



Newbald Primary School

Computing

Framework
Year 1&2





Key Concepts



Within Computing, pupils will develop a deep understanding of key concepts and second order concepts. These key concepts have been carefully considered and identified as the core knowledge, skills and confidence to engage with technology required to successfully achieve in a digital world. The Key concepts are revisited and developed as the pupils move through the school to ensure the knowledge, skills and confidence to engage with technology are firmly embed within the long-term memory. All concepts encompass the three strands of computing: Computer Science, Digital literacy and Information technology.

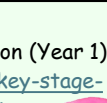
Key Concepts:

- **Programming:** (interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors)
- **Computing systems and networks:** (systems, networks and how they are used, the internet, hardware and software)
- **Data and information:** (collecting, analysing, evaluating, presenting data and information)
- **Creating media:** (design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content)

As part of the work on each key concept, children also explore and learn about:

- The effective use of tools
- The impact of technology
- Safety, E-Safety and security



Cycle A	Class 2	Class 3	Class 4
Autumn 1	Florence Nightingale & Mary Seacole Creating Media - Digital Painting (Year 1) https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-painting 	Prehistoric Britain Programming B - Events and Actions (Year 3) https://teachcomputing.org/curriculum/key-stage-2/programming-b-events-and-actions 	Ancient Egypt Programming B - Selection in Quizzes (Year 5) https://teachcomputing.org/curriculum/key-stage-2/programming-b-selection-in-quizzes 
Autumn 2	Australia & Oceania Creating Media - Making Music (Year 2) https://teachcomputing.org/curriculum/key-stage-1/creating-media-making-music 	The Victorians Data and Information - Branching Databases (Year 3) https://teachcomputing.org/curriculum/key-stage-2/data-and-information-branching-databases 	Europe Creating Media - Vector Drawing (Year 5) https://teachcomputing.org/curriculum/key-stage-2/creating-media-vector-drawing 
Spring 1	Weather & Climate Programming B - An Introduction to Quizzes (Year 2) https://teachcomputing.org/curriculum/key-stage-1/programming-b-an-introduction-to-quizzes 	India & Asia Programming B - Repetition in Games (Year 4) https://teachcomputing.org/curriculum/key-stage-2/programming-b-repetition-in-games 	The Tudors Creating Media - Webpage (Year 6) https://teachcomputing.org/curriculum/key-stage-2/creating-media-web-page-creation 
Spring 2	Explorers Programming B - Introduction to Animation (Year 1) https://teachcomputing.org/curriculum/key-stage-1/programming-b-introduction-to-animation 	England & The UK Computer Systems and Networks - The Internet (Year 4) https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-the-internet 	Mountains Data and Information - Flat File Data (Year 5) https://teachcomputing.org/curriculum/key-stage-2/data-and-information-flat-file-databases 
Summer 1	Local Area - Yorkshire Data and Information - Grouping Data (Year 1) https://teachcomputing.org/curriculum/key-stage-1/data-and-information-grouping-data 	Coasts Creating Media - Animation (Year 3) https://teachcomputing.org/curriculum/key-stage-2/creating-media-animation 	Britain Since 1945 Computer Systems and Networks - Sharing Information (Year 5) https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-sharing-information 
Summer 2	Inventors & Inventions Computer Systems and Networks - IT Around Us (Year 2) https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-it-around-us 	The Anglo Saxons & Vikings Creating Media - Photo Editing (Year 4) https://teachcomputing.org/curriculum/key-stage-2/creating-media-photo-editing 	Britain Since 1945 Programming B - Sensing (Year 6) https://teachcomputing.org/curriculum/key-stage-2/programming-b-sensing 



Cycle B	Class 2	Class 3	Class 4
Autumn 1	Transport Through Time Data and Information - Pictograms (Year 2) https://teachcomputing.org/curriculum/key-stage-1/data-and-information-pictograms 	World War 2 Creating Media - Audio Editing (Year 4) https://teachcomputing.org/curriculum/key-stage-2/creating-media-audio-editing 	World War 1 Data and Information - Spreadsheets (Year 6) https://teachcomputing.org/curriculum/key-stage-2/data-and-information-spreadsheets 
Autumn 2	Polar Regions Creating Media - Digital Writing (Year 1) https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-writing 	USA & North America Computer Systems and Networks - Connecting Computers (Year 3) https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-connecting-computers 	Brazil & South America Programming A - Selection in Physical Computing (Year 5) https://teachcomputing.org/curriculum/key-stage-2/programming-a-selection-in-physical-computing 
Spring 1	Great Fire of London Computer Systems and Networks - Technology around us (Year 1) https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-technology-around-us 	The Romans Programming A - Repetition in Shapes (Year 4) https://teachcomputing.org/curriculum/key-stage-2/programming-a-repetition-in-shapes 	Ancient Greece Programming A - Variables in Games (Year 6) https://teachcomputing.org/curriculum/key-stage-2/programming-a-variables-in-games 
Spring 2	Pirates & The Ocean Programming A - Moving a Robot (Year 1) https://teachcomputing.org/curriculum/key-stage-1/programming-a-moving-a-robot 	Volcanoes, Earthquakes & Natural Disasters Programming A - Sequence in Music (Year 3) https://teachcomputing.org/curriculum/key-stage-2/programming-a-sequence-in-music 	Human Rights Activists Creating Media - Video Editing (Year 5) https://teachcomputing.org/curriculum/key-stage-2/creating-media-video-editing 
Summer 1	An Island Home(Scotland) Programming A - Robot Algorithms (Year 2) https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms 	Forests Data and Information - Data Logging (Year 4) https://teachcomputing.org/curriculum/key-stage-2/data-and-information-data-logging 	The Mayan Civilisation Creating Media - 3D Modelling (Year 6) https://teachcomputing.org/curriculum/key-stage-2/creating-media-3d-modelling 
Summer 2	Creating Media - Digital Photography (Year 2) https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-photography 	The Middle Ages Creating Media - Desktop Publishing (Year 3) https://teachcomputing.org/curriculum/key-stage-2/creating-media-desktop-publishing 	Maps & Rivers Computer Systems and Networks - Communication (Year 6) https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-communication 



Class 2 - Year 1 & 2 Vocabulary



Year 1&2 Vocabulary Cycle A

Florence Nightingale & Mary Seacole Creating media - Digital painting	Australia & Oceania Creating media - Digital music	Weather & Climate Programming B - Programming quizzes
paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.
Explorers Programming B - Programming animations	Local Area - Yorkshire Data and information - Grouping	Inventors & Inventions Computing systems and networks - Technology around us
Scratch Jr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.

Year 1&2 Vocabulary Cycle B

Transport Through Time Data and information - Pictograms	Polar Regions Creating media - Digital writing	Great Fire of London Computing systems and networks - Information technology around us
more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing	word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing.	Information technology (IT), computer, barcode, scanner/scan
Pirates & The Oceans Programming A - Moving a robot	Am Island Home - Scotland Programming A - Robot algorithms	Kings & Queens Creating media - Digital photography
Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,

Class 2 Cycle A



	Class 2	
Autumn 1	Florence Nightingale	Creating media - Digital painting
Autumn 2	Australia and Oceania	Creating media - Making music
Spring 1	Weather and Climate	Programming B - An introduction to quizzes
Spring 2	Explorers	Programming B - Programming animations
Summer 1	Local Area	Data and information - Grouping
Summer 2	Inventors and Inventions	Computer systems and networks - IT around us

Florence Nightingale

Creating media - Digital painting

<https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-painting>



Unit introduction

Learners will develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. The unit concludes with learners considering their preferences when painting with and without the use of digital devices.



