Autumn 1 (Connecting computers)

Session no.	Objective	Assessment
1	To explain how digital devices function	**Introduction:** You can examine learners' prior knowledge and determine whether they can identify digital devices. **Activities 1 and 2:** You can assess whether learners can identify inputs, processes, and outputs. **Activity 3:** You can assess whether learners can apply knowledge of inputs, processes, and outputs to create their own IPO machine. **Plenary:** You can assess learners' understanding of inputs, processes, and outputs in relation to a digital device.
2	To identify input and output devices	**Activity 1:** You can assess whether learners can classify input and output devices. **Activity 2:** You can assess learners' understanding of the relationship between inputs, processes, and outputs for existing digital devices. **Activity 3:** You can assess learners' understanding of the relationship between inputs, processes, and outputs through evaluating the digital devices that they invent. **Plenary:** You can assess learners' understanding of the relationship between inputs, processes, and outputs through evaluating learners' explanations of how their inventions work.
3	To recognise how digital devices can change the way that we work	**Activity 1:** You can assess whether learners can identify the capabilities of digital devices. **Activity 2:** You can assess learners' understanding of the similarities and differences between digital devices and non-digital tools.

		Activity 3: You can assess whether learners can articulate the differences between producing art digitally and non-digitally and explain which they prefer. **Plenary:** You can assess whether learners can examine how different programs can be used on a digital device.
4	To explain how a computer network can be used to share information	**Activity 1:** You can assess learners' understanding of connections and how information can flow between connections. **Activity 2:** You can assess learners' feedback on the method of sharing information explored in this activity. **Activity 3:** You can assess learners' understanding of the function of a switch in a network. **Plenary:** You can evaluate learners' answers in the 'think, pair, share' activity.
5	To explore how digital devices can be connected	**Activity 1:** You can assess learners' understanding of how information flows around a network through a switch. **Activity 2:** You can assess learners' understanding of the function of a server. **Activity 3:** You can assess learners' understanding of wireless connections in a network. **Plenary:** You can assess learners' understanding of the roles of a switch, server, and wireless access point in a network.
6	To recognise the physical components of a network	**Activity 1:** You can assess whether learners can explain the benefits of computer networks. **Activity 2:** You can assess whether learners can identify real-world network devices. **Activity 3:** You can assess whether learners can explain how different components are connected with one another in a computer network.

Autumn 2 (Animation)

Session no.	Objective	Assessment
1	To explain that animation is a sequence of drawings or photographs	**Activity 1:** To assess learners' understanding of the term 'animation'. **Activity 2:** To assess learners' understanding that an animation is made up of a sequence of images. **Activity 3:** To assess learners ability to break a sequence of movement into several separate images **Plenary:** To assess learners' understanding of how an animation works.
2	To relate animated movement with a sequence of images	**Activity 1:** To assess learners' predictions of what a sequence of pictures would look like when animated. **Activity 2:** To assess learners' understanding of the term 'onion skinning' **Activity 3:** To assess learners' ability to create their own stop-frame animations. **Plenary:** To assess the learners' understanding of the differences between on screen and last lesson's flip book–style animations.
3	To plan an animation	**Activity 1:** To assess learners' ability to develop characters, settings, and plots. **Activity 2:** To assess learners ability to create a simple storyboard with a fixed number of characters and settings. **Activity 3:** To assess learners' ability to create the characters and settings for their animation
4	To identify the need to work consistently and carefully	**Activity 1:** To assess learners' understanding of the word 'consistency' and using onion skiing to create small changes between frames. **Activity 2:** To assess learners' ability to spot changes in consistency in animations. **Activity 3:** To assess learners' ability to create their own animations and evaluate the quality of their animation.

