

## Lighthouse Federation Computing Curriculum, 2-Year Cycle

### Cycle 1

#### Key Stage 1 – Cycle 1

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Topic</b>	Computing systems and networks – Technology around us	Creating media – Digital painting	Programming A – Moving a robot	Date information – grouping data	Creating media – digital writing	Programming B – Programming animations
<b>Lesson 1</b>	-To identify technology	-To describe what different freehand tools do	-To explain what a given command will do	-To label objects	-To use a computer to write	-To choose a command for a given purpose
<b>Lesson 2</b>	-To identify a computer and its main parts	-To use the shape tool and the line tools	-To act out a given word	-To identify that objects can be counted	-To add and remove text on a computer	-To show that a series of commands can be joined together
<b>Lesson 3</b>	-To use a mouse in different ways	-To make careful choices when painting a digital picture	-To combine forwards and backwards commands to make a sequence	-To describe objects in different ways	-To identify that the look of text can be changed on a computer	-To identify the effect of changing a value
<b>Lesson 4</b>	-To use a keyboard to type on a computer	-To explain why I chose the tools I used	-To combine four direction commands to make sequences	-To count objects with the same properties	-To make careful choices when changing text	-To explain that each sprite has its own instructions
<b>Lesson 5</b>	-To use the keyboard to edit text	-To use a computer on my own to paint a picture	-To plan a simple program	-To compare groups of objects	-To explain why I used the tools that I chose	-To design the parts of a project
<b>Lesson 6</b>	-To create rules for using technology responsibly	-To compare painting a picture on a computer and on paper	-To find more than one solution to a problem	-To answer questions about groups of objects	-To compare typing on a computer to writing on paper	-To use my algorithm to create a program

**Lower Key Stage 2 – Cycle 1**

<b>Term</b>	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
<b>Topic</b>	Computing systems and networks – connecting computers	Creating media – stop-frame animation	Programming A – sequencing sounds	Data and information – branching databases	Creating media – desktop publishing	Programming B – events and actions programs
<b>Lesson 1</b>	-To explain how digital devices function	-To explain that animation is a sequence of drawings or photographs	-To explore a new programming environment	-To create questions with yes/no answers	-To recognise how text and images convey information	-To explain how a sprite moves in an existing project
<b>Lesson 2</b>	-To identify input and output devices	-To relate animated movement with a sequence of images	-To identify that commands have an outcome	-To identify the attributes needed to collect data about an object	-To recognise that text and layout can be edited	-To create a program to move a sprite in four directions
<b>Lesson 3</b>	-To recognise how digital devices can change the way we work	-To plan an animation	-To explain that a program has a start	-To create a branching database	-To choose appropriate page settings	-To adapt a program to a new context
<b>Lesson 4</b>	-To explain how a computer network can be used to share information	-To identify the need to work consistently and carefully	-To recognise that a sequence of commands can have an order	-To explain why it is helpful for a database to be well structured	-To add content to a desktop publishing publication	-To develop my program by adding features
<b>Lesson 5</b>	-To explore how digital devices can be connected	-To review and improve an animation	-To change the appearance of my project	-To plan the structure of a branching database	-To consider how different layouts can suit different purposes	-To identify and fix bugs in a program
<b>Lesson 6</b>	-To recognise the physical components of a network	-To evaluate the impact of adding other media to an animation	-To create a project from a task description	-To independently create an identification tool	-To consider the benefits of desktop publishing	-To design and create a maze-based challenge

## Upper Key Stage 2 – Cycle 1

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Topic</b>	Computing systems and networks – systems and searching	Creating media – video production	Programming A – selection in physical computing	Data and information – Flat-file databases	Creating media – introduction to vector graphics	Programming B – Selection in quizzes
<b>Lesson 1</b>	-To explain that computers can be connected together to form systems	-To explain what makes a video effective	-To control a simple circuit connected to a computer	-To use a form to record information	-To identify that drawing tools can be used to produce different outcomes	-To explain how selection is used in computer programs
<b>Lesson 2</b>	-To recognise the role of computer systems in our lives	-To identify digital devices that can record video	-To write a program that includes count-controlled loops	-To compare paper and computer-based databases	-To create a vector drawing by combining shapes	-To relate that a conditional statement connects a condition to an outcome
<b>Lesson 3</b>	-To experiment with search engines	-To capture video using a range of techniques	-To explain that a loop can stop when a condition is met	-To outline how you can answer questions by grouping and then sorting data	-To use tools to achieve a desired effect	-To explain how selection directs the flow of a program
<b>Lesson 4</b>	-To describe how search engines select results	-To create a storyboard	-To explain that a loop can be used to repeatedly check whether a condition has been met	-To explain that tools can be used to select specific data	-To recognise that vector drawings consist of layers	-To design a program which uses selection
<b>Lesson 5</b>	-To explain how search results are ranked	-To identify that video can be improved through reshooting and editing	-To design a physical project that includes selection	-To explain that computer programs can be used to compare data visually	-To group objects to make them easier to work with	-To create a program which uses selection
<b>Lesson 6</b>	-To recognise why the order of results is important, and to whom	-To consider the impact of the choices made when making and sharing a video	-To create a program that controls a physical computing project	-To use a real-world database to answer questions	-To apply what I have learned about vector drawings	-To evaluate my program

