**Year group objectives for Computing – Year 4**

See individual lesson plans (link) for knowledge, skills, assessment opportunities, activities and slides.

**Autumn 1 (The internet)**

| Session no. | Objective | Assessment |
|---|---|---|
| 1 | To describe how networks physically connect to other networks | **Introduction:** Learners can describe what the internet is.<br>**Activity 1:** Learners can describe the key parts of a network and enact a message being passed around a network.<br>**Activity 2:** Learners can explain the role of routers in creating the internet — a connected network of networks.<br>**Activity 3:** Learners can explain the need for network security. |
| 2 | To recognise how networked devices make up the internet | **Activity 1**: Learners can suggest some of the different routes possible and relate routing to the World Wide Web.<br>**Activity 2:** Learners can explain that the World Wide Web is part of the internet.<br>**Activity 3:** Learners can explain the difference between a website and a web page. |
| 3 | To outline how websites can be shared via the World Wide Web (WWW) | **Activity 1:** Learners can explain what can and cannot be shared on the World Wide Web.<br>**Activity 2:** Learners can deduce the origin of websites from the domain name and appreciate that websites are hosted all around the world.<br>**Activity 3**: Learners can identify devices which can be used to access the World Wide Web. |
| 4 | To describe how content can be added and accessed on the World Wide Web (WWW) | **Activity 1:** Learners can understand the different parts of a website.<br>**Activity 2**: Learners can explain the advantages and disadvantages of anyone being able to add content to the World Wide Web.<br>**Activity 3:** Learners can explain that some websites enable content creation and can discuss the limitations of these websites. |

| | | |
|---|---|---|
| 5 | To recognise how the content of the WWW is created by people | **Introduction:** Learners can say who creates content on the web.<br>**Activity 1:** Learners can explain the rules for using and sharing content on the web.<br>**Activity 2:** Learners can explain rules for sharing things in a real world context.<br>**Activity 3:** Learners can explain who owns content on the World Wide Web. |
| 6 | To evaluate the consequences of unreliable content | **Introduction:** Learners can identify which images have been edited to convey something which is not real.<br>**Activity 1:** Learners can explain why some information on the World Wide Web may not be accurate.<br>**Activity 2:** Learners can explain why inaccurate or false information is shared on the World Wide Web.<br>**Activity 3:** Learners can explain how information can spread quickly online and the implications of this. |

**Autumn 2 (Audio Editing)**

| Session no. | Objective | Assessment |
|---|---|---|
| 1 | To identify that sound can be digitally recorded | **Activity 1:** Learners can demonstrate their existing knowledge of devices capable of recording sound.<br>**Activity 2:** Learners can demonstrate their understanding of copyright and the implications of unauthorised copying. |
| 2 | To use a digital device to record sound | **Activity 1:** Learners can demonstrate their ability to make a good audio recording based on the previous lesson's criteria. |
| 3 | To explain that a digital recording is stored as a file | **Activity 1:** Learners can demonstrate their understanding of podcast features and content.<br>**Activity 2:** Learners can demonstrate their ability to use Audacity to make sound recordings. |

| | | |
|---|---|---|
| 4 | To explain that audio can be changed through editing | **Activity 1:** Enables learners to demonstrate their ability to open files they have previously saved.<br>**Activity 2:** Enables learners to consolidate their understanding of using Audacity to record sound.<br>**Activity 3:** Allows learners to demonstrate their use of selection tools. |
| 5 | To show that different types of audio can be combined and played together | **Activity 2:** Enables learners to demonstrate their ability to manipulate audio tracks. |
| 6 | To evaluate editing choices made | **Activities 2 and 3:** Enable learners to demonstrate their ability to evaluate podcast quality and suggest improvements. |

**Spring 1 (Programming)**

| Session no. | Objective | Assessment |
|---|---|---|
| 1 | To identify that accuracy in programming is important | **Activity 1:** You can assess pupils' ability to use basic Logo commands accurately.<br>**Activity 2:** You can assess pupils' ability to change the values in commands.<br>**Activity 3:** You can assess pupils' ability to read code, and to plan and write commands to draw a digit. |
| 2 | To create a program in a text-based language | **Introduction:** You can assess pupils' ability to spot syntax errors in Logo commands.<br>**Activity 1:** You can assess pupils' understanding of a 90° turn.<br>**Activity 2:** You can assess pupils' ability to create a successful algorithm.<br>**Activity 3:** You can assess pupils' ability to use their algorithm to create code in Logo. |
| 3 | To explain what 'repeat' means | **Introduction:** You can assess pupils' ability to spot repetition in real-life patterns.<br>**Activity 1:** You can assess pupils' understanding of the term 'repeat' and their ability to recognise and continue a pattern.<br>**Activity 2:** You can assess pupils' ability to create a successful algorithm. |

