

## Year 6 – Web page creation

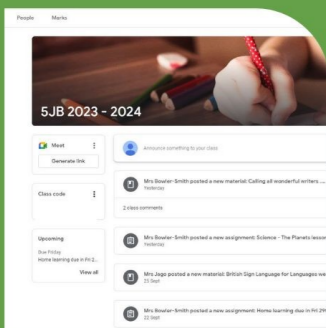
Lesson	Brief overview	Learning objectives
<b>1 What makes a good website?</b>	In this lesson, learners will explore and review existing websites and evaluate their content. They will have some understanding that websites are created by using HTML code.	To review an existing website and consider its structure <ul style="list-style-type: none"> <li>I can explore a website</li> <li>I can discuss the different types of media used on websites</li> <li>I know that websites are written in HTML</li> </ul>
<b>2 How would you lay out your web page?</b>	Learners will look at the different layout features available in Google Sites and plan their own web page on paper.  <b>Homework:</b> Learners will look at two of their favourite websites and sketch them on the worksheet provided, detailing the similarities and differences.  <b>Note:</b> For the homework activity, teachers could provide printed 'home page' images for anyone who doesn't have internet access at home.	To plan the features of a web page <ul style="list-style-type: none"> <li>I can recognise the common features of a web page</li> <li>I can suggest media to include on my page</li> <li>I can draw a web page layout that suits my purpose</li> </ul>
<b>3 Copyright or copyWRONG?</b>	During this lesson learners will become familiar with the terms 'fair use' and 'copyright'. They will gain an understanding of why they should only use copyright-free images and will find appropriate images to use in their work from suggested sources.  <b>Homework:</b> Learners answer a series of questions based on copyright and fair use.	To consider the ownership and use of images (copyright) <ul style="list-style-type: none"> <li>I can say why I should use copyright-free images</li> <li>I can find copyright-free images</li> <li>I can describe what is meant by the term 'fair use'</li> </ul>
<b>4 How does it look?</b>	Today learners will revise how to create their own web page in Google Sites. Using their plan from previous lessons, learners will create their own web page/home page. They will preview their web	To recognise the need to preview pages <ul style="list-style-type: none"> <li>I can add content to my own web page</li> <li>I can preview what my web page looks like</li> </ul>
	page as it will appear on different devices and suggest or make edits to improve the user experience on each device.	<ul style="list-style-type: none"> <li>I can evaluate what my web page looks like on different devices and suggest/make edits.</li> </ul>
<b>5 Follow the breadcrumbs</b>	During this lesson learners will begin to appreciate the need to plan the structure of a website carefully. They will plan their website, paying attention to the navigation paths (the way that pages are linked together). They will then create multiple web pages for their site and use hyperlinks to link them together as detailed in their planning.	To outline the need for a navigation path <ul style="list-style-type: none"> <li>I can explain what a navigation path is</li> <li>I can describe why navigation paths are useful</li> <li>I can make multiple web pages and link them using hyperlinks</li> </ul>
<b>6 Think before you link!</b>	Learners will consider the implications of linking to content owned by other people and create hyperlinks on their own websites that link to other people's work. They will then evaluate the user experience when using their own website and that of another learner.	To recognise the implications of linking to content owned by other people <ul style="list-style-type: none"> <li>I can explain the implication of linking to content owned by others</li> <li>I can create hyperlinks to link to other people's work</li> <li>I can evaluate the user experience of a website</li> </ul>

# Computing and Online Safety Progression Document



## Google Classroom

WHAT IS IT ALL ABOUT?



- C** Children have their own school email
- L** Home learning is set for children to complete and hand in
- A** Access for communication between children and teachers when needed
- S** Simplifies the setting and handing in of homework
- S** Safeguarding is key so language can be monitored and concerns raised



# Computing and Online Safety

## Curriculum Intent

It is our intent that children will leave our schools resilient, emotionally literate, aspirational, effective communicators who are happy and therefore ready for the next stage of their life through the behaviour, knowledge and skills they have learnt whilst in our care. If we can achieve this for our children then we believe we are giving them the best opportunity to achieve success in their life. Through an inclusive and stimulating environment we will develop every child and allow them to write their own story in life. This intent is defined as our REACH principles.