Lesson	Brief overview	Learning objectives
1 How can we paint using computers?	This lesson introduces learners to the freehand tools available for digital painting.	To describe what different freehand tools do - I can make marks on a screen and explain which tools I used - I can draw lines on a screen and explain which tools I used - I can use the paint tools to draw a picture
2 Using shape and lines	This lesson introduces learners to the line and shape tools and revisits the fill and undo tools used for digital painting. Learners create their own digital painting in the style of an artist.	To use the shape tool and the line tools - I can make marks with the square and line tools - I can use the shape and line tools effectively - I can use the shape and line tools to recreate the work of an artist
3 Making careful choices	This lesson introduces learners to a range of shape tools, allowing them to create a painting in the style of an artist.	To make careful choices when painting a digital picture - I can choose appropriate shapes - I can make appropriate colour choices - I can create a picture in the style of an artist

4 Why did I choose that?	This lesson increases learners' understanding of the available paint tools and encourages them to select the best tools to create a digital painting in the style of Wassily Kandinsky.	To explain why I chose the tools I used - I can explain that different paint tools do different jobs - I can choose appropriate paint tools and colours to recreate the work of an artist - I can say which tools were helpful and why
5 Painting all by myself	Learners select appropriate colours, brush sizes, and brush tools to independently create their own image in the style of an artist.	To use a computer on my own to paint a picture - I can make dots of colour on the page - I can change the colour and brush sizes - I can use dots of colour to create a picture in the style of an artist on my own
6 Comparing computer art and painting	Learners compare their preferences when creating paintings on computers and on paper.	To compare painting a picture on a computer and on paper - I can explain that pictures can be made in lots of different ways - I can spot the differences between painting on a computer and on paper - I can say whether I prefer painting using a computer or using paper

Vocabulary:

Florence Nightingale & Mary Seacole
Creating media - Digital painting

paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers



Assessment Criteria:

	Emerging [1]	Expected [2]	Exceeding [3]
Task	Outline the broad requirements of the task	Explain the key requirements of the task	Outline an approach to planning the task
Knowledge	Know that a picture can be created on a digital device	- Explain what different freehand tools do - Recognise that computers can be used to create a range of art - Recognise a tool can be adjusted	- Explain how different freehand tools are combined to get the outcome desired - Recognise a tool can be adjusted to suit a specific need or style
Implementation	- Choose some paint tools to draw a picture on a digital device - Add marks on a screen using tools - Add shapes and lines on a screen using tools - Add dots on a screen using tools - Manipulate the shapes to create a drawing - Name the tool used	- Choose appropriate paint tools to recreate a picture - Use freehand tools, changing the colour and brush size - Use shape and line tools for precision, changing the size, shape and colour - Use the undo button to correct mistakes - Use the fill tool to colour an enclosed area	- Choose and combine paint tools to recreate a picture, explaining choices. - Manipulate the brush size and colour to achieve a desired effect - Manipulate shapes to create a drawing with thought-out size, colour and proportion. - Use the most appropriate paint tools for different jobs and suggest how the tool has enabled the desired outcome
Evaluation	- Identify which elements of the task have been achieved - Know some paintings are created on a computer and on paper	- Consider the impact of choices made - Evaluate how successful they were in meeting the task requirements - Identify the differences between painting on a computer and on paper, and explain their own preference	- Identify how and why their project could be improved - Identify the pros and cons of art work created on a computer and on paper, and use them to explain their preference

Australia and Oceania

Creating media - Making music

<https://teachcomputing.org/curriculum/key-stage-1/creating-media-making-music>



Unit introduction

In this unit, learners will be using a computer to create music. They will listen to a variety of pieces of music and consider how music can make them think and feel. Learners will compare creating music digitally and non-digitally. Learners will look at patterns and purposefully create music.

Lesson	Brief overview	Learning objectives
1 How music makes us feel	In this lesson learners will listen to and compare two pieces of music from <i>The Planets</i> by Gustav Holst. They will then use a musical description word bank to describe how this music generates emotions, i.e. how it makes them feel.	To say how music can make us feel - I can identify simple differences in pieces of music - I can describe music using adjectives - I can say what I do and don't like about a piece of music
2 Rhythms and patterns	In this lesson, learners will explore rhythm . They will create patterns and use those patterns as rhythms. They will use untuned percussion instruments and computers to hear the different rhythm patterns that they create.	To identify that there are patterns in music - I can create a rhythm pattern - I can play an instrument following a rhythm pattern - I can explain that music is created and played by humans
3 How music can be used	During this lesson, learners will explore how music can be used in different ways to express emotions and to trigger their imaginations. They will experiment with the pitch of notes to create their own piece of music, which they will then associate with a physical object — in this case, an animal.	To experiment with sound using a computer - I can connect images with sounds - I can use a computer to experiment with pitch - I can relate an idea to a piece of music

4 Notes and tempo	In this lesson, learners will develop their understanding of music. They will use a computer to create and refine musical patterns.	To use a computer to create a musical pattern • I can identify that music is a sequence of notes • I can explain how my music can be played in different ways • I can refine my musical pattern on a computer
5 Creating digital music	In this lesson, learners will choose an animal and create a piece of music using the animal as inspiration. They will think about their animal moving and create a rhythm pattern from that. Once they have defined a rhythm, they will create a musical pattern (melody) to go with it.	To create music for a purpose • I can create a rhythm which represents an animal I've chosen • I can create my animal's rhythm on a computer • I can add a sequence of notes to my rhythm
6 Reviewing and editing music	In this lesson, learners will retrieve and review their work. They will spend time making improvements and then share their work with the class.	To review and refine our computer work • I can review my work • I can explain how I changed my work • I can listen to music and describe how it makes me feel

Vocabulary:

Australia & Oceania

Creating media - Digital music

music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.



Assessment Criteria:

	Emerging [1]	Expected [2]	Exceeding [3]
Task	Create a piece of music, with support	Plan and create a piece of music	Plan and create a piece of music in response to an identified character
Knowledge	- Reflect on a piece of music with support - Identify images that link with sounds on a computer - Understand the computer can be used to make a short sequence of notes	- Reflect on a piece of music - Follow a rhythm pattern - Understand that a computer can generate different sounds - Understand that a computer can be used to make a sequence of notes - Understand how pattern and rhythm can be used to depict an animal	- Reflect on the different parts a piece of music - Understand that a computer can create different pitch and duration - Understand the computer can be used to make a longer sequence of notes - Understand how pattern and rhythm can be used to depict different animals
Implementation	- Connect images with different sounds - Create a short sequence of notes on the computer - Create a sequence of notes that link with a chosen animal, saving with help	- Create and follow a rhythm pattern using two different instruments - Use the computer to generate different sounds represented by images - Create a sequence of notes on the computer and start to refine them - Create a sequence of notes that use rhythm and tempo to link with a chosen animal, refining their work	- Create a rhythm pattern and follow a rhythm pattern with confidence using multiple instruments - Create multiple sequences of notes on the computer and refine them - Create a sequence of notes that use rhythm and tempo to link with two or more chosen animals, explaining choices and refining their work
Evaluation	Identify which elements of the task have been achieved	Evaluate how successful they were in meeting the task requirements	Identify how and why their project could be improved

Weather and Climate

Programming B - An introduction to quizzes

<https://teachcomputing.org/curriculum/key-stage-1/programming-b-an-introduction-to-quizzes>



Unit introduction

Learners begin to understand that sequences of commands have an outcome, and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr, and realise these designs in ScratchJr using blocks of code. Finally, learners evaluate their work and make improvements to their programming projects.