		Plenary: To assess learners' understanding of a high-quality animation and suggest ways to improve a selection of animations.
5	To review and improve an animation	**Introduction:** To assess learners' understanding of how to make a high-quality animation. **Activity 1:** To assess learners' understanding of how to remove frames within their animation. **Activity 2:** To assess learners' ability to recognise areas for improvement in their own, and another learner's, animation. **Activity 3:** To assess learners' ability to improve their animations.
6	To evaluate the impact of adding other media to an animation	**Introduction:** To assess learners' ability to demonstrate an awareness of the types of media added into videos. **Activity 1:** To assess learners' understanding of the impact that multimedia has when added to videos. **Activity 2 & 3:** To assess learners' ability to demonstrate their ability to add multimedia into their films. **Activity 4:** To assess learners' ability to explain the impact of adding other media to their project.

Spring 1 (Sequencing sounds)

Session no.	Objective	Assessment
1	To explore a new programming environment	**Introduction:** Can learners recall and compare previous programming environments they have used? **Activity 1:** Can learners describe the three main areas of the Scratch environment? On sprites, how effectively can learners place and run blocks, and add and delete? **Activity 2:** Can learners transition from sprites to the stage and add new backdrops? **Plenary:** Learners should be able to combine the skills they have learnt in this lesson to add

		multiple sprites to a project and move them in different ways.
2	To identify that commands have an outcome	**Introduction:** Assess learners' ability to relate a movement on screen to a block in Scratch. **Activity 1:** Assess how effectively learners can create a plan for a project, (unscaffolded) and how successfully they translate their design into a project. **Activity 2**: Assess how effectively learners can delete and add sprites, and then how successfully they can follow a plan.
3	To explain that a program has a start	**Introduction:** Assess learners' ability to read the two sets of code, and the comparisons they make between them. In particular, do they know and understand the term 'sequence'? **Activity 1:** How effectively can learners recall real-world examples of sequences? **Activity 2:** How effectively can learners identify events and movements in a completed project? **Activity 3:** Assess how learners create a design and translate it into a project. **Plenary:** Peer assessment
4	To recognise that a sequence of commands can have an order	**Introduction:** Assess learners' ability to describe the outcome of a project. Specifically, can they identify that two events are being used and there are two different sequences? **Activity 1:** Can learners tell that the order of the blocks in one of the sequences is important, but not in the other? **Activity 2:** How effectively can learners translate a simple algorithm into code using `play sound until` blocks? **Activity 2 (exploratory task):** Can learners create their own sequence? **Activity 3:** Can learners choose an appropriate event block for a chord (e.g. `start on key press`), and choose `start sound` blocks to combine sounds?

		Plenary: Can learners relate the importance of order in sequences to real-world examples?
5	To change the appearance of my project	**Activity 1:** How effectively can learners read a snippet of code to predict what the outcome of it will be? Can they validate their prediction by running the code? **Activity 2:** This is a heavily scaffolded activity. Assess how effectively learners can follow a set of instructions. **Activity 3:** Assess how effectively learners can plan a project with less scaffolding that similar activities earlier in the unit, and how effectively they can implement their design in Scratch.
6	To create a project from a task description	**Activity 1:** Look for how effectively learners can name sprites to help them apply algorithms, e.g. the sprite associated with note 'A' should have this association reflected in its name. **Activity 2:** Assess how learners translate an element of design into code, and then how they approach the task of debugging.

Spring 2 (Branching databases)

Session no.	Objective	Assessment
1	To create questions with yes/no answers	**Activity 1:** To assess the learners' ability to create questions with yes or no answers using a given attribute **Activity 2:** To assess the learners' ability to compare the efficiency of different branching databases and explain which is quicker to follow **Activity 3:** To assess the learners' understanding of why the order of questions is important in a branching database **Plenary:** To assess the learners' ability to recognise the attribute a question is referring to
2	To identify the attributes needed to collect data	**Introduction:** To assess the learners' ability