**Resilient:** Every child is resilient.

**Emotionally Literate:** Every child is aware of their feelings and those of others.

**Aspirational:** Every child aspires for more in their learning and in life.

**Communicators:** Every child is an effective communicator.

**Happy:** Every child has the right to be happy. Bilton Community Federation

Our vision is to empower children to make a positive impact on the world and to apply the following values in all they do: **Care, Co-operation, Honesty, Forgiveness, Respect and Resilience.**



Technology is changing everyone's life. Through our computing curriculum at Bilton Junior School we aim to give our pupils life-skills that will enable them to embrace, participate and utilise new technology, in a socially responsible and safe way, in a rapidly changing world. It is our intent to enable and develop the skills necessary for our pupils to operate in the 21st century workplace and we want them to know the career opportunities that will be open to them if they continue to study computing.

Computing skills are a major factor in enabling children to become autonomous, independent users of computing technologies, gaining confidence and enjoyment from the activities presented. Our intent is to use technology to support learning across the entire curriculum and ensure technology aids every child to access the curriculum. It is our intention that through our computer lessons our pupils discover and develop an understanding of themselves as individuals, be competent end-users of technology and be digital literate, this is achieved by providing a computing curriculum that develops the pupil's creativity, resilience, problem solving and critical thinking skills. To enable them to explore, analyse, exchange and present information responsibly, creatively and with discrimination.

Our intention is to ensure through our computing curriculum our pupils have every opportunity, the freedom and choice to be ambitious for their future not only in their community but also in a wider global community as a responsible digital citizen.

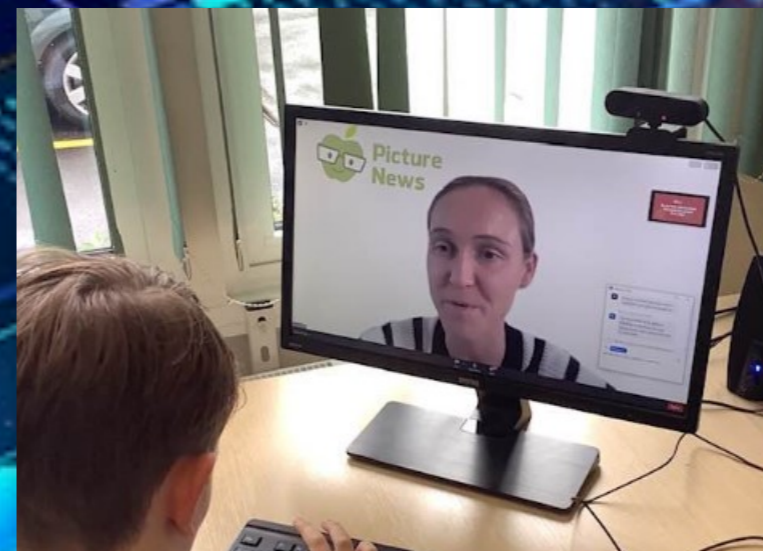
Here at Bilton Junior School, the three main strands of computing (Computer science, Information Technology and Digital Literacy) are taught in a one hour discreet computing lesson. The computing curriculum is based on the National Centre for Computing Education – Tech Computing scheme of work; however, other resources are utilised to support the depth of learning – Twinkl, CEOPS, Childnet International, Barefoot CAS, SWGL, Code Club and Project Evolve: Education for a Connected World depending on lesson objectives. Planning support is available for year groups from the ICT Co-ordinator.

Every lesson in the scheme has been individually planned, so that it can be effectively taught using the infrastructure we have in place at BJS and meets the needs of all pupils. The scheme has been closely referenced against the 2014 National Curriculum attainment targets in order to ensure full coverage, progression and an opportunity to achieve mastery. Having discreet lessons means our pupils are able to develop depth of knowledge and skills over the duration of the computing topics and enables teacher feedback and assessment. Portfolios are maintained by the Online Safety Ranger to show learning.