All the lessons in this unit require access to ScratchJr.

Download ScratchJr App for tablets (iPad or Android), or install ScratchJr for computers (<https://jfo8000.github.io/ScratchJr-Desktop/>) before the lesson

Lesson	Brief overview	Learning objectives
1 ScratchJr	During this lesson, learners will recap what they know already about the ScratchJr app. They will begin to identify the start of sequences in real-world scenarios, and learn that sequences need to be started in ScratchJr. Learners will create programs and run them in full-screen mode using the Green flag .	To explain that a sequence of commands has a start - I can identify the start of a sequence - I can identify that a program needs to be started - I can show how to run my program
2 Outcomes	During this lesson, learners will discover that a sequence of commands has an 'outcome'. They will predict the outcomes of real-life scenarios and a range of small programs in ScratchJr. Learners will then match programs that produce the same outcome when run, and use a set of blocks to create programs that produce different outcomes when run.	To explain that a sequence of commands has an outcome - I can predict the outcome of a sequence of commands - I can match two sequences with the same outcome - I can change the outcome of a sequence of commands
3 Using a design	During this lesson, learners will be taught how to use the Start on tap and Go to page (Change background) blocks. They will use a predefined design to create an animation based on the seasons. Learners will then be introduced to the task for the next lesson. They will predict what a given algorithm might mean.	To create a program using a given design - I can work out the actions of a sprite in an algorithm - I can decide which blocks to use to meet the design - I can build the sequences of blocks I need

4 Changing a design	During this lesson, learners will look at an existing quiz design and think about how this can be realised within the ScratchJr app. They will choose backgrounds and characters for their own quiz projects. Learners will modify a given design sheet and create their own quiz questions in ScratchJr.	To change a given design - I can choose backgrounds for the design - I can choose characters for the design - I can create a program based on the new design
5 Designing and creating a program	During this lesson, learners will create their own quiz question designs including their own choices of question, artwork, and algorithms. They will increase the number of blocks used within their sequences to create more complex programs.	To create a program using my own design - I can choose the images for my own design - I can create an algorithm - I can build sequences of blocks to match my design
6 Evaluating	During this lesson, learners will compare their projects to their designs. They will think about how they could improve their designs by adding additional features. They will modify their designs and implement the changes on their devices. Learners will find and correct errors in programs (debug) and discuss whether they debugged errors in their own projects.	To decide how my project can be improved - I can compare my project to my design - I can improve my project by adding features - I can debug my program

Vocabulary:

Weather & Climate

Programming B - Programming quizzes

sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.



Assessment Criteria:

	Emerging [1]	Expected [2]	Exceeding [3]
Task	Plan a project with support including changing backgrounds	Plan a project including changing backgrounds	Plan a project including changing backgrounds with an awareness of how it will be created
Knowledge	- Know that a sequence can be started with the 'on click' block - Know that a sequence of blocks has an outcome - Predict the outcome of a sequence with support - Know that a program in ScratchJr can have different backgrounds	- Know that a sequence can be started using a variety of event blocks - Know that a sequence has an outcome, and identify different programs that have the same outcome - Know the backgrounds can be changed through the programming blocks - Understand the role of the numbers on ScratchJr blocks	- Know that a program needs a trigger to start, and explain what multiple event blocks do - Identify different programs that have the same outcome, predicting the outcome if the sequence is changed - Explain how using the numbers on ScratchJr blocks can create a more efficient program
Implementation	- Create and run a simple program with a start and end - Follow a given design to create a program with multiple backgrounds - Create and program for a quiz to include a question, two sprites and an action.	- Write and run a simple program with a start block, and an end block which changes the background - Adapt a given design to create a program with multiple sprites and backgrounds which uses the blocks given in the example - Create and program a quiz with at least two backgrounds which switch based on an action - Identify errors in their program, and debug them	- With confidence, write and run a simple program with a start block, and an end block which changes the background - Adapt a given design to create a program with multiple sprites and backgrounds, using a range of familiar blocks - Create a design and program for a quiz to include multiple questions, sprites incorporating multiple actions and different backgrounds, debugging as they go
Evaluation	Identify which elements of the task have been achieved	- Test a program created and evaluate how successful it has been - Identify how closely a plan matches the outcome	Test a program created and evaluate how successful it has been, identifying improvements that they could make

Explorers

Programming B - Programming animations

<https://teachcomputing.org/curriculum/key-stage-1/programming-b-introduction-to-animation>



Unit introduction

Learners will be introduced to on-screen programming through ScratchJr. Learners will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. Learners will also be introduced to the early stages of program design through the introduction of algorithms.

All the lessons in this unit require access to ScratchJr.

Download ScratchJr App for tablets (iPad or Android), or install ScratchJr for computers (<https://jfo8000.github.io/ScratchJr-Desktop/>) before the lesson

Lesson	Brief overview	Learning objectives
1 Comparing tools	During this lesson learners will become accustomed to the ScratchJr programming environment. They will discover that they can move characters on-screen using commands, and compare ScratchJr to the Bee-Bots used in the previous unit.	To choose a command for a given purpose - I can find the commands to move a sprite - I can use commands to move a sprite - I can compare different programming tools
2 Joining blocks	During this lesson learners will discover that blocks can be joined together in ScratchJr. They will use a Start block to run their programs. They will also learn additional skills such as adding backgrounds and deleting sprites. Learners will follow given algorithms to create simple programs.	To show that a series of commands can be joined together - I can use more than one block by joining them together - I can use a Start block in a program - I can run my program
3 Make a change	During this lesson learners will discover that some blocks in ScratchJr have numbers underneath them. They will learn how to change these values and identify the effect on a block of changing a value.	To identify the effect of changing a value - I can find blocks that have numbers - I can change the value - I can say what happens when I change a value

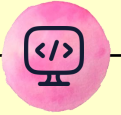
4 Adding sprites	During this lesson learners will be taught how to add and delete sprites in ScratchJr. They will discover that each sprite has its own programming area, and learn how to add programming blocks to give instructions to each of the sprites.	To explain that each sprite has its own instructions • I can show that a project can include more than one sprite • I can delete a sprite • I can add blocks to each of my sprites
5 Project design	During this lesson learners will choose appropriate backgrounds and sprites for a 'Space race' project. They will decide how each sprite will move, and create an algorithm based on the blocks available in ScratchJr that reflects this.	To design the parts of a project • I can choose appropriate artwork for my project • I can decide how each sprite will move • I can create an algorithm for each sprite
6 Following my design	During this lesson learners will use their project designs from the previous lesson to create their projects on-screen in ScratchJr. They will use their project design, including algorithms created in the previous lesson, to make programs for each of their rocket sprites. They will test whether their algorithms are effective when their programs are run.	To use my algorithm to create a program • I can use sprites that match my design • I can add programming blocks based on my algorithm • I can test the programs I have created

Vocabulary:

Explorers

Programming B – Programming animations

Scratch Jr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.



