

Summer 2 (Introduction to programming)

Year group objectives for Computing – Year 2

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

Autumn 1 (IT around us)

Session no.	Objective	Assessment
1	To know what IT is	Introduction: Assess whether learners can identify commonality between computers and how they can be controlled. Activity 1: Assess whether learners can identify some of the uses of computers. Activity 2: Assess whether learners can recognise that computers are part of IT. Activity 3: Assess whether learners can identify whether an object is IT.
2	To identify the uses of information technology in the school	Introduction: Asses whether learners can identify if an object is IT or not. Activity 1: Assess whether learners can identify examples of IT in school. Activity 2: Assess whether learners can identify the purpose of different examples of IT.
3	To identify information technology beyond school	Activity 1: Assess whether learners can identify examples of IT in the world around them. Activity 2: Assess whether learners can recognise where examples of IT are usually found. Activity 3: Assess whether learners can talk about the uses of different examples of IT.
4	To know the benefits of information technology	Activity 1: Assess whether learners understand the use of barcodes on products. Activity 2: Assess whether learners can demonstrate how IT devices work together. Activity 3: Assess whether learners can recognise the benefits of using IT.
5	To explain how to use IT safely	Activity 1: Assess whether learners can identify different uses of information technology.

		<p>Activity 2: Assess whether learners can say what different rules they have to follow when using IT equipment.</p> <p>Activity 3 & Plenary: Assess whether learners can explain how rules can keep them safe when using information technology.</p>
6	To explain how to use IT in different ways	<p>Introduction: Assess whether learners can identify different types of IT activities.</p> <p>Activity 1: Assess whether learners can identify that they make choices when using IT.</p> <p>Activity 2: Assess whether learners can use IT for different purposes.</p>

Autumn 2 (Digital photography)

Session no.	Objective	Assessment
1	To use a digital device to take a photograph	<p>Introduction: Learners show an understanding of the difference between photographs and illustrations, both in how they look and how they were created.</p> <p>Activity 1: Learners can recognise that there are a range of different devices which capture photos and that some of those devices just do one thing and that others have others roles too.</p> <p>Activity 2: Learners show an understanding of taking photographs of a variety of objects.</p> <p>Plenary: Learners can share opinions on their own photographs and explain to others why they like them.</p>
2	To make choices when taking a photograph	<p>Introduction: Learners can correctly order the steps required to take a good photo.</p> <p>Activities 1 and 3: Learners can capture photos in both portrait and landscape format.</p> <p>Activity 2 and plenary: Learners can say whether their photographs look better in portrait or landscape format, and can explain why this is.</p>
3	To describe what makes a good photograph	<p>Introduction and Activity 1: Learners can identify which photographs haven't been taken</p>

		<p>well, and can suggest where the photographer may have gone wrong.</p> <p>Activity 2: Learners can compose and capture good photographs.</p> <p>Activity 3: Learners know what they need to do next time to capture a better quality of photograph, and can use this knowledge to retake one of their photos successfully.</p>
4	To decide how photographs can be improved	<p>Introduction: Provides an opportunity to check that learners are able to sort poor-quality images from good-quality images and say why some are of poorer quality.</p> <p>Activity 1: Learners are able to find out where the best light levels are for producing good-quality photographs.</p> <p>Activity 2: Learners can say what the best lighting source is for a photo they retake.</p> <p>Activity 3: Learners can use the autofocus tool to make an object in a photo stand out.</p>
5	To use tools to change an image	<p>Activity 1: Learners can use the Pixlr photo editing software to change the colour effect of an image.</p> <p>Activity 2: Learners can save their edited image with an appropriate file name.</p> <p>Activity 3: Learners can apply a colour effect with another effect to create a new image.</p>
6	To recognise that photos can be changed	<p>Activity 1: Learners can demonstrate that they can apply all the skills learnt in the unit to create their own photo.</p> <p>Activities 2 and 3: Learners can demonstrate that they are able to identify which images are real and which have been changed.</p> <p>Plenary: Learners can explain that it can be hard to tell which images are real, so they should always ask themselves, "Is it real?".</p>

