ To identify solutions to problems</li><li>▪ To identify patterns</li><li>▪ To use logical reasoning to identify the output of a program</li><li>▪ To follow an algorithm accurately to create a digital number flashcard</li></ul>                                                                                                                                                                                                                                |



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| <p>micro:bit Module</p> | <p>First Lesson of the unit explore Lesson 1 if an introduction to new equipment or Lesson 3 for a refresher from of <a href="#">micro:bit - First lessons with MakeCode and the micro:bit</a>   <a href="#">micro:bit</a></p> <p>Lesson 1 – Name Badge<br/>Lesson 3 – Emotion Badge</p> <p><a href="#">Micro:bit – Digital Flashcards</a></p> <p>Lesson 1 – Flashcard algorithms<br/>Lesson 2 – Abstraction &amp; programming<br/>Lesson 3 – Patterns &amp; Delays<br/>Lesson 4 – Predicting &amp; Experimenting<br/>Lesson 5 – Debugging &amp; Evaluating</p> <p><b>TO NOTE:</b><br/>micro:bits will be needed. Can use physical micro:bits or use the website.<br/>micro:bit classroom to support the management of the children using their micro:bits – can link the lesson to the classroom.</p> |
| <p>Vocabulary</p>       | <p>motion, event, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



## **Cycle A - Spring 2 – Data Logging**

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| Prior Knowledge         | This unit progresses learners' knowledge and understanding of data and how it can be collected over time to answer questions. Specifically, it builds on the concept of answering questions with data which is first introduced in the KS1 data and information units. The unit also introduces the idea of automatic data collection. Learners are also introduced to data in tables and graphs, knowledge they will build on in the Year 5 unit (flat file databases) and the Year 6 unit (spreadsheets). |
| Objectives to be taught | <ul style="list-style-type: none"> <li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• 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</li> </ul>                                       |
| Core Knowledge          | <ul style="list-style-type: none"> <li>▪ To explain that data gathered over time can be used to answer questions</li> <li>▪ To use a digital device to collect data automatically</li> <li>▪ To explain that a data logger collects 'data points' from sensors over time</li> <li>▪ To recognise how a computer can help us analyse data</li> <li>▪ To identify the data needed to answer questions</li> <li>▪ To use data from sensors to answer questions</li> </ul>                                      |



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| Teach Computing Module | <p>Year 4 – Data Logging</p> <p>Lesson 1 – Answering Questions</p> <p>Lesson 2 - Data Collection</p> <p>Lesson 3 – Logging</p> <p>Lesson 4 – Analysing Data</p> <p>Lesson 5 – Data for Answers</p> <p>Lesson 6 – Answering my Questions</p> <p><b>TO NOTE: This unit is designed around the use of a Data Harvest Vu+ data logger and the EasySense2 App.</b></p> <p><a href="#"><u>Data Logger Activities and How to Guides</u></a></p> |
| Vocabulary             | <p>data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion</p>                                                                                                                                                                                                                                                                        |



## **Cycle A - Summer 1 – Stop Frame Animation**

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|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prior Knowledge         | This unit progresses learner's knowledge and understanding of using digital devices to create media, exploring how they can create stop-frame animations. It builds on learners previous understanding of images from the Digital Photography Year 2 unit. Following this unit, learners will further develop their video editing skills in Year 5.                                                                                                                                                                      |
| Objectives to be taught | <ul style="list-style-type: none"><li>• 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</li><li>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li></ul> |
| Core Knowledge          | <ul style="list-style-type: none"><li>▪ To explain that animation is a sequence of drawings or photographs</li><li>▪ To relate animated movement with a sequence of images</li><li>▪ To plan an animation</li><li>▪ To identify the need to work consistently and carefully</li><li>▪ To review and improve an animation</li><li>▪ To evaluate the impact of adding other media to an animation</li></ul>                                                                                                                |



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|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Teaching Computing Module | <p>Year 3 – Stop-Frame Animation</p> <p>Lesson 1 – Can a picture move?</p> <p>Lesson 2 – Frame by Frame</p> <p>Lesson 3 – What’s the story?</p> <p>Lesson 4 – Picture Perfect</p> <p>Lesson 5 – Evaluate and make it great!</p> <p>Lesson 6 – Lights, camera, action!</p> <p><b>TO NOTE: A tablet is recommended for this unit to allow pupils to take photos and create animations on a single device. This unit uses screenshots from iMotion, an iPad app. Stop Motion Studio, an alternative app, can be used across most devices.</b></p> |
| Vocabulary                | <p>animation, flip book, stop frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition</p>                                                                                                                                                                                                                                                                                                                                                            |