| | | |
|---|---|---|
| | | **Activity 3 and plenary:** You can assess pupils' ability to understand and use the `repeat` command. |
| 4 | To modify a count-controlled loop to produce a given outcome | **Introduction:** You can assess whether pupils can identify the effect of changing the count in the loop.<br>**Activity 1:** You can assess pupils' ability to trace code, and to make a prediction from a code snippet.<br>**Activity 2:** You can assess pupils' ability to modify given code for a range of shapes.<br>**Activity 3:** You can assess pupils' ability to program code snippets in Logo to create different shapes.<br>**Plenary:** You can assess whether pupils know the function of the `repeat` value in a code snippet. |
| 5 | To decompose a task into small steps | **Introduction:** You can assess pupils' understanding of the structure of a count-controlled loop.<br>**Activity 1:** You can assess pupils' ability to break down a real-life activity into chunks of actions.<br>**Activity 2:** You can assess pupils' ability to modify given code to create their own procedures.<br>**Activity 3:** You can assess pupils' ability to plan and program a pattern calling their procedure.<br>**Plenary:** You can assess pupils' understanding of the fact that the computer can only follow what has been programmed, and so the procedure name is irrelevant. |
| 6 | To create a program that uses count-controlled loops to produce a given outcome | **Introduction:** You can assess pupils' ability to match code designs with a pattern.<br>**Activity 1:** You can assess pupils' ability to create a design using a given format including count-controlled loops.<br>**Activity 2:** You can assess pupils' ability to use their design to create a program. |

| | | |
|---|---|---|
| | | **Activity 3:** You can assess pupils' ability to debug their program to develop it.<br>**Plenary:** You can assess pupils' understanding of how a range of debugging strategies can improve their work. |

**Spring 2 (Datalogging)**

| Session no. | Objective | Assessment |
|---|---|---|
| 1 | To explain that data gathered over time can be used to answer questions | **Activity 1:** Assess whether learners can identify which table to use to answer the given questions.<br>**Activity 2:** Assess whether learners can think of questions related to light, temperature, or sound levels in the classroom.<br>**Activity 3:** Assess whether learners can identify which questions can and can't be answered from a set of collected data.<br>**Activity 4:** Assess whether learners can identify data that can be collected over time, and suggest time periods over which that data is collected. |
| 2 | To use a digital device to collect data automatically | **Activity 1:** Assess whether learners can identify which table to use to answer the given questions.<br>**Activity 2:** Assess whether learners can think of questions related to light, temperature, or sound levels in the classroom.<br>**Activity 3:** Assess whether learners can identify which questions can and can't be answered from a set of collected data.<br>**Activity 4:** Assess whether learners can identify data that can be collected over time, and suggest time periods over which that data is collected. |
| 3 | To explain that a data logger collects 'data points' from sensors over time | **Activity 1:** Assess whether learners can identify the inputs and outputs on a data logger. |

| | | |
|---|---|---|
| | | **Activity 2:** Assess whether learners can collect and accurately record readings from a data logger.<br>**Activity 3:** Assess whether learners can capture and review data recorded using the data logger connected to a computer. |
| 4 | To recognise how a computer can help us analyse data | **Activity 1:** Assess whether learners can access and review the data file provided.<br>**Activity 2:** Assess whether learners can answer questions using tools within the data logger software.<br>**Activity 3:** Assess whether learners can sort data using filtering in a spreadsheet. |
| 5 | To identify the data needed to answer questions | **Activity 1:** Assess whether learners can think of questions related to light, temperature, or sound, changing over time.<br>**Activity 2:** Assess whether learners can identify a suitable location and setup for their data logging experiment.<br>**Activity 3:** Assess whether learners can test the key aspects of their data logging plan and identify any potential issues. |
| 6 | To use data from sensors to answer questions | **Activity 1:** Assess whether learners can access and review their collected data.<br>**Activity 2:** Assess whether learners can answer their question using tools within the data logger software. You can also assess whether learners can draw conclusions more broadly from their data. |