Spring 1 (Robot algorithms)

Session no.	Objective	Assessment
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1	To describe a series of instructions as a sequence	<p>Activity 1: You can assess whether learners can follow instructions to create a drawing.</p> <p>Activity 2: You can assess whether learners can think of instructions that can and cannot be enacted by another learner.</p> <p>Activity 3: You can assess whether learners can select appropriate instructions from the class list and issue those instructions clearly for another learner to follow.</p> <p>Activity 4: You can assess whether learners can issue two or three appropriate instructions at a time. You can also assess whether learners enacting instructions only do as instructed and do not act until a “Go” command is given.</p>
2	To explain what happens when we change the order of instructions	<p>Activity 1: You can assess whether learners can create four algorithms using only the commands provided.</p> <p>Activity 2: You can assess whether learners can enter their algorithms as programs on the floor robot and record where the robot stops after it has executed each program.</p>
3	To use logical reasoning to predict the outcome of a program	<p>Activity 1: You can assess whether learners can move the paper-bot according to the algorithms and identify the outcome of each.</p> <p>Activity 2: You can assess whether learners can enter the algorithms as programs on a floor robot and compare the robot’s stopping square to their prediction.</p> <p>Activity 3: You can assess whether learners can follow a randomly produced program and predict what its outcome will be.</p>
4	To explain that program projects can have code and artwork	<p>Activity 1: You can assess whether learners can think of six pictures related to a theme and draw them in suitable squares on a mat.</p> <p>Activity 2: You can assess whether learners can plan and test two algorithms that move the robot between squares that they have selected.</p> <p>Activity 3: You can assess whether learners can add obstacles to their mats in suitable squares.</p>

5	To design an algorithm	<p>Activity 1: You can assess whether learners can select a 'start' and 'end' square and plan a route between the two.</p> <p>Activity 2: You can assess whether learners can draw an algorithm for the route that they have identified.</p> <p>Activity 3: You can assess whether learners can test their algorithm as a program on the floor robot.</p>
6	To create and debug a program that I have written	<p>Activity 1: You can assess whether learners can identify the bugs in the given algorithms.</p> <p>Activity 2: You can assess whether learners can select two squares on the mat for the robot to visit.</p> <p>Activity 3: You can assess whether learners can design and test two programs that move the robot between two squares on the mat.</p> <p>Activity 4: You can assess whether learners can combine two tested programs into one larger program.</p>

Spring 2 (Pictograms)

Session no.	Objective	Assessment
1	To recognise that we can count and compare objects using tally charts	<p>Introduction: To assess the learners' ability to reliably count groups of objects.</p> <p>Activity 1: To assess the learners' ability to create a tally chart and represent a tally count as a total.</p> <p>Activity 2: To assess the learners' ability to compare totals in a tally chart and answer questions.</p> <p>Plenary: To assess the learners' ability to match tally charts to a corresponding data set.</p>
2	To recognise that objects can be represented as pictures	<p>Introduction: To assess the learners' understanding of what a pictogram is.</p> <p>Activity 1: To assess the learners' ability to create a manual pictogram as a group, and to</p>

		<p>retrieve simple information, i.e. What is your group's favourite colour?</p> <p>Activity 2: To assess the learners' ability to enter data into a computer to create a pictogram.</p> <p>Activity 3: To assess the learners' ability to answer simple questions based on the data.</p>
3	To create a pictogram	<p>Introduction: Assess the learners' understanding of ways that data can be collected</p> <p>Activity 1: Assess the learners' ability to record data using a tally chart</p> <p>Activity 2: Assess the learners' ability to use a tally chart to create a pictogram</p> <p>Activity 3: Assess the learners' ability to explain what a pictogram shows</p> <p>Plenary: Assess the learners' ability to distinguish between true and false statements relating to a pictogram</p>
4	To select objects by attribute and make comparisons	<p>Introduction: Assess learners' understanding of the word 'attribute' and how objects can be grouped by attribute.</p> <p>Activity 1: Assess learners' ability to create a tally chart, organising data using a common attribute.</p> <p>Activity 2: Assess the learners' ability to create a pictogram from their tally chart.</p> <p>Activity 3: Assess the learners' ability to answer questions based on the data presented in the pictogram.</p> <p>Plenary: Assess the learners' ability to identify the attribute used to group objects.</p>
5	To recognise that people can be described by attributes	<p>Introduction: Assess how confidently learners can describe people using attributes.</p> <p>Activity 1: Assess the learners' ability to use a range of attributes to describe people.</p> <p>Activity 2: Assess the learners' ability to create their own question and gather the relevant data.</p>