## **Cycle A - Summer 2 – Repetition in Games**

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|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prior Knowledge         | <p>This unit assumes that learners will have some prior experience of programming. The KS1 NCCE units cover floor robots and ScratchJr, and Scratch, and the skill of sequence, is introduced in the Year 3 programming units: Sequencing Sounds and Events and actions in programs. However, experience of other languages or environments may also be useful.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Objectives to be taught | <ul style="list-style-type: none"> <li>• Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• Use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs</li> <li>• 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</li> </ul> |
| Core Knowledge          | <ul style="list-style-type: none"> <li>▪ To develop the use of count-controlled loops in a different programming environment</li> <li>▪ To explain that in programming there are infinite loops and count-controlled loops</li> <li>▪ To develop a design that includes two or more loops which run at the same time</li> <li>▪ To modify an infinite loop in a given program</li> <li>▪ To design a project that includes repetition</li> <li>▪ To create a project that includes repetition</li> </ul>                                                                                                                                                                                                                                                                                             |



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| Teach Computing Unit | <p>Year 4 – Repetition in Games<br/>Lesson 1 – Using loops to create shapes<br/>Lesson 2 – Different loops<br/>Lesson 3 – Animate your name<br/>Lesson 4 – Modifying a game<br/>Lesson 5 – Designing a game<br/>Lesson 6 – Creating your games</p> <p>TO NOTE: Learners will need to have access to Scratch for this unit. The online version of Scratch runs via a web browser and can be accessed on desktops, laptops and tablets. You may want to consider setting up a teacher account, to create logins for learners to save and access their projects. If internet connectivity is an issue in school, Scratch can be accessed offline via the Scratch app.</p> |
| Vocabulary           | <p>scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                       |



## **Cycle B - Autumn 1 – Computer Systems and Networks**

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prior Knowledge         | <p>Connecting Computers – This unit progresses learners’ knowledge and understanding of technology by focusing on digital and non-digital devices, from the following units; Technology around me Year 1 and IT around us Year 2 and introducing the concept of computers connected as a network.</p> <p>The Internet - This unit progresses students’ knowledge and understanding of networks from that developed in the Year 3 Connecting Computers unit.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Objectives to be taught | <ul style="list-style-type: none"><li>• 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</li><li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li><li>• 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</li><li>• Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li><li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li></ul> |



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|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Core Knowledge         | <ul style="list-style-type: none"> <li>▪ To explain how digital devices function</li> <li>▪ To identify input and output devices</li> <li>▪ To recognise how digital devices can change the way that we work</li> <li>▪ To describe how content can be added and accessed on the World Wide Web (WWW)</li> <li>▪ To recognise how the content of the WWW is created by people</li> <li>▪ To evaluate the consequences of unreliable content</li> </ul> |
| Teach Computing Module | <p>Year 3 – Connecting Computers</p> <p><a href="#">Lesson 1 – How do digital devices work?</a></p> <p><a href="#">Lesson 2 – What parts make up a digital device?</a></p> <p><a href="#">Lesson 3 – How do digital devices help us?</a></p> <p>Year 4 – The Internet</p> <p><a href="#">Lesson 4 – What is a website?</a></p> <p><a href="#">Lesson 5 – Who owns the web?</a></p> <p><a href="#">Lesson 6 – Can I believe what I read?</a></p>        |
| Vocabulary             | digital device, input, process, output, secure, password, cyber-attack, program, digital, non-digital, world-wide web, internet, content, website, web page, links, files, use, download, sharing, ownership, permission, information, sharing, accurate, honest, adverts                                                                                                                                                                              |



## **Cycle B - Autumn 2 – Desktop Publishing**

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|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prior Knowledge         | This unit progresses learners' knowledge and understanding of using digital devices to combine text and images building on work from the following units; Digital Writing Year 1, Digital painting Year 1 and Digital Photography Year 2.                                                                                                                                                                                                                                                |
| Objectives to be taught | <ul style="list-style-type: none"><li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li><li>• 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</li></ul> |
| Core Knowledge          | <ul style="list-style-type: none"><li>▪ To recognise how text and images convey information</li><li>▪ To recognise that text and layout can be edited</li><li>▪ To choose appropriate page settings</li><li>▪ To add content to a desktop publishing publication</li><li>▪ To consider how different layouts can suit different purposes</li><li>▪ To consider the benefits of desktop publishing</li></ul>                                                                              |