**Summer 1 (Photo editing)**

| Session no. | Objective | Assessment |
|---|---|---|
| 1 | To explain that digital images can be changed | **Starter activity:** You can evaluate learners' prior knowledge and determine whether they have any experience of image editing.<br>**Activities 1 and 2:** You can assess the learners' use of the tools covered so far (open, select, crop, save, and undo). |

| | | |
|---|---|---|
| | | **Activity 3:** Learners can reflect on the tools used, choices made, and how effective they were.<br>**Plenary:** You can assess learners' understanding of why using digital editing tools might be useful for editing images. |
| 2 | To change the composition of an image | **Activity 1:** Learners' can demonstrate their knowledge of the editing tools studied in lesson 1.<br>**Activity 2:** Learners can demonstrate their use of the search and save process.<br>**Activity 3:** Learners can demonstrate their use of the tools introduced.<br>**Conclusion:** Learners can reflect on the tools used, choices made, and how effective they were. They can also demonstrate their understanding of the different tools used by verbalising their functions. |
| 3 | To describe how images can be changed for different uses | **Starter activity/Activity 1:** Learners can demonstrate that they understand the effect that changes on an image can have.<br>**Activity 2:** Learners can demonstrate that they can choose and add effects to an image.<br>**Activity 3:** Learners can explain how their choices fit the scenario given.<br>**Conclusion:** Learners can explain how images can be changed for different uses. |
| 4 | To make good choices when selecting different tools | **Starter activity:** Learners can demonstrate that they can identify changes in images.<br>**Activity 1:** Learners can demonstrate the positive and negative aspects of retouching images.<br>**Activity 2:** Learners can demonstrate that they can use appropriate tools for retouching.<br>**Plenary:** Learners can demonstrate their understanding of why tools are used for certain purposes. |

| | | |
|---|---|---|
| 5 | To recognise that not all images are real | **Starter activity:** You can examine the learners' prior knowledge and understanding of 'fake' and 'real'.<br>**Activity 2:** You can assess the learners' use of appropriate tools for combining images.<br>**Conclusion:** You can assess the learners' understanding that images around them may have been altered. |
| 6 | To evaluate how changes can improve an image | **Starter activity:** You can examine learners' prior knowledge and understanding of what makes a publication looks professional.<br>**Activity 2:** You can assess the learners' use of appropriate tools for adding other elements to images.<br>**Activity 3:** You can reflect on the tools used, choices made, and the impact of the learners' changes. |

**Summer 2 (Repetition in games)**

| Session no. | Objective | Assessment |
|---|---|---|
| 1 | To develop the use of count-controlled loops in a different programming environment | **Introduction:** Assess the learners' ability to write a list of instructions for an everyday task, correctly identifying which parts are repeated<br>**Activity 1:** Assess the learners' ability to use their knowledge of programming to create code sequences using Scratch blocks<br>**Activity 2:** Assess the learners' ability to rearrange blocks of code into the correct sequence to make a triangle, and create different shapes using given code snippets<br>**Plenary:** Assess the learners' ability to read the code snippet and predict where the drawing will stop, based on their understanding of the loop structure. |
| 2 | To explain that in programming there are infinite loops and count-controlled loops | **Introduction:** Assess learners' understanding of the meaning of the word 'infinite' by giving examples. |

| | | |
|---|---|---|
| | | **Activity 1:** Assess learners' ability to choose the correct Scratch block to change a count-controlled loop into an infinite loop.<br>**Activity 2:** Assess learners' ability to modify code in a Scratch project.<br>**Activity 3**: Assess learners' ability to choose the most suitable loop for the purpose.<br>**Plenary:** Assess learners' understanding of the role of the **green flag** in starting events, and that they can start more than one event at the same time. |
| 3 | To develop a design that includes two or more loops which run at the same time | **Introduction:** Assess learners' ability to read a code snippet and identify what will be repeated.<br>**Activity 1:** Assess learners' ability to design an animation to include two or more loops running at the same time.<br>**Activity 2:** Assess learners' ability to program an animation based on their designs.<br>**Activity 3**: Assess learners' ability to reflect on their programs, considering how well they work. |
| 4 | To modify an infinite loop in a given program | **Introduction:** Assess whether learners know the difference between a count-controlled loop and an infinite loop.<br>**Activity 1:** Assess the learners' ability to make connections between the design and the code.<br>**Activity 2:** Assess the learners' ability to modify code for loops in a Scratch project.<br>**Activity 3**: Assess the learners' ability to complete code based on the design. Can they reuse code for a new sprite?<br>**Plenary:** Assess the learners' ability to explain the effects of their changes. |
| 5 | To design a project that includes repetition | **Introduction:** Assess the learners' ability to identify different elements of a game, and comment on why they are successful.<br>**Activity 1:** Assess the learners' ability to use ideas from a given project to create their own designs and algorithms. |

| | | |
|---|---|---|
| | | **Activity 2:** Assess the learners' ability to explain the effects of their changes to a partner, and make necessary adjustments in light of feedback and reflection. |
| 6 | To create a project that includes repetition | **Introduction:** Assess whether learners understand the function of each block in a code snippet.<br>**Activity 1:** Assess learners' ability to translate their own designs and algorithms into code.<br>**Activity 2:** Assess the way learners approach the task of debugging.<br>**Activity 3:** Assess learners' ability to reflect on the steps involved in building their project. |

## 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 |