		<p>Activity 3: Assess the learners' ability to create a customised pictogram to present their data.</p> <p>Plenary: Assess the learners' ability to come to a conclusion based on the data collected.</p>
6	To explain that we can present information using a computer	<p>Introduction: Assess the learners' understanding of alternative ways to present data, rather than as a pictogram.</p> <p>Activity 1: Assess the learners' ability to create a block diagram from a tally chart.</p> <p>Activity 2: Assess the learners' ability to share and discuss their data with a partner.</p> <p>Activity 3: Assess the learners' understanding of the importance of thinking carefully before sharing data, and understanding it is OK to say no to sharing data.</p> <p>Plenary: Assess the learners' preferences for presenting/analysing data.</p>

Summer 1 (Making music)

Session no.	Objective	Assessment
1	To say how music can make us feel	<p>Introduction and Activity 1: You can examine learners' prior knowledge and determine whether they are able to recognise that music creates an emotional response.</p> <p>Activity 2: Learners can demonstrate that they can identify descriptive and emotive words to compare two different pieces of music by the same composer.</p> <p>Activity 3: Learners can demonstrate their understanding of how music can make them feel using descriptive and emotive language.</p>
2	To identify that there are patterns in music	<p>Introduction: Learners can talk about the potential of music causing an emotional or imaginative response.</p> <p>Activity 1: Learners can create rhythm patterns and translate symbolic representation played as music.</p>

		Activity 2: Learners can further develop the concept of patterns in music.
3	To experiment with sound using a computer	<p>Introduction: You can examine learners' prior knowledge and determine whether they are able to recognise that music is composed to convey an idea or emotion.</p> <p>Activity 1: Learners can demonstrate that they can change the pitch and duration of notes using a computer.</p> <p>Activity 2: Learners can demonstrate their understanding of how music can be used in different ways, i.e. to convey ideas and emotions.</p> <p>Activity 3: Learners can demonstrate they are able to apply the skills they've learnt in the first two activities by creating a piece of music on a given theme.</p>
4	To use a computer to create a musical pattern	<p>Activity 1: Learners can demonstrate their understanding of how music is made up of a series of notes. These notes can be in patterns.</p> <p>Activity 1 and 2: Learners can show that they can use a computer to explore musical patterns.</p> <p>Activity 3: Learners can demonstrate their understanding of how to save music using a digital device.</p>
5	To create music for a purpose	<p>Introduction: You can assess learners' prior knowledge and determine whether they are able to recognise how music makes them think or feel.</p> <p>Activity 1 and 2: Learners can demonstrate that they can plan ideas in order to write their own musical compositions using a digital device.</p> <p>Activity 3: Learners can demonstrate that they are able to further develop their ideas on a computer.</p>
6	To review and refine our computer work	Introduction: Learners can reflect on creating music on a computer compared to working away from a computer.

		<p>Activity 1: Learners can demonstrate that they can retrieve work and then evaluate it.</p> <p>Activity 2: Learners can edit their work and improve it based on their own evaluations and their partners' comments. Learners can also demonstrate that they can save their work, as they did in the previous lesson.</p>
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Summer (Programming quizzes)