## Year 6 – 3D modelling

Lesson	Brief overview	Learning objectives
<b>1 Introduction to 3D modelling</b>	Learners will be introduced to the concept of 3D modelling by creating a range of 3D shapes that they select and move. Learners also examine shapes from a variety of views within the 3D space.	To recognise that you can work in three dimensions on a computer <ul style="list-style-type: none"> <li>I can add 3D shapes to a project</li> <li>I can view 3D shapes from different perspectives</li> <li>I can move 3D shapes relative to one another</li> </ul>
<b>2 Modifying 3D objects</b>	Learners will manipulate 3D objects digitally. They will resize objects in one, two, and three dimensions. They will also lift and lower 3D objects relative to the work plane, and combine two 3D objects to make a new shape. Finally learners will recolour 3D objects.	To identify that digital 3D objects can be modified <ul style="list-style-type: none"> <li>I can resize an object in three dimensions</li> <li>I can lift/lower 3D objects</li> <li>I can recolour a 3D object</li> </ul>
<b>3 Make your own name badge</b>	Learners will develop their understanding of manipulating digital 3D objects. They will rotate objects in three dimensions, duplicate objects, and then use grouping and ungrouping to manipulate many objects at once. They will combine these skills to create their own 3D name badge. Finally, learners will consider the practicality of 3D printing the objects they have made.	To recognise that objects can be combined in a 3D model <ul style="list-style-type: none"> <li>I can rotate objects in three dimensions</li> <li>I can duplicate 3D objects</li> <li>I can group 3D objects</li> </ul>
<b>4 Making a desk tidy</b>	Learners will be introduced to the dimensions of shapes in Tinkercad which will enable them to accurately resize and move shapes. Learners will then be introduced to placeholders which can be used to create holes in objects. Finally	To create a 3D model for a given purpose <ul style="list-style-type: none"> <li>I can accurately size 3D objects</li> <li>I can show that placeholders can create holes in 3D objects</li> </ul>

	learners will duplicate, then resize multiple objects to create a meaningful 3D object.	<ul style="list-style-type: none"> <li>I can combine a number of 3D objects</li> </ul>
<b>5 Planning a 3D model</b>	Learners will see how computer-based 3D design is used in architecture to plan buildings. They will explode 3D models of buildings to see what shapes they comprise of. Learners will then look at real world structures and identify the shapes that they include. They will then plan their own 3D building design.	To plan my own 3D model <ul style="list-style-type: none"> <li>I can analyse a 3D model</li> <li>I can choose objects to use in a 3D model</li> <li>I can combine objects in a design</li> </ul>
<b>6 Make your own 3D model</b>	Learners will create a computer 3D model based on their design. They will then evaluate their model and that of another learner, before modifying their own model to improve it.	To create my own digital 3D model <ul style="list-style-type: none"> <li>I can construct a 3D model based on a design</li> <li>I can explain how my 3D model could be improved</li> <li>I can modify my 3D model to improve it</li> </ul>



## Year 6 – Programming A – Variables in games

Lesson	Brief overview	Learning objectives
<b>1 Introducing variables</b>	Learners are introduced to variables. They see examples of real-world variables (score and time in a football match) before they explore them in a Scratch project. Learners then design and make their own project that includes variables. Finally, learners identify that variables are named and that they can be letters (strings) as well as numbers.	To define a 'variable' as something that is changeable <ul style="list-style-type: none"> <li>I can identify examples of information that is variable</li> <li>I can explain that the way a variable changes can be defined</li> <li>I can identify that variables can hold numbers or letters</li> </ul>
<b>2 Variables in programming</b>	Learners understand that variables are used in programs, and that they can only hold a single value at a time. They complete an unplugged task that demonstrates the process of changing variables. Then, learners explore why it is important to name variables and apply their learning in a Scratch project in which they make, name, and update variables.	To explain why a variable is used in a program <ul style="list-style-type: none"> <li>I can identify a program variable as a placeholder in memory for a single value</li> <li>I can explain that a variable has a name and a value</li> <li>I can recognise that the value of a variable can be changed</li> </ul>
<b>3 Improving a game</b>	Learners apply the concept of variables to enhance an existing game in Scratch. They predict the outcome of changing the same change score block in different parts of a program, then they test their predictions in Scratch. Learners also experiment with using different values in variables, and with using a variable elsewhere in a program. Finally, they add comments to their project to explain how they have met the objectives of the lesson.	To choose how to improve a game by using variables <ul style="list-style-type: none"> <li>I can decide where in a program to change a variable</li> <li>I can make use of an event in a program to set a variable</li> </ul>