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| <p>Teach Computing Module</p> | <p>Year 3 – Desktop Publishing<br/> Lesson 1 - Words and Pictures<br/> Lesson 2 – Can you edit it?<br/> Lesson 3 – Great template!<br/> Lesson 4 – Becoming a designer<br/> Lesson 5 – Lay it out<br/> Lesson 6 – Why desktop publishing?</p> <p><b>TO TO NOTE:</b><br/> <i>The suggested application for this unit is Canva <a href="https://www.canva.com/">https://www.canva.com/</a> Canva is web based and can be used on tablets, desktops and laptops. Mac, Windows and Android apps are available: <a href="https://www.canva.com/download/windows/">https://www.canva.com/download/windows/</a></i></p> <p><i>Students below the age of 13 require parental consent to use Canva for Education. For further details and to download a sample consent template visit: <a href="https://www.canva.com/help/invite-teachers-and-students/">https://www.canva.com/help/invite-teachers-and-students/</a></i></p> <p><i>To use Canva as a teacher, you will require a Canva for Education account. To learn more and sign up for a FREE Canva teacher account visit: <a href="https://www.canva.com/help/about-canva-for-education/">https://www.canva.com/help/about-canva-for-education/</a></i></p> <p><i>Once you have been granted access to Canva you can follow their guide on inviting students and teachers to your class by visiting: <a href="https://www.canva.com/help/invite-teachers-and-students/">https://www.canva.com/help/invite-teachers-and-students/</a></i></p> |
| <p>Vocabulary</p>             | <p>text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |



## **Cycle B - Spring 1 – Sequencing Sounds**

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| Prior Knowledge         | This unit assumes that learners will have some prior experience of programming; via the KS1 NCCE units. They will have experienced programming via floor robots; Moving A Robot Year 1 and Robot algorithms Year 2, alongside the use of ScratchJr through Programming animations Year 1 and Programming quizzes Year 2. ScratchJr uses a similar programming environment to Scratch, which is highlighted in lesson 1 of this unit.                                                                                                                                                                                                                                                                                                                                                                 |
| Objectives to be taught | <ul style="list-style-type: none"> <li>• Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• Use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs</li> <li>• 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</li> </ul> |
| Core Knowledge          | <ul style="list-style-type: none"> <li>▪ To explore a new programming environment</li> <li>▪ To identify that commands have an outcome</li> <li>▪ To explain that a program has a start</li> <li>▪ To recognise that a sequence of commands can have an order</li> <li>▪ To change the appearance of my project</li> <li>▪ To create a project from a task description</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                    |



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| Teach Computing Unit | <p>Year 3 – Programming – Sequencing Sounds</p> <p>Lesson 1 – Introduction to Scratch</p> <p>Lesson 2 – Programming Sprites</p> <p>Lesson 3 – Sequences</p> <p>Lesson 4 – Ordering Commands</p> <p>Lesson 5 – Looking Good</p> <p>Lesson 6 – Making an instrument</p> <p><b>TO NOTE: Learners will need to have access to Scratch for this unit. The online version of Scratch runs via a web browser and can be accessed on desktops, laptops and tablets. You may want to consider setting up a teacher account, to create logins for learners to save and access their projects. If internet connectivity is an issue in school, Scratch can be accessed offline via the Scratch app.</b></p> |
| Vocabulary           | <p>scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, TO NOTE, chord, algorithm, bug, debug, code</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



## **Cycle B - Spring 2 – Branching Databases**

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| Prior Knowledge         | This unit progresses learners' knowledge and understanding of the categories of data handling, with a particular focus on implementation. It builds on their knowledge of data and information from Key Stage 1; Grouping data in Year 1 and Pictograms in Year 2. They will continue to develop their understanding of attributes and begin to construct and interrogate branching databases as a means of displaying and retrieving information.                                                                       |
| Objectives to be taught | <ul style="list-style-type: none"><li>• 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</li><li>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li></ul> |
| Core Knowledge          | <ul style="list-style-type: none"><li>▪ To create questions with yes/no answers</li><li>▪ To identify the attributes needed to collect data about an object</li><li>▪ To create a branching database</li><li>▪ To explain why it is helpful for a database to be well structured</li><li>▪ To plan the structure of a branching database</li><li>▪ To independently create an identification tool</li></ul>                                                                                                              |