## Cycle 2

### Key Stage 1 – Cycle 2

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Topic</b>	Computing systems and networks – IT around us	Creating media – digital photography	Programming A – Robot algorithms	Data and information - pictograms	Creating media – digital music	Programming B – programming quizzes
<b>Lesson 1</b>	-To recognise the uses and features of information technology	-To use a digital device to take a photograph	-To describe a series of instructions as a sequence	-To recognise that we can count and compare objects using tally charts	-To say how music can make us feel	-To explain that a sequence of commands has a start
<b>Lesson 2</b>	-To identify the uses of information technology in the school	-To make choices when taking a photograph	-To explain what happens when we change the order of instructions	-To recognise that objects can be represented as pictures	-To identify that there are patterns in music	-To explain that a sequence of commands has an outcome
<b>Lesson 3</b>	-To identify information technology beyond school	-To describe what makes a good photograph	-To use logical reasoning to predict the outcome of a program	-To create a pictogram	-To experiment with sound using a computer	-To create a program using a given design
<b>Lesson 4</b>	-To explain how information technology helps us	-To decide how photographs can be improved	-To explain that programming projects can have code and artwork	-To select objects by attribute and make comparisons	-To use a computer to create a musical pattern	-To change a given design
<b>Lesson 5</b>	-To explain how to use information technology safely	-To use tools to change an image	-To design an algorithm	-To recognise that people can be described by attributes	-To create music for a purpose	-To create a program using my own design
<b>Lesson 6</b>	-To recognise that choices are made when using information technology	-To recognise that photos can be changed	-To create and debug a program that I have written	-To explain that we can present information using a computer	-To review and refine our computer work	-To decide how my project can be improved

## Lower Key Stage 2 – Cycle 2

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Topic</b>	Computing systems and networks – the internet	Creating media – audio production	Programming A – repetition in shapes	Data and information – data logging	Creating media – photo editing	Programming B – Repetition in games
<b>Lesson 1</b>	-To recognise how networked devices make up the internet	-To identify that sound can be recorded	-To identify that accuracy in programming is important	-To explain that data gathered over time can be used to answer questions	-To explain that the composition of digital images can be changed	-To develop the use of count-controlled loops in a different programming environment
<b>Lesson 2</b>	-To outline how websites can be shared via the World Wide Web (WWW)	-To explain that audio recordings can be edited	-To create a program in a text-based language	-To use a digital device to collect data automatically	-To explain that colours can be changed in digital images	-To explain that in programming there are infinite loops and count controlled loops
<b>Lesson 3</b>	-To describe how content can be added and accessed on the World Wide Web (WWW)	-To recognise the different parts of creating a podcast project	-To explain what 'repeat' means	-To explain that a data logger collects 'data points' from sensors over time	-To explain how cloning can be used in photo editing	-To develop a design that includes two or more loops which run at the same time
<b>Lesson 4</b>	-To recognise how the content of the WWW is created by people	-To apply audio editing skills independently	-To modify a count-controlled loop to produce a given outcome	-To recognise how a computer can help us analyse data	-To explain that images can be combined	-To modify an infinite loop in a given program
<b>Lesson 5</b>	-To evaluate the consequences of unreliable content	-To combine audio to enhance my podcast project	-To decompose a task into small steps	-To identify the data needed to answer questions	-To combine images for a purpose	-To design a project that includes repetition
<b>Lesson 6</b>	-To describe how networks physically connect to other networks	-To evaluate the effective use of audio	-To create a program that uses count-controlled loops to produce a given outcome	-To use data from sensors to answer questions	-To evaluate how changes can improve an image	-To create a project that includes repetition

## Upper Key Stage 2 – Cycle 2

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Topic</b>	Computing systems and networks – communication and collaboration	Creating media – web page creation	Programming A – variables in games	Data and information - spreadsheets	Creating media – 3D modelling	Programming B – sensing movement
<b>Lesson 1</b>	-To explain the importance of internet addresses	-To review an existing website and consider its structure	-To define a 'variable' as something that is changeable	-To create a data set in a spreadsheet	-To recognise that you can work in three dimensions on a computer	-To create a program to run on a controllable device
<b>Lesson 2</b>	-To recognise how data is transferred across the internet	-To plan the features of a web page	-To explain why a variable is used in a program	-To build a data set in a spreadsheet	-To identify that digital 3D objects can be modified	-To explain that selection can control the flow of a program
<b>Lesson 3</b>	-To explain how sharing information online can help people to work together	-To consider the ownership and use of images (copyright)	-To choose how to improve a game by using variables	-To explain that formulas can be used to produce calculated data	-To recognise that objects can be combined in a 3D model	-To update a variable with a user input
<b>Lesson 4</b>	-To evaluate different ways of working together online	-To recognise the need to preview pages	-To design a project that builds on a given example	-To apply formulas to data	-To create a 3D model for a given purpose	-To use a conditional statement to compare a variable to a value
<b>Lesson 5</b>	-To recognise how we communicate using technology	-To outline the need for a navigation path	-To use my design to create a project	-To create a spreadsheet to plan an event	-To plan my own 3D model	-To design a project that uses inputs and outputs on a controllable device
<b>Lesson 6</b>	-To evaluate different methods of online communication	-To recognise the implications of linking to content owned by other people	-To evaluate my project	-To choose suitable ways to present data	-To create my own digital 3D model	-To develop a program to use inputs and outputs on a controllable device