

Year 1 – 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.

Overview of lessons

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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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	To use a mouse in different ways <ul style="list-style-type: none">• I can use a mouse to open a program• I can click and drag to make objects on a screen

	use different mice, but they perform the same function. They will use the mouse to open a program and create a simple picture.	<ul style="list-style-type: none"> • 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.	<p>To use a keyboard to type on a computer</p> <ul style="list-style-type: none"> • 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.	<p>To use the keyboard to edit text</p> <ul style="list-style-type: none"> • 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.	<p>To create rules for using technology responsibly</p> <ul style="list-style-type: none"> • 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

		<ul style="list-style-type: none">• I can discuss how we benefit from these rules
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Progression

As this is a Year 1 unit, no prior knowledge is assumed. This unit progresses students' knowledge and understanding of technology and how they interact with it in school. Learners will build their knowledge of parts of a computer and develop the basic skills needed to effectively use a computer keyboard and mouse. This unit directly precedes the Y2 Computer systems and networks unit, IT around us

Curriculum links

National curriculum links

- Recognise common uses of information technology beyond school
- Use technology purposefully to create, organise, store, manipulate, and retrieve digital content
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Education for a Connected World links

Health, well-being and lifestyle

- I can identify rules that help keep us safe and healthy in and beyond the home when using technology
- I can give some simple examples

Copyright and ownership

- I know that the work I create belongs to me
- I can name my work so that others know it belongs to me

Year 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.

Overview of lessons

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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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

Progression

Learners should be familiar with:

- How to switch their device on
- Usernames
- Passwords

Curriculum links

National curriculum links

KS1 Computing

- Use technology purposefully to create, organise, store, manipulate, and retrieve digital content

KS1 Art and Design

Pupils should be taught:

- To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space
- About the work of a range of artists, craft makers, and designers, describing the differences and similarities between different practices and disciplines and making links to their own work

Year 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.

Overview of lessons

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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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	To identify that the look of text can be changed on a computer <ul style="list-style-type: none">• I can type capital letters• I can explain what the keys that I

	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.	<p>have already learnt about do</p> <ul style="list-style-type: none"> • 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.	<p>To make careful choices when changing text</p> <ul style="list-style-type: none"> • 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.	<p>To explain why I used the tools that I chose</p> <ul style="list-style-type: none"> • 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	To compare typing on a computer to writing on paper

	<p>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.</p>	<ul style="list-style-type: none"> ● 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
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Progression

This unit progresses the learners' knowledge and understanding of using computers to create and manipulate digital content, focussing on using a word processor. The learners will develop their ability to find and use the keys on a keyboard in order to create digital content. The learners are then introduced to manipulating the resulting text, making cosmetic changes, and justifying their reason for making these changes. Following this unit, learners will further develop their digital writing skills in the Year 3 – 'Desktop publishing' unit and the Year 6 – 'Web page development' unit.

Curriculum links

National curriculum links

- Use technology purposefully to create, organise, store, manipulate, and retrieve digital content
- Use technology safely and respectfully, keeping personal information private

Further national curriculum links

English – writing (Y1)

Write sentences by:

- saying out loud what they are going to write about
- composing a sentence orally before writing it
- sequencing sentences to form short narratives
- re-reading what they have written to check that it makes sense

Education for a Connected World links

Privacy and security

- I can give reasons why I should only share information with people I choose to and can trust. (Y1)

Year 1 – 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. Depending on how your school's system is set up, additional support and time may be required to facilitate these steps, and consideration should be given as to how this will impact the timings of activities in each lesson.

Overview of lessons

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 <ul style="list-style-type: none">● 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	To identify that objects can be counted <ul style="list-style-type: none">● I can count objects● I can group objects● I can count a group of objects

	require input from humans to perform tasks.	
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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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	To compare groups of objects <ul style="list-style-type: none"> • I can choose how to group objects • I can describe groups of objects

	they will record the number of objects in each group.	<ul style="list-style-type: none"> 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.	<p>To answer questions about groups of objects</p> <ul style="list-style-type: none"> 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

Progression

This unit will introduce learners to data and information. It will introduce learners to the concept of labelling and grouping objects based on their properties. Learners will develop their understanding that objects can be given labels, which is fundamental to their future learning concerning databases and spreadsheets. In addition, learners will begin to improve their ability to use dragging and dropping skills on a device. Following this unit, in year 2, learners will present data graphically in pictograms.

Curriculum links

National curriculum links

- Use technology purposefully to create, organise, store, manipulate, and retrieve digital content
- Use technology safely and respectfully

Education for a Connected World links

Copyright and ownership

- I know that work I create belongs to me (Y1)
- I can name my work so that others know it belongs to me (Y1)

Year 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.

This unit includes references relating to Bee-Bot and Blue-Bot floor robots, however, other educational floor robots are available. Learners should be given access to a device with a limited range of functions that is designed for young learners. Before starting this unit, ensure you are familiar with your school's floor robots, including charging or battery requirements. You should also know how to switch the devices on and off, as well as key functions such as clearing the memory. It is advisable to use the robots on the floor if possible, as this can reduce damage caused by dropping.

Overview of lessons

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 <ul style="list-style-type: none">● 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	To act out a given word <ul style="list-style-type: none">● I can follow an instruction● I can recall words that can be acted out● I can give directions

	floor robot introduced in Lesson 1.	
3 Forwards and backwards	<p>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.</p> <p>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.</p>	<p>To combine 'forwards' and 'backwards' commands to make a sequence</p> <ul style="list-style-type: none"> • 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	<p>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</p>	<p>To combine four direction commands to make sequences</p> <ul style="list-style-type: none"> • I can compare left and right turns • I can experiment with 'turn' and 'move' commands to move a robot

	<p>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.</p>	<ul style="list-style-type: none"> • I can predict the outcome of a sequence involving up to four commands
5 Getting there	<p>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.</p>	<p>To plan a simple program</p> <ul style="list-style-type: none"> • 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	<p>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.</p>	<p>To find more than one solution to a problem</p> <ul style="list-style-type: none"> • I can identify several possible solutions • I can plan two programs • I can use two different programs to get to the same place

Progression

As this is a Year 1 unit, no prior knowledge is assumed.

This unit progresses learners' knowledge and understanding of giving and following instructions. It moves from giving instructions to each other to giving instructions to a robot by programming it.

Curriculum links

National curriculum links

- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions
- Create and debug simple programs
- Use logical reasoning to predict the behaviour of simple programs
- Recognise common uses of information technology beyond school

Year 1 – Programming B – Programming animations

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.

Overview of lessons

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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• I can find blocks that have numbers• I can change the value

		<ul style="list-style-type: none"> I can say what happens when I change a value
4 Adding sprites	<p>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.</p>	<p>To explain that each sprite has its own instructions</p> <ul style="list-style-type: none"> 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	<p>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.</p>	<p>To design the parts of a project</p> <ul style="list-style-type: none"> 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	<p>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.</p>	<p>To use my algorithm to create a program</p> <ul style="list-style-type: none"> 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

Progression

This unit progresses learners' knowledge and understanding of programming and follows on from 'Programming A – Moving a robot', where children will have learned to program a floor robot using instructions.

Curriculum links

National curriculum links

- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions
- Create and debug simple programs
- Use logical reasoning to predict the behaviour of simple programs