Assessment Criteria:

	Emerging [1]	Expected [2]	Exceeding [3]
Task	Plan a project with support involving one sprite	Plan a project involving more than one sprite	Plan a project involving multiple sprites with an awareness of what will happen
Knowledge	- Know commands need to be given to move a sprite - Explain what a given command does - Know some of the different commands to run as a program on a device	- Explain what a sprite is - Compare different programming blocks - Know a series of commands can be joined together to form a program - Understand that a program is a set of commands a computer can run	- Compare and join different programming blocks and suggest how they might be used - Experiment with blocks containing numbers to look at the impact on the program - Understand that they can include more than one program on a sprite
Implementation	- Use some of the programming tools - Tinker with some commands to move a sprite - Find the start command to initialise a program	- Predict the outcome of a command - List commands that can be used on a device - Match a command to an outcome - Recognise how to run a command - Run different commands for different sprites - Choose a command for a given purpose - Build a sequence of commands in steps - Use the start command to initialise a program - Debug a program	- Explain which command they have used and how it will move a sprite - Confidently develop programs for multiple sprites explain how they will behave - Use a series of start commands to initialise different programs - Debug a program suggesting which part of their sequence should be changed and why
Evaluation	Identify which elements of the task have been achieved	- Test a program created and evaluate how successful it has been - Identify how closely a plan matches the outcome	Test a program created and evaluate how successful it has been, suggesting any changes needed

Local Area: Yorkshire

Data and information - Grouping Data

<https://teachcomputing.org/curriculum/key-stage-1/data-and-information-grouping-data>



Unit introduction

This unit introduces learners to data and information. Labelling, grouping, and searching are important aspects of data and information. Searching is a common operation in many applications, and requires an understanding that to search data, it must have labels. This unit of work focuses on assigning data (images) with different labels in order to demonstrate how computers are able to group and present data. During this unit, learners will be logging on to the computers, opening their documents, and saving their documents.

Lesson	Brief overview	Learning objectives
1 Label and match	Learners will begin to understand that objects have many different labels that can be used to put them into groups. They will name different objects and begin to experiment with placing them into different groups. Learners will also label a group of objects, and begin to understand that an object can fit into more than one group depending on the context.	To label objects - I can describe objects using labels - I can match objects to groups - I can identify the label for a group of objects
2 Group and count	Learners will begin to think about grouping objects based on what the objects are. They will demonstrate the ability to count a small number of objects before they group them, and will then begin to show that they can count groups of objects with the same label. Learners will also begin to learn that computers are not intelligent, and require input from humans to perform tasks.	To identify that objects can be counted - I can count objects - I can group objects - I can count a group of objects
3 Describe an object	Learners will begin to understand that objects can be described in many different ways. They will identify the properties of objects and begin to understand that properties can be used to group objects; for example, objects can be grouped by colour or size. Finally, learners will demonstrate their ability to find objects with similar properties and begin to understand the reason that we need to give labels to images on a computer.	To describe objects in different ways - I can describe an object - I can describe a property of an object - I can find objects with similar properties

4 Making different groups	Learners will classify objects based on their properties. They will group objects that have similar properties, and will be able to explain how they have grouped these. Learners will begin to group a number of the same objects in different ways, and will demonstrate their ability to count these different groups.	To count objects with the same properties - I can group similar objects - I can group objects in more than one way - I can count how many objects share a property
5 Comparing groups	Learners will choose how they want to group different objects by properties. They will begin to compare and describe groups of objects, then they will record the number of objects in each group.	To compare groups of objects - I can choose how to group objects - I can describe groups of objects - I can record how many objects are in a group
6 Answering questions	Learners will decide how to group objects to answer questions. They will compare their groups by thinking about how they are similar or different, and they will record what they find. They will then share what they have found with their peers.	To answer questions about groups of objects - I can decide how to group objects to answer a question - I can compare groups of objects - I can record and share what I have found

Vocabulary:

Local Area - Yorkshire

Data and information - Grouping

object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same



Assessment Criteria:

	Emerging [1]	Expected [2]	Exceeding [3]
Task	Outline the broad requirements of the task	Explain the key requirements of the task	Outline an approach to planning the task
Knowledge	- Recognise that objects can be grouped - Know that labels are used to identify a group	- Explain how objects have been grouped - Know that labels are used to identify a group with similar characteristics	- Explain why objects have been grouped in a particular way - Explain why labels are used to identify the group an object belongs to - Suggest why labels have been chosen for a group
Implementation	- Count how many objects share a property - Count objects in a group with support - Group objects by simple properties such as colour when the labels are provided	- Group the same objects in more than one way - Count how many objects are in group and identify which has more - Record how many objects are in a group - Group objects to answer a question - Compare objects to group them explaining what has been found	- Identify and explain how they have grouped day in several different ways - Identify and explain which group has more and the difference - Suggest questions that have been asked to group objects - Explain how objects have been grouped, explaining what has been found
Evaluation	Identify which elements of the task have been achieved	Evaluate how successful they were in meeting the task requirements	Identify how and why their work could be improved

Inventors and Inventions

Computer systems and networks - IT around us



Unit introduction

Learners will develop their understanding of what information technology (IT) is and will begin to identify examples. They will discuss where they have seen IT in school and beyond, in settings such as shops, hospitals, and libraries. Learners will then investigate how IT improves our world, and they will learn about the importance of using IT responsibly.

Lesson	Brief overview	Learning objectives
1 What is IT?	Learners will develop their understanding of what information technology (IT) is. They will identify devices that are computers and consider how IT can help them both at school and beyond.	To recognise the uses and features of information technology - I can identify examples of computers - I can describe some uses of computers - I can identify that a computer is a part of IT
2 IT in school	Learners will consider common uses of information technology in a context that they are familiar with. They will identify examples of IT and be able to explain the purpose of different examples of IT in the school setting.	To identify the uses of information technology in the school - I can identify examples of IT - I can sort school IT by what it's used for - I can identify that some IT can be used in more than one way
3 IT in the world	Learners will begin to explore IT in environments beyond school, including home and familiar places such as shops. They will talk about the uses of IT in these environments and be able to explain that IT is used in many workplaces.	To identify information technology beyond school - I can find examples of information technology - I can sort IT by where it is found - I can talk about uses of information technology

4 The benefits of IT	Learners will explore the benefits of using IT in the wider world. They will focus on the use of IT in a shop and how devices can work together. Learners will sort activities based on whether they use IT or not and will be able to say why we use IT.	To explain how information technology helps us - I can recognise common types of technology - I can demonstrate how IT devices work together - I can say why we use IT
5 Using IT safely	Learners will consider how they use different forms of information technology safely, in a range of different environments. They will list different uses of IT and talk about the different rules that might be associated with using them. Learners will then say how rules can help keep them safe when using IT.	To explain how to use information technology safely - I can list different uses of information technology - I can talk about different rules for using IT - I can say how rules can help keep me safe
6 Using IT in different ways	Learners will think about the choices that are made when using information technology, and the responsibility associated with those choices. They will use IT in different types of activities and explain that sometimes they will need to use IT in different ways.	To recognise that choices are made when using information technology - I can identify the choices that I make when using IT - I can use IT for different types of activities - I can explain the need to use IT in different ways

Vocabulary:

Inventors & Inventions

Computing systems and networks - Technology around us

technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.