		about an object	to select an appropriate attribute to split a group of objects in more than one way **Activity 1:** To assess the learners' ability to organise objects into groups using given objects and questions **Activity 2:** To assess the learners' ability to organise objects into a tree structure
3	To create a branching database		**Activity 1:** To assess the learners' ability to identify objects by using a branching database **Activity 2:** To assess the learners' ability to create yes or no questions to group objects they have chosen **Activity 3:** To assess the learners' ability to follow a branching database
4	To explain why it is helpful for a database to be well structured		**Activity 1:** To assess the learners' ability to create questions with yes or no answers using a given attribute **Activity 2:** To assess the learners' ability to compare the efficiency of different branching databases and explain which is quicker to follow **Activity 3:** To assess the learners' understanding of why the order of questions is important in a branching database **Plenary:** To assess the learners' ability to recognise the attribute a question is referring to
5	To plan the structure of a branching database		**Activity 1:** To assess the learners' ability to write questions about attributes **Activity 2:** To assess the learners' ability to divide objects by attributes **Activity 3:** To assess the learners' ability to arrange objects in the structure of a branching database
6	To independently create an identification tool		**Activity 1:** To assess learners' ability to independently create a branching database, based on a plan that they have made

| | | **Activity 2:** To assess learners' ability to use a branching database as an identification tool
Plenary: To assess learners' ability to suggest real-world uses for branching databases |
| --- | --- | --- |

Summer 1 (Desktop Publishing)

Session no.	Objective	Assessment
1	To recognise how text and images convey information	**Introduction:** To establish whether the learners understand the terms 'text' and 'images' and which they think would be best for communicating messages.
Activity 1: To assess learners' understanding that text and images are used to communicate messages and that sometimes this is done more effectively than others.
Activity 2: To assess learners' ability to understand different signs, assess which are easy or hard to understand, and consider why.
Activity 3: To assess learners' understanding of the advantages and disadvantages of using text, images, or both text and images to convey messages clearly.
Plenary: To assess learners' understanding that some signs are easier to understand than others due to the text or images used.
To assess learners' understanding of the advantages and disadvantages of using images to communicate messages.
2	To recognise that text and layout can be edited	**Introduction:** To assess learners' current awareness of the term 'desktop publishing' and what this means.
Activity 1: To assess learners' understanding of the tools used for changing font size, colour, and type.
Activity 2: To assess learners' ability to change font sizes, types, and colours.

		Activity 3: To assess learners' understanding of the Shift, Backspace, and Return keys and their ability to type age-appropriate punctuation and rearrange content on the page. **Plenary:** To assess learners' understanding of the keyboard when adding text.
3	To recognise that text and layout can be edited	**Introduction:** To assess learners' understanding of the term 'template'. **Activity 1:** To assess learners' understanding of the terms 'page orientation', 'landscape', and 'portrait'. **Activity 2:** To assess learners' knowledge of magazine cover layouts. **Activity 3:** To assess learners' understanding of placeholders. **Activity 3:** To assess learners' ability to create their own template for a magazine using placeholders to create a template. **Plenary:** To assess learners' understanding of placeholders.
4	To add content to a desktop publishing publication	**Activity 1:** To assess learners' ability to find and open work created previously. **Activity 2:** To assess learners' ability to copy and paste from one file to another and delete content when needed. **Activity 3:** To assess learners' ability to add and delete images. **Plenary:** To assess what learners have learnt independently during the lesson.
5	To consider how different layouts can suit different purposes	**Introduction:** To assess learners' ability to name the type of text based on the layout of the page. **Activity 1:** To assess learners' ability to name different types of layout. **Activity 2:** To assess learners' ability to match the layout of text to its purpose. **Activity 3:** To assess learners' ability to choose a layout suitable for a given purpose and give reasons for their choices.

		Plenary: To assess learners' ability to name the benefits of a certain type of layout.
6	To consider the benefits of desktop publishing	**Introduction:** To assess learners' understanding of the term 'desktop publishing'. **Activity 1:** To assess learners' understanding of the benefits of desktop publishing to people in a range of jobs. **Activity 2:** To assess learners' understanding of how desktop publishing compares to handwritten methods. **Plenary:** To assess learners' understanding of the advantages of producing content using desktop publishing, compared to a handwritten approach.