		<ul style="list-style-type: none"> <li>I can recognise that the value of a variable can be used by a program</li> </ul>
<b>4 Designing a game</b>	Learners work at the 'design' level of abstraction, where they create their artwork and algorithms. Learners first design the sprites and backgrounds for their project, then they design their algorithms to create their program flow.	To design a project that builds on a given example <ul style="list-style-type: none"> <li>I can choose the artwork for my project</li> <li>I can create algorithms for my project</li> <li>I can explain my design choices</li> </ul>
<b>5 Design to code</b>	Learners implement the algorithms that they created in Lesson 4. In doing this, they identify variables in an unfamiliar project and learn the importance of naming variables. They also have the opportunity to add another variable to enhance their project.	To use my design to create a project <ul style="list-style-type: none"> <li>I can create the artwork for my project</li> <li>I can choose a name that identifies the role of a variable</li> <li>I can test the code that I have written</li> </ul>
<b>6 Improving and sharing</b>	Learners build on the project that they created in Lesson 5. They consider how they could improve their own projects and make small changes to achieve this. Learners then have the opportunity to add a variable independently. Finally, learners evaluate each other's projects; they identify features that they liked and features that could be improved.	To evaluate my project <ul style="list-style-type: none"> <li>I can identify ways that my game could be improved</li> <li>I can use variables to extend my game</li> <li>I can share my game with others</li> </ul>

## Curriculum Overview

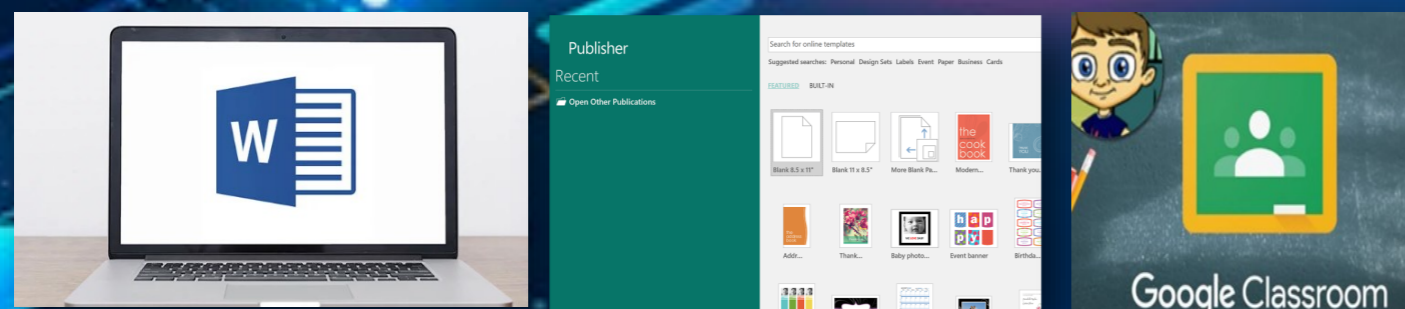
	Autumn	Spring	Summer
<b>Year 3</b>	Logging On Online Safety Connecting Computer	Desktop Publishing Online Safety Animation	Sequence in Music Online Safety Events and Actions
<b>Year 4</b>	Networks/The Internet Online Safety Coding/Scratch	Repetitions in Shape Online Safety Repetition in Games	Data Logging Online Safety Photo Editing
<b>Year 5</b>	Computing Systems and Networks Sharing Information Online Safety Creating Media Vector Drawing	Programming B Selection in Quizzes Data and Information Online safety Flat File Databases	Programming A Selection in Physical Computing Online Safety Creating Media Video Editing
<b>Year 6</b>	Online Safety Networks and Communication Data and Information— Spreadsheets	Online Safety Programming	Online Safety Creating Media Webpage Creation