Inventors & Inventions

Unit: Information technology around us

Assessment Criteria:



	Emerging [1]	Expected [2]	Exceeding [3]
Task	Outline the broad requirements of the task	Explain the key requirements of the task	Outline an approach to planning the task
Knowledge	- Recognise technology that can help us - Explain what a keyboard is - Now work is kept in a file - Know a rule to keep themselves safe and healthy when using technology in the home or at school	- Identify examples of technology and explain how they can help us - Recognise that a computer is an example of technology - Describe what a keyboard is for - Know a computer stores work in files - Give examples of rules to keep them safe and healthy when they are using technology in and beyond the home	- Name and explain the purpose of different parts of the computer - Outline keys on a keyboard and how they help them do work - Give examples of rules to keep themselves and others safe and healthy when they are using technology in and beyond the home - Explain why they benefit from these rules
Implementation	- Identify some examples of technology - Identify some parts of a computer - Indicate how to turn the computer on and log on with adult support - Begin to move the mouse, knowing this moves the cursor on the screen - Type on a computer with support - Open a program using the mouse cursor with support	- Choose a piece of technology to do a job - Identify the main parts of a computer - Use a keyboard to type their name on a computer - Turn on the computer and log on with an aid - Use a mouse in different ways – click, select and drag - Use the keyboard to edit text and delete letters - Demonstrate that they can use technology safely	- Recognise that some technology can be used in different ways - Turn on the computer and log on independently - Accurately move the mouse to select a program, click and drag using the mouse cursor to make objects on a screen - Use the keyboard confidently, for example moving to a letter using arrow keys to delete it
Evaluation	Identify which elements of the task have been achieved	Evaluate how successful they were in meeting the task requirements	Identify how and why their project could be improved



Class 2 - Year 1 & 2 Vocabulary



Year 1&2 Vocabulary Cycle A

Florence Nightingale & Mary Seacole Creating media - Digital painting	Australia & Oceania Creating media - Digital music	Weather & Climate Programming B - Programming quizzes
paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.
Explorers Programming B - Programming animations	Local Area - Yorkshire Data and information - Grouping	Inventors & Inventions Computing systems and networks - Technology around us
ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.

Year 1&2 Vocabulary Cycle B

Transport Through Time Data and information - Pictograms	Polar Regions Creating media - Digital writing	Great Fire of London Computing systems and networks - Information technology around us
more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing	word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing.	Information technology (IT), computer, barcode, scanner/scan
Pirates & The Oceans Programming A - Moving a robot	Am Island Home - Scotland Programming A - Robot algorithms	Kings & Queens Creating media - Digital photography
Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,

Class 2 Cycle B



Autumn 1	Transport	Data and information - Pictograms
Autumn 2	Polar Regions	Creating media - digital writing
Spring 1	Great Fire of London	Computer systems and networks - Technology around us
Spring 2	Pirates and Oceans	Programming A - Moving a robot
Summer 1	Scotland	Programming A - Robot algorithms
Summer 2	Kings and Queens	Creating media - Digital photography

Transport

Data and information - Pictograms

<https://teachcomputing.org/curriculum/key-stage-1/data-and-information-pictograms>



Unit introduction

Learners will begin to understand what the term data means and how data can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms and finally block diagrams. Learners will use the data presented to answer questions.

During this unit of work learners will use j2e pictogram tool which can be accessed online.

Lesson	Brief overview	Learning objectives
1 Counting and comparing	During this lesson learners will begin to understand the importance of organising data effectively for counting and comparing. They will create their own tally charts to organise data, and represent the tally count as a total. Finally, they will answer questions comparing totals in tally charts using vocabulary such as 'more than' and 'less than'.	To recognise that we can count and compare objects using tally charts - I can record data in a tally chart - I can represent a tally count as a total - I can compare totals in a tally chart
2 Enter the data	During this lesson learners will become familiar with the term 'pictogram'. They will create pictograms manually and then progress to creating them using a computer. Learners will begin to understand the advantages of using computers rather than manual methods to create pictograms, and use this to answer simple questions.	To recognise that objects can be represented as pictures - I can enter data onto a computer - I can use a computer to view data in a different format - I can use pictograms to answer simple questions about objects
3 Creating pictograms	During this lesson learners will think about the importance of effective data collection and will consider the benefits of different data collection methods: why, for example, we would use a pictogram to display the data collected. They will collect data to create a tally chart and use this to make a pictogram on a computer. Learners will explain what their finished pictogram shows by writing a range of statements to describe this.	To create a pictogram - I can organise data in a tally chart - I can use a tally chart to create a pictogram - I can explain what the pictogram shows

4 What is an attribute?	During this lesson learners will think about ways in which objects can be grouped by attribute. They will then tally objects using a common attribute and present the data in the form of a pictogram. Learners will answer questions based on their pictograms using mathematical vocabulary such as 'more than'/'less than' and 'most'/'least'.	To select objects by attribute and make comparisons - I can tally objects using a common attribute - I can create a pictogram to arrange objects by an attribute - I can answer 'more than'/'less than' and 'most/least' questions about an attribute
5 Comparing people	During this lesson learners will understand that people can be described by attributes. They will practise using attributes to describe images of people and the other learners in the class. The learners will collect data needed to organise people using attributes and create a pictogram to show this pictorially. Finally, learners will draw conclusions from their pictograms and share their findings.	To recognise that people can be described by attributes - I can choose a suitable attribute to compare people - I can collect the data I need - I can create a pictogram and draw conclusions from it
6 Presenting information	During this lesson learners will understand that there are other ways to present data than using tally charts and pictograms. They will use a pre-made tally chart to create a block diagram on their device. Learners will then share their data with a partner and discuss their findings. They will consider whether it is always OK to share data and when it is not OK. They will know that it is alright to say no if someone asks for their data, and how to report their concerns.	To explain that we can present information using a computer - I can use a computer program to present information in different ways - I can share what I have found out using a computer - I can give simple examples of why information should not be shared

Vocabulary:

Transport Through Time Data and information - Pictograms

more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing



Transport Through Time

Unit: Data and information - Pictograms

Assessment Criteria:



	Emerging [1]	Expected [2]	Exceeding [3]
Task	Outline the broad requirements of the task	Explain the key requirements of the task	Outline an approach to planning the task
Knowledge	- Recognise that objects can be grouped - Know that labels are used to identify a group	- Explain how objects have been grouped - Know that labels are used to identify a group with similar characteristics	- Explain why objects have been grouped in a particular way - Explain why labels are used to identify the group an object belongs to - Suggest why labels have been chosen for a group
Implementation	- Count how many objects share a property - Count objects in a group with support - Group objects by simple properties such as colour when the labels are provided	- Group the same objects in more than one way - Count how many objects are in group and identify which has more - Record how many objects are in a group - Group objects to answer a question - Compare objects to group them explaining what has been found	- Identify and explain how they have grouped day in several different ways - Identify and explain which group has more and the difference - Suggest questions that have been asked to group objects - Explain how objects have been grouped, explaining what has been found
Evaluation	Identify which elements of the task have been achieved	Evaluate how successful they were in meeting the task requirements	Identify how and why their work could be improved

Polar Regions

Creating media - digital writing

<https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-writing>



Unit introduction

Learners will develop their understanding of the various aspects of using a computer to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. Learners will also consider how to change the look of their text, and will be able to justify their reasoning in making these changes. Finally, learners will consider the differences between using a computer to create text, and writing text on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this.