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| Teach Computing Unit | <p>Year 3 – Data and Information – Branching Databases</p> <p>Lesson 1 – Yes or No Questions</p> <p>Lesson 2 – Making Groups</p> <p>Lesson 3 – Creating a branching database</p> <p>Lesson 4 – Structuring a branching database</p> <p>Lesson 5 – Planning a branching database</p> <p><b>TO NOTE:</b> For this unit, both you and your learners will need access to the j2data free tools; Pictogram, Branch, and chart tools, which can be accessed via any web browser (via any device: desktop, laptop, Chromebook, tablet) here <a href="https://www.j2e.com/jit5#branch">https://www.j2e.com/jit5#branch</a> (see menu at the top for navigation between tools). Pupils do not need J2E logins, as only free tools are used.</p> |
| Vocabulary           | <p>attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |



## **Cycle B - Summer 1 – Photo Editing**

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| Prior Knowledge         | This unit progresses students' knowledge and understanding of digital photography and using digital devices to create media. Learners will have had some exposure to images and their manipulation through the Teach Computing Digital Photography- Year 2 unit. Following this unit, learners will further develop their image editing skills in Year 5 – Vector drawing.                                                                                                                                                   |
| Objectives to be taught | <ul style="list-style-type: none"><li>• 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</li><li>• Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li></ul> |
| Core Knowledge          | <ul style="list-style-type: none"><li>▪ To explain that the composition of digital images can be changed</li><li>▪ To explain that colours can be changed in digital images</li><li>▪ To explain how cloning can be used in photo editing</li><li>▪ To explain that images can be combined</li><li>▪ To combine images for a purpose</li><li>▪ To evaluate how changes can improve an image</li></ul>                                                                                                                        |



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| Teach Computing Unit | <p>Year 4 – Creating Media – Photo Editing</p> <p>Lesson 1 – Changing Digital Images</p> <p>Lesson 2 – Recolouring</p> <p>Lesson 3 – Cloning</p> <p>Lesson 4 – Combining</p> <p>Lesson 5 – Creating</p> <p>Lesson 6 – Evaluating</p> <p>TO NOTE: Photopea is a suggested alternative platform to use to edit images, forum post on STEM Learning with guidance and resources for this program linked - <a href="#">Teach Computing Curriculum - Share your adapted units for Year 4   Teaching and Leading Primary Computing</a></p> |
| Vocabulary           | <p>image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font</p>                                                                                                                                                                                                                                                                          |



## **Cycle B - Summer 2 – Repetition in Shapes**

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| Prior Knowledge         | This unit progresses students' knowledge and understanding of programming. Within the Year 3 units, Programming A- Sequencing Sounds and Programming B- Events and Actions in programs, learners will have an awareness of the sequence of commands in a program. This unit progresses on to using count-controlled loops in those sequences. Pupils will create algorithms and then implement those algorithms as code.                            |
| Objectives to be taught | <ul style="list-style-type: none"><li>• can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems</li><li>• can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems</li><li>• are responsible, competent, confident and creative users of information and communication technology</li></ul> |
| Core Knowledge          | <ul style="list-style-type: none"><li>▪ To understand decomposition</li><li>▪ To understand the use of repetition</li><li>▪ To decompose a process into stages</li><li>▪ To follow an algorithm accurately to write a program</li><li>▪ To understand and explain decomposition</li></ul>                                                                                                                                                           |



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| <p>micro:bit Module</p> | <p>First Lesson of the unit explore Lesson 1 if an introduction to new equipment or Lesson 3 for a refresher from of <a href="#">micro:bit - First lessons with MakeCode and the micro:bit</a>   <a href="#">micro:bit</a></p> <p>Lesson 1 – Name Badge<br/>Lesson 3 – Emotion Badge</p> <p><a href="#">Micro:bit – Volcano Animations</a></p> <p>Lesson 1 – Animation &amp; Decomposition<br/>Lesson 2 – Flowcharts &amp; Repetition<br/>Lesson 3 – Planning Eruption Animations<br/>Lesson 4 – Programming Eruption Animations<br/>Lesson 5 – Reflection</p> <p><b>TO TO NOTE:</b><br/>micro:bits will be needed. Can use physical micro:bits or use the website.<br/>micro:bit classroom to support the management of the children using their micro:bits – can link the lesson to the classroom.</p> |
| <p>Vocabulary</p>       | <p>program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