Session no.	Objective	Assessment
1	To explain that a sequence of commands has a start	<p>Introduction: Assess the learners' prior knowledge of ScratchJr.</p> <p>Activity 1: Assess the learners' ability to identify the start of a sequence in real-life situations.</p> <p>Activity 2: Assess the learners' understanding that programs need to be started with an event.</p> <p>Activity 3: Assess the learners' ability to run their programs independently.</p> <p>Plenary: Assess the learners' ability to debug programs, finding the reasons why they do not run.</p>
2	To explain that a sequence of commands has an outcome	<p>Introduction: Assess the learners' understanding that when we follow a sequence of commands there is an outcome.</p> <p>Activity 1: Assess the learners' ability to predict the outcome of a small program.</p> <p>Activity 2: Assess the learners' ability to match blocks that produce the same outcome.</p> <p>Activity 3: Assess the learners' ability to use blocks to produce different outcomes.</p>
3	To create a program using a given design	<p>Introduction: Assess the learners' prior knowledge of blocks used in ScratchJr.</p> <p>Activity 1: Assess the learners' ability to use the Start on tap and Go to page blocks.</p> <p>Activity 2: Assess the learners' understanding of which blocks to use to fulfil a given design.</p>

		<p>Activity 3: Assess the learners' ability to sequence blocks, including the Start on tap and Go to page blocks, to create working programs.</p> <p>Plenary: Assess the learners' ability to understand given algorithms.</p>
4	To change a given design	<p>Activity 1: Assess the learners' ability to understand a given design.</p> <p>Activity 2: Assess the learners' ability to choose the artwork for their projects — backgrounds, characters, and understanding the sequence of code blocks needed to make specific actions occur.</p> <p>Activity 3: Assess the learners' ability to program a quiz question using their modified designs.</p> <p>Plenary: Assess the learners' ability to read code snippets in preparation for adapting their programs in the next lesson.</p>
5	To create a program using my own design	<p>Activity 1: Assess the learners' ability to choose a question for their quizzes.</p> <p>Activity 2: Assess the learners' ability to create the algorithms for their quizzes.</p> <p>Activity 3: Assess the learners' ability to use their designs to program their quizzes.</p> <p>Plenary: Assess the learners' ability to save their work.</p>
6	To decide how my project can be improved	<p>Activity 1: Assess the learners' ability to check whether their designs match their projects.</p> <p>Activity 2: Assess the learners' ability to improve their projects by adding additional features.</p> <p>Plenary: Assess the learners' ability to debug programs, and assess how they checked and changed (debugged) their own programs.</p>

Year group objectives for Computing – Year 3

Year 3 – Autumn 1 (Connecting computers)

Session no.	Objective
1	To explain how digital devices function
2	To identify input and output devices
3	To recognise how digital devices can change the way that we work
4	To explain how a computer network can be used to share information
5	To explore how digital devices can be connected
6	To recognise the physical components of a network

Year 3 – Autumn 2 (Animation)

Session no.	Objective
1	To explain that animation is a sequence of drawings or photographs
2	To relate animated movement with a sequence of images
3	To plan an animation
4	To identify the need to work consistently and carefully
5	To review and improve an animation
6	To evaluate the impact of adding other media to an animation

Year 3 – Spring 1 (Sequencing sounds)

Session no.	Objective
1	To explore a new programming environment
2	To identify that commands have an outcome
3	To explain that a program has a start
4	To recognise that a sequence of commands can have an order
5	To change the appearance of my project
6	To create a project from a task description

Year 3 – Spring 2 (Branching databases)

Session no.	Objective
1	To create questions with yes/no answers
2	To identify the attributes needed to collect data about an object
3	To create a branching database
4	To explain why it is helpful for a database to be well structured
5	To plan the structure of a branching database
6	To independently create an identification tool

Year 3 – Summer 1 ()

Session no.	Objective
1	To recognise how text and images convey information
2	To recognise that text and layout can be edited
3	To recognise that text and layout can be edited
4	To add content to a desktop publishing publication
5	To consider how different layouts can suit different purposes
6	To consider the benefits of desktop publishing

Year 3 – Summer 2 (Programming)

Session no.	Objective
1	To explain how a sprite moves in an existing project
2	To create a program to move a sprite in four directions
3	To adapt a program to a new context
4	To develop my program by adding features
5	To identify and fix bugs in a program
6	To design and create a maze-based challenge

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