Summer 2 (Programming)

Session no.	Objective	Assessment
1	To explain how a sprite moves in an existing project	**Activity 1:** You can assess the learners' ability to establish the events which lead to actions in an existing project, and identify missing actions and events. **Activity 2:** You can assess the learners' ability to design algorithms for new code snippets to change the movement in a project, and then implement these changes.
2	To create a program to move a sprite in four directions	**Activity 1:** You can assess whether the learners can choose an appropriate sprite, and if necessary, resize their sprite to fit the maze. **Activity 2:** You can assess how effectively learners can translate an algorithm into code, and whether they can adapt a code snippet by duplicating it and changing the event and the direction. You can assess the success of their programming and any debugging required.
3	To adapt a program to a new context	**Activity 1:** You can assess whether the learners apply prior learning to program their sprites to move, and whether they can add the pen down block.

		Activity 2: You can assess whether the learners identify the design flaw in their project, and apply the skills demonstrated in the screen recording to recentre their sprite. **Activity 3:** You can assess whether the learners can set up their projects. In this lesson, they will be copying existing code, but they will apply this knowledge more independently later in the unit.
4	To develop my program by adding features	**Introduction:** You can assess whether learners can predict the function of a block. **Activity 1:** You can assess the choices learners make when picking **Events** blocks, and whether they can recreate a given effect. **Activity 2:** You can assess the learners' ability to complete a design template, focusing on their choice of events.
5	To identify and fix bugs in a program	**Introduction:** You can assess learners' understanding of the terms 'bug' and 'debug', and how well learners can relate the terms to real-world experiences. **Activity 1:** You can assess whether learners can identify differences between the design and the program, and identify how bugs can be fixed. **Activity 2:** You can assess learners' ability to improve the setup of their projects by utilising new blocks, and then planning to incorporate them into their own projects. **Activity 3:** You can assess whether learners can translate an algorithm into code.
6	To design and create a maze-based challenge	**Introduction:** You can assess how effectively the learners complete their designs. Can they realistically create projects based on their designs? As a minimum, the designs should include algorithms for each process associated with the sprite, and be clear on the artwork for both the sprite and the stage. **Activity 1:** You can assess how effectively learners can translate their designs into projects.

		Activity 2: You can assess whether the learners are systematically testing their projects, and if necessary how successfully they debug their projects.

Year group objectives for Computing – Year 4

Year 4 – Autumn 1 (The internet)

Session no.	Objective
1	To describe how networks physically connect to other networks
2	To recognise how networked devices make up the internet
3	To outline how websites can be shared via the World Wide Web (WWW)
4	To describe how content can be added and accessed on the World Wide Web (WWW)
5	To recognise how the content of the WWW is created by people
6	To evaluate the consequences of unreliable content

Year 4 – Autumn 2 (Audio Editing)

Session no.	Objective
1	To identify that sound can be digitally recorded
2	To use a digital device to record sound
3	To explain that a digital recording is stored as a file
4	To explain that audio can be changed through editing

5	To show that different types of audio can be combined and played together
6	To evaluate editing choices made

Year 4 – Spring 1 (Programming)

Session no.	Objective
1	To identify that accuracy in programming is important
2	To create a program in a text-based language
3	To explain what 'repeat' means
4	To modify a count-controlled loop to produce a given outcome
5	To decompose a task into small steps
6	To create a program that uses count-controlled loops to produce a given outcome

Year 4 – Spring 2 (Datalogging)

Session no.	Objective
1	To explain that data gathered over time can be used to answer questions
2	To use a digital device to collect data automatically
3	To explain that a data logger collects 'data points' from sensors over time
4	To recognise how a computer can help us analyse data
5	To identify the data needed to answer questions
6	To use data from sensors to answer questions

Year 4 – Summer 1 (Photo editing)

Session no.	Objective
1	To explain that digital images can be changed
2	To change the composition of an image
3	To describe how images can be changed for

	different uses
4	To make good choices when selecting different tools
5	To recognise that not all images are real
6	To evaluate how changes can improve an image

Year 4 – Summer 2 (Repetition in games)

Session no.	Objective
1	To develop the use of count-controlled loops in a different programming environment
2	To explain that in programming there are infinite loops and count-controlled loops
3	To develop a design that includes two or more loops which run at the same time
4	To modify an infinite loop in a given program
5	To design a project that includes repetition
6	To create a project that includes repetition