Online Safety

## What makes our curriculum unique?

We ensure that we enhance the curriculum beyond the scheme of work. We achieve this through a range of opportunities. These include:

- The Saltmine Theatre Company who provide workshops and performance on Online safety called 'Blast Off'
- Mental Health at Schools Team – they include online safety and wellbeing into their workshops
- Virtual Assemblies – #TechSheCan explores exciting new technology and career opportunities
- Clubs/event with other school e.g., competitions, more able events, assemblies, event days, weeks
- Taking part on Online safety Day which takes place in February each year
- Assemblies around Online Safety
- Parents webinars – Natter Hub
- Newsletters and Bulletin Posts
- Lunchtime Computer Club
- Online Rangers Role are in place who produce class portfolios which reflect classroom learning
- Seven Star Federation, computer meetings to share curriculum ideas and support
- We use a range of platforms to support learning at home. These are shared with pupils and parents and regularly reviewed.



## Project Evolve

As part of our Computing Curriculum, we use a comprehensive scheme of work to teach aspects of Online Safety explicitly throughout the year. Project Evolve is an online based scheme of work which is constantly 'evolving' to ensure the online safety messages that children and young people are being taught are delivered in a way that is more appropriate; more meaningful; that encourages reflection; that generates positive outcomes and are updating regularly to reflect the changing world.

Online Safety content is separated into eight strands which are taught throughout the year covering everything from online relationships to copyright and

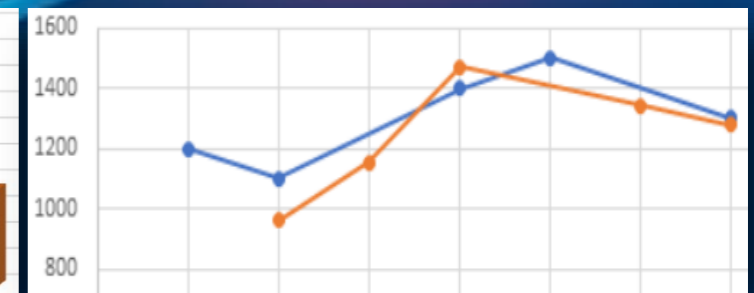
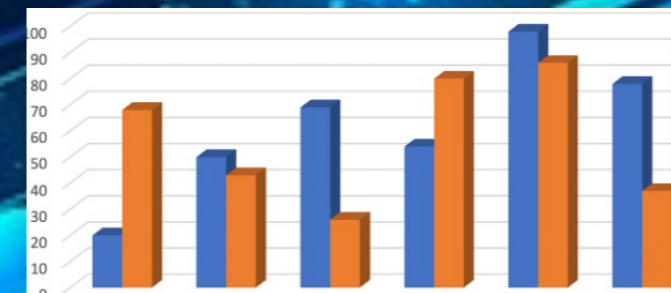


### BJS Online Safety Curriculum Progressions (Project Evolve)

	Year 3	Year 4	Year 5	Year 6
Self Image and Identity	I can explain what is meant by the term 'identity'.	I can explain how my online identity can be different to my offline identity.	I can explain how identity online can be copied, modified or altered.	I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online
	I can explain how people can represent themselves in different ways online	I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them	I can demonstrate how to make responsible choices about having an online identity, depending on context.	I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline
	I can explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why	I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this		I can explain the importance of asking until I get the help needed
Online Relationships	I can describe ways people who have similar likes and interests can get together online.	I can describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms)	I can give examples of technology-specific forms of communication (e.g. emojis, memes and GIFs).	I can explain how sharing something online may have an impact either positively or negatively
	I can explain what it means to 'know someone' online and why this might be different from knowing someone offline.	I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours	I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my / our fault.	I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not.
	I can explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with.	I can explain how content shared online may feel unimportant to one person but may be important to other people's thoughts feelings and beliefs	I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups).	I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs.
	I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried.		I can explain how someone can get help if they are having problems and identify when to tell a trusted adult.	I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.
	I can explain how someone's feelings can be hurt by what is said or written online		I can demonstrate how to support others (including those who are having difficulties) online.	
	I can explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos			

## Year 6 – Introduction to spreadsheets