Lesson	Brief overview	Learning objectives
1 Exploring the keyboard	Learners will familiarise themselves with a word processor and think about how they might use this application in the future. The learners will also identify and find keys, before adding text to their page by pressing keys on a keyboard.	To use a computer to write - I can open a word processor - I can recognise keys on a keyboard - I can identify and find keys on a keyboard
2 Adding and removing text	Learners will continue to familiarise themselves with word processors and how they can interact with the computer using a keyboard. The learners will focus on adding text and will explore more of the keys found on a keyboard. Finally, they will begin to use the Backspace key to remove text from the computer.	To add and remove text on a computer - I can enter text into a computer - I can use letter, number, and Space keys - I can use Backspace to remove text
3 Exploring the toolbar	Learners will begin to explore the different tools that can be used in word processors to change the look of the text. Learners will use the Caps Lock key to add capital letters to their writing and will begin thinking about how to use this successfully. Learners will match simple descriptions to the related keys. Finally, learners will begin exploring the different buttons available on the toolbar in more detail, and use these to change their own text.	To identify that the look of text can be changed on a computer - I can type capital letters - I can explain what the keys that I have already learnt about do - I can identify the toolbar and use bold, italic, and underline

4 Making changes to text	Learners will begin to understand when it is best to change the look of their text and which tool will achieve the most appropriate outcome. The learners will begin to use their mouse cursor to select text to enable them to make more efficient changes. They will explore the different fonts available to them and change the font for their lost toy poster.	To make careful choices when changing text - I can select a word by double-clicking - I can select all of the text by clicking and dragging - I can change the font
5 Explaining my choices	Learners will begin to justify their use of certain tools when changing text. The learners will decide whether the changes that they have made have improved their writing and will begin to use 'Undo' to remove changes. They will begin to consolidate their ability to select text using the cursor, through double-clicking and clicking and dragging. The learners will be able to explain what tool from the toolbar they have used to change their writing.	To explain why I used the tools that I chose - I can say what tool I used to change the text - I can decide if my changes have improved my writing - I can use 'Undo' to remove changes
6 Pencil or keyboard?	Learners will make comparisons between using a computer for writing and writing on paper. The learners will discuss how the two methods are the same and different and think of examples to explain this. They will demonstrate making changes to writing using a computer to compare the two methods. Finally, the learners will begin to explain which they like best and think about which method would be the best method to use in different situations.	To compare typing on a computer to writing on paper - I can make changes to text on a computer - I can explain the differences between typing and writing - I can say why I prefer typing or writing

Vocabulary:

Polar Regions

Creating media - Digital writing

word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing.



Assessment Criteria:

	Emerging [1]	Expected [2]	Exceeding [3]
Task	Outline the broad requirements of the task	Explain the key requirements of the task	Outline an approach to planning the task
Knowledge	- Know that a keyboard has letters and numbers - Know text can appear differently and find examples	- Know that a keyboard is used to enter text into a computer - Know that the appearance of text can be changed	- Know that the shift key on a keyboard makes some keys do different things - Know that the appearance of text can be changed to suit a project
Implementation	- Enter some letters and numbers onto a computer/device - Demonstrate an awareness of the space bar - Use the backspace to delete text, sometimes deleting more text than needed	- Recognise some keys and use them to enter text on to a computer/device including some basic punctuation - Add spaces between most words using a space bar - Use the backspace key to delete text only as far as the section to be edited - Use the toolbar to find and use the bold, italic, and underline tool	- Recognise most keys and locate them quickly on a keyboard, - enter increasing amounts of text with a good level of accuracy - Use the space bar with accuracy - Accurately use the backspace to delete only the desired text by positioning the cursor - Use the undo key to reverse changes
Evaluation	- Identify which elements of the task have been achieved - Know some text is created on a computer and some on paper	- Evaluate how successful they were in meeting the task requirements - Identify the differences between writing on a computer and on paper, and explain their own preference	- Identify how and why their project could be improved - Identify the pros and cons of writing on a computer and on paper, and use them to explain their preference

Great Fire of London

Computer systems and networks - Technology around us

<https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-technology-around-us>



Unit introduction

Learners will develop their understanding of technology and how it can help them in their everyday lives. They will start to become familiar with the different components of a computer by developing their keyboard and mouse skills. Learners will also consider how to use technology responsibly.

Note: This lesson has been planned using desktop computers and the (free) program paintz.app, however, it can be taught with laptops. If you are using laptops for this unit, consider spending more time practising and discussing the trackpad.

Lesson	Brief overview	Learning objectives
1 Technology around us	Learners will become familiar with the term 'technology'. They will classify what is and what is not technology in their school and/or classroom. Learners will demonstrate their understanding of how technology helps us in different ways.	To identify technology - I can explain technology as something that helps us - I can locate examples of technology in the classroom - I can explain how these technology examples help us
2 Using technology	Learners will get to know the main parts of a desktop or laptop computer. They will practise turning on and logging in to a computer. The learners will apply their knowledge of the different parts of a computer, to complete a mouse-based task.	To identify a computer and its main parts - I can name the main parts of a computer - I can switch on and log into a computer - I can use a mouse to click and drag
3 Developing mouse skills	Learners will be building on the mouse skills they were introduced to in Lesson 2. Learners will review images of a computer to explain what each part does. They will develop an understanding that different computers use different mice, but they perform the same function. They will use the mouse to open a program and create a simple picture.	To use a mouse in different ways - I can use a mouse to open a program - I can click and drag to make objects on a screen - I can use a mouse to create a picture

4 Using a computer keyboard	Learners will begin to use the computer keyboard for a purpose. They should understand that writing on a keyboard is called typing and will begin to demonstrate their ability to write their name. Learners will then save their work using the save icon and understand that this icon is used in lots of different programs.	To use a keyboard to type on a computer • I can say what a keyboard is for • I can type my name on a computer • I can save my work to a file
5 Developing keyboard skills	Learners will begin by opening a file they have previously created. They will demonstrate their ability to use a keyboard to edit text, by writing a sentence and then deleting letters. They will also use the keyboard arrow keys to move the text cursor in their textbox.	To use the keyboard to edit text • I can open my work from a file • I can use the arrow keys to move the cursor • I can delete letters
6 Using a computer responsibly	Learners will be introduced to the concept of using computers safely, within the context of a school setting. They will explore why we have rules in school and how those rules help us, and then apply this understanding to rules needed for using computer technology safely.	To create rules for using technology responsibly • I can identify rules to keep us safe and healthy when we are using technology in and beyond the home • I can give examples of some of these rules • I can discuss how we benefit from these rules

Vocabulary:

Great Fire of London

Computing systems and networks - Information technology around us

Information technology (IT), computer, barcode, scanner/scan



Assessment Criteria:

	Emerging [1]	Expected [2]	Exceeding [3]
Task	Outline the broad requirements of the task	Explain the key requirements of the task	Outline an approach to planning the task
Knowledge	- Recognise technology that can help us - Explain what a keyboard is - Now work is kept in a file - Know a rule to keep themselves safe and healthy when using technology in the home or at school	- Identify examples of technology and explain how they can help us - Recognise that a computer is an example of technology - Describe what a keyboard is for - Know a computer stores work in files - Give examples of rules to keep them safe and healthy when they are using technology in and beyond the home	- Name and explain the purpose of different parts of the computer - Outline keys on a keyboard and how they help them do work - Give examples of rules to keep themselves and others safe and healthy when they are using technology in and beyond the home - Explain why they benefit from these rules
Implementation	- Identify some examples of technology - Identify some parts of a computer - Indicate how to turn the computer on and log on with adult support - Begin to move the mouse, knowing this moves the cursor on the screen - Type on a computer with support - Open a program using the mouse cursor with support	- Choose a piece of technology to do a job - Identify the main parts of a computer - Use a keyboard to type their name on a computer - Turn on the computer and log on with an aid - Use a mouse in different ways - click, select and drag - Use the keyboard to edit text and delete letters - Demonstrate that they can use technology safely	- Recognise that some technology can be used in different ways - Turn on the computer and log on independently - Accurately move the mouse to select a program, click and drag using the mouse cursor to make objects on a screen - Use the keyboard confidently, for example moving to a letter using arrow keys to delete it
Evaluation	Identify which elements of the task have been achieved	Evaluate how successful they were in meeting the task requirements	Identify how and why their project could be improved

Pirates and Oceans

Programming A - Moving a robot

<https://teachcomputing.org/curriculum/key-stage-1/programming-a-moving-a-robot>



Unit introduction

Learners will be introduced to early programming concepts. Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each command for the floor robot does, and use that knowledge to start predicting the outcome of programs. The unit is paced to ensure time is spent on all aspects of programming, and builds knowledge in a structured manner. Learners are also introduced to the early stages of program design through the introduction of algorithms.

Lesson	Brief overview	Learning objectives
1 Buttons	Learners will be introduced to floor robots. They will talk about what the buttons on a floor robot might do and then try the buttons out. They will spend time linking an outcome to a button press. Learners will consider the direction command buttons, as well as the 'clear memory' and 'run program' buttons.	To explain what a given command will do - I can predict the outcome of a command on a device - I can match a command to an outcome - I can run a command on a device
2 Directions	Learners will think about the language used to give directions and how precise it needs to be. They will also work with a partner to give and follow instructions. These real-world activities should, at suitable points during this lesson, be related to the floor robot introduced in Lesson 1.	To act out a given word - I can follow an instruction - I can recall words that can be acted out - I can give directions
3 Forwards and backwards	Learners will focus on programming the floor robot to move forwards and backwards. They will see that the robot moves forwards and backwards a fixed distance. This highlights the idea that robots follow a clear, fixed command in a precise and repeatable way. Learners will think about starting the robot from the same place each time. Using the same starting position with fixed commands will allow learners to predict what a program will do. Note: This lesson focuses specifically on forward and backward movement only. This is to ensure that learners are developing a depth of knowledge in the concepts surrounding programming, as well as developing their ability to make the robot move. The success criteria for this lesson highlight this and ensure that the learners' knowledge is built in a suitably paced way.	To combine 'forwards' and 'backwards' commands to make a sequence - I can compare forward and backward movements - I can start a sequence from the same place - I can predict the outcome of a sequence involving 'forwards' and 'backwards' commands

4 Four directions	Learners will use 'left turn' and 'right turn' commands along with 'forwards' and 'backwards' commands. Doing this will allow learners to develop slightly more complex programs. Learners will create their programs in this lesson through trial and error, before moving on to planning out their programs in Lesson 5. In Activity 3, learners will predict where given programs will move the robot to. Learners will make their predictions by looking at the commands and matching the program steps to movements.	To combine four direction commands to make sequences - I can compare left and right turns - I can experiment with 'turn' and 'move' commands to move a robot - I can predict the outcome of a sequence involving up to four commands
5 Getting there	Learners will decide what their program will do. They will then create their program and test it on the robot. Where needed, learners will also debug their program.	To plan a simple program - I can explain what my program should do - I can choose the order of commands in a sequence - I can debug my program
6 Routes	Learners will be encouraged to plan routes around a mat before they start to write programs for those routes. The activities in this lesson also introduce the concept of there being more than one way to solve a problem. This concept is valid for a lot of programming activities: the same outcome can be achieved through a number of different approaches, and there is not necessarily a 'right' approach. The lesson also introduces the idea of program design, where learners need to plan what they want their program to achieve before they start programming.	To find more than one solution to a problem - I can identify several possible solutions - I can plan two programs - I can use two different programs to get to the same place

Vocabulary:

Pirates & The Oceans Programming A - Moving a robot

Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.



Assessment Criteria:

	Emerging [1]	Expected [2]	Exceeding [3]
Task	Plan and execute a program onto a floor robot with support	Plan and execute a program onto a floor robot	Confidently plan and execute a program on to a floor robot
Knowledge	- Act out the difference between a forward and backwards movement - Predict the outcome of a forward or backward movement pointing to the end point - Understand what is meant by debugging	- Explain what a given command does - Predict the outcome of a sequence involving up to four commands - Match a command to an outcome - Understand that a program is a set of commands that a computer can run - Know that a series of instructions can be issued before they are enacted	- Confidently predict and explain the outcome of a sequence involving 'forwards/backwards' and 'turns' commands - Confidently predict the outcome of a sequence involving up to four commands - Use two different programs to get to the same place
Implementation	- Follow some instructions - Mimic an instruction related to an instruction - Follow a direction given - Use 'turn' and 'move' commands to move a robot - Order some commands and suggest what the program might do	- Predict the outcome of a command on a device - Run a command on a floor robot - Choose a command for a given purpose - Choose a series of words that can be enacted as a program - Build a sequence of commands in steps from a given starting point - Combine commands in a program - Run a program on a device - Debug a program to correct errors	- Give direction confidently - Confidently combine the four directions to make a sequence - Choose the order of multiple commands in a sequence and explain what the program should do - Create different programs to get a sprite to the same place - Debug a program, suggesting which part of their sequence should be changed and why
Evaluation	Identify some elements of the task that have been achieved	Evaluate how successful they were in meeting the task requirements	Identify how and why their work could be improved

An Island Home - Scotland

Programming A - Robot algorithms

<https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms>



Unit introduction

This unit develops learners' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Learners will use given commands in different orders to investigate how the order affects the outcome. They will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them.