Year group objectives for Computing – Year 5

Year 5 – Autumn 1 (Sharing information)

Session no.	Objective
1	To explain that computers can be connected together to form systems
2	To recognise the role of computer systems in our lives
3	To recognise how information is transferred over the internet
4	To explain how sharing information online lets people in different places work together
5	To contribute to a shared project online
6	To evaluate different ways of working together online

Year 5 – Autumn 2 (Vector drawing)

Session no.	Objective
1	To identify that drawing tools can be used to produce different outcomes
2	To create a vector drawing by combining shapes
3	To use tools to achieve a desired effect
4	To recognise that vector drawings consist of layers
5	To group objects to make them easier to work with
6	To apply what I have learned about vector drawings

Year 5 – Spring 1 (Video editing)

Session no.	Objective
1	To explain what makes a video effective
2	To use a digital device to record video
3	To capture video using a range of techniques
4	To create a storyboard
5	To identify that video can be improved through reshooting and editing
6	To consider the impact of the choices made when making and sharing a video

Year 5 – Spring 2 (Flat-file databases)

Session no.	Objective
1	To use a form to record information
2	To compare paper and computer-based databases
3	To outline how you can answer questions by grouping and then sorting data
4	To explain that tools can be used to select specific data
5	To explain that computer programs can be used to compare data visually
6	To use a real-world database to answer questions

Year 5 – Summer 1 (Vector graphics)

Session no.	Objective
1	To identify that drawing tools can be used to produce different outcomes
2	To create a vector drawing by combining shapes
3	To use tools to achieve a desired effect
4	To recognise that vector drawings consist of layers
5	To group objects to make them easier to work with
6	To apply what I have learned about vector drawings

Year 5 – Summer 2 (Selection in quizzes)

Session no.	Objective
1	To explain how selection is used in computer programs

2	To relate that a conditional statement connects a condition to an outcome
3	To explain how selection directs the flow of a program
4	To design a program that uses selection
5	To create a program that uses selection
6	To evaluate my program

Year group objectives for Computing – Year 6

Year 6 – Autumn 1 (Communication)

Session no.	Objective
1	To identify how to use a search engine
2	To describe how search engines select results
3	To explain how search results are ranked
4	To recognise why the order of results is important, and to whom
5	To recognise how we communicate using technology
6	To evaluate different methods of online communication

Year 6 – Autumn 2 (Webpage)

Session no.	Objective
1	To review an existing website and consider its structure
2	To plan the features of a web page
3	To consider the ownership and use of images (copyright)
4	To recognise the need to preview pages
5	To outline the need for a navigation path
6	To recognise the implications of linking to content owned by other people

Year 6 – Spring 1 (Variables)

Session no.	Objective
1	To define a 'variable' as something that is changeable
2	To explain why a variable is used in a program
3	To choose how to improve a game by using variables
4	To design a project that builds on a given example

5	To use my design to create a project
6	To evaluate my project

Year 6 – Spring 2 (Spreadsheets)

Session no.	Objective
1	To create a data set in a spreadsheet
2	To build a data set in a spreadsheet
3	To explain that formulas can be used to produce calculated data
4	To apply formulas to data
5	To create a spreadsheet to plan an event
6	To choose suitable ways to present data

Year 6 – Summer 1 (3d modelling)

Session no.	Objective
1	To use a computer to create and manipulate three-dimensional (3D) digital objects
2	To compare working digitally with 2D and 3D graphics
3	To construct a digital 3D model of a physical object
4	To identify that physical objects can be broken down into a collection of 3D shapes
5	To design a digital model by combining 3D objects
6	To develop and improve a digital 3D model

Year 6 – Summer 2 (Sensing)

Session no.	Objective
1	To create a program to run on a controllable device
2	To explain that selection can control the flow of a program
3	To update a variable with a user input
4	To use an conditional statement to compare a variable to a value
5	To design a project that uses inputs and outputs on a controllable device
6	To develop a program to use inputs and outputs on a controllable device