Lesson	Brief overview	Learning objectives
1 Giving instructions	Learners will follow instructions given to them and give instructions to others. They will consider the language used to give instructions, and how that language needs to be clear and precise. Learners will combine several instructions into a sequence that can then be issued to another learner to complete. They will then consider a clear and precise set of instructions in relation to an algorithm, and will think about how computers can only follow clear and unambiguous instructions.	To describe a series of instructions as a sequence - I can follow instructions given by someone else - I can choose a series of words that can be acted out as a sequence - I can give clear instructions
2 Same but different	Learners will focus on sequences, and consider the importance of the order of instructions within a sequence. They will create sequences using the same instructions in different orders. They will then test these sequences to see how the different orders affect the outcome.	To explain what happens when we change the order of instructions - I can use the same instructions to create different algorithms - I can use an algorithm to program a sequence on a floor robot - I can show the difference in outcomes between two sequences that consist of the same instructions
3 Making predictions	Learners will use logical reasoning to make predictions. They will follow a program step by step and identify what the outcome will be. Note: Learners may need to be encouraged to think through their predictions and understand that they are reasoned decisions rather than guesses.	To use logical reasoning to predict the outcome of a program - I can follow a sequence - I can predict the outcome of a sequence - I can compare my prediction to the program outcome

4 Mats and routes	Learners will design, create, and test a mat for a floor robot. This will introduce the idea that design in programming not only includes code and algorithms, but also artefacts related to the project, such as artwork. Note: The designs in this lesson can be changed to suit a topic or theme that the class is learning about. The ideas included in the slides are examples.	To explain that programming projects can have code and artwork • I can explain the choices that I made for my mat design • I can identify different routes around my mat • I can test my mat to make sure that it is usable
5 Algorithm design	Learners will design an algorithm to move their robot around the mat that they designed in Lesson 4. As part of the design process, learners will outline what their task is by identifying the starting and finishing points of a route. This outlining will ensure that learners clearly understand what they want their program to achieve.	To design an algorithm • I can explain what my algorithm should achieve • I can create an algorithm to meet my goal • I can use my algorithm to create a program
6 Break it down	Learners will take on a larger programming task. They will break the task into chunks and create algorithms for each chunk. This process is known as 'decomposition' and is covered further in key stage 2. Learners will also find and fix errors in their algorithms and programs. They will understand this process to be 'debugging'.	To create and debug a program that I have written • I can test and debug each part of the program • I can plan algorithms for different parts of a task • I can put together the different parts of my program

Vocabulary:

Am Island Home - Scotland
Programming A - Robot algorithms

instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition



Assessment Criteria:

	Emerging [1]	Expected [2]	Exceeding [3]
Task	Plan and execute a program onto a floor robot	Plan and execute a program onto a floor robot to reach a given point	Confidently plan and execute a program on to a floor robot to reach multiple given points
Knowledge	- Understand simple instructions - Understand different algorithms using the same commands with support	- Understand a series of instructions - Understand different algorithms by changing the sequence of commands - Predict what a sequence of commands will do	- Be able to understand and follow a series of precise instructions - Understand different algorithms confidently by changing the sequence of commands - Predict what a sequence of commands will do with confidence
Implementation	- Follow simple individual instructions such as forward, backwards, right and left turn - Give individual instructions for someone else to follow - Create different routes on a mat with support - Execute an algorithm as a program on a floor robot with support	- Follow sequences of instructions including moving forwards and backwards, and turning left and right. - Plan a series of instructions for someone else to follow - Plan a mat layout with several possible routes - Plan and execute a program to reach a goal and debug as needed	- Plan a series of precise and unambiguous instructions for someone else to follow. - Plan and test mat layouts with several different ways of achieving the same destination - Plan and execute a program and confidently test and debug as needed
Evaluation	Identify which elements of the task have been achieved	Evaluate how successful they were in meeting the task requirements	Identify how and why their project could be improved

Kings and Queens

Creating media - Digital photography

<https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-photography>



Unit introduction

Learners will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.

It is recommended that you use digital cameras to take photographs in these lessons, so that learners can experience a range of devices. However, tablets or other devices with cameras will also work. This unit uses screenshots from the website <https://pixlr.com/x/>, but you could also use the Pixlr app if you're using tablets.

Lesson	Brief overview	Learning objectives
1 Taking photographs	This lesson introduces the concept that many devices can be used to take photographs. In the lesson, learners begin to capture their own photographs.	To use a digital device to take a photograph - I can recognise what devices can be used to take photographs - I can talk about how to take a photograph - I can explain what I did to capture a digital photo
2 Landscape or portrait?	A photograph can be taken in either portrait or landscape format. In this lesson, learners explore taking photographs in both portrait and landscape formats and explore the reasons why a photographer may favour one over the other.	To make choices when taking a photograph - I can explain the process of taking a good photograph - I can take photos in both landscape and portrait format - I can explain why a photo looks better in portrait or landscape format
3 What makes a good photograph?	A photograph is composed by a photographer. In this lesson, learners discover what constitutes good photography composition and put this into practice by composing and capturing photos of their own.	To describe what makes a good photograph - I can identify what is wrong with a photograph - I can discuss how to take a good photograph - I can improve a photograph by retaking it

The Kings and Queens of England and Britain

4 Lighting	This lesson introduces the concepts of light and focus as further important aspects of good photography composition. In this lesson, learners investigate the effect that good lighting has on the quality of the photos they take, and explore what effect using the camera flash and adding an artificial light source have on their photos. They also learn how the camera autofocus tool can be used to make an object in an image stand out.	To decide how photographs can be improved - I can explore the effect that light has on a photo - I can experiment with different light sources - I can explain why a picture may be unclear
5 Effects	This lesson introduces the concept of simple image editing. Learners are introduced to the Pixlr image editing software and use the 'Adjust' tool to change the colour effect of an image.	To use tools to change an image - I can recognise that images can be changed - I can use a tool to achieve a desired effect - I can explain my choices
6 Is it real?	This lesson introduces the concept that images can be changed for a purpose. Learners are introduced to a range of images that have been changed in different ways and through this, develop an awareness that not all images they see are real. To start the lesson, learners are first challenged to take their best photograph by applying the photography composition skills that they have developed during the unit.	To recognise that photos can be changed - I can apply a range of photography skills to capture a photo - I can recognise which photos have been changed - I can identify which photos are real and which have been changed



Vocabulary:

Kings & Queens

Creating media - Digital photography

device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,

(1760-1820)

(1820-1830)

(1830-1837)

(1837-1901)

(1901-1910)

(1910-1936)

(1936)

(1936-1952)

(1952-2022)

(2022-)



Kings & Queens

Unit: Creating media - Digital photography



Assessment Criteria:

	Emerging [1]	Expected [2]	Exceeding [3]
Task	Outline the broad requirements of the task	Explain the key requirements of the task	Outline an approach to planning the task
Knowledge	- Know a photo can be taken on a digital device - Know that a photo can be changed on a device	- Explain some aspects of taking a good photograph - Know that a photo can be portrait or landscape	- Explain most aspects of taking a good photograph - Explain why some photographs are taken in either landscape or portrait
Implementation	- Take a photograph with support - Take photographs and discuss them - Take photographs making use of light sources. - Be aware that different tools can be used to change a photograph	- Take a photograph using a simple camera or device that has been set up in camera mode - Identify some of the reasons why a photograph may be good or bad - Experiment when taking photos with different light sources - Identify a photo that has been enhanced using tools when asked questions - use different tools to change how a photograph looks	- Explain several reasons why a photograph may be good or bad and suggest ways of improving it - Take photos with awareness of light sources and retake and explain why a photo is clear or unclear - Identify why photos have been enhanced - use different tools to enhance a photograph to achieve a specific outcome on the photo, considering the impact of choices made
Evaluation	Identify which elements of the task have been achieved	Evaluate how successful they were in meeting the task requirements	Identify how and why their project could be improved

George III
(1760-1820)

George IV
(1820-1830)

William IV
(1830-1837)

Victoria
(1837-1901)

Edward VII
(1901-1910)

George V
(1910-1936)

Edward VIII
(1936)

George VI
(1936-1952)

Elizabeth II
(1952-2022)

Charles III
(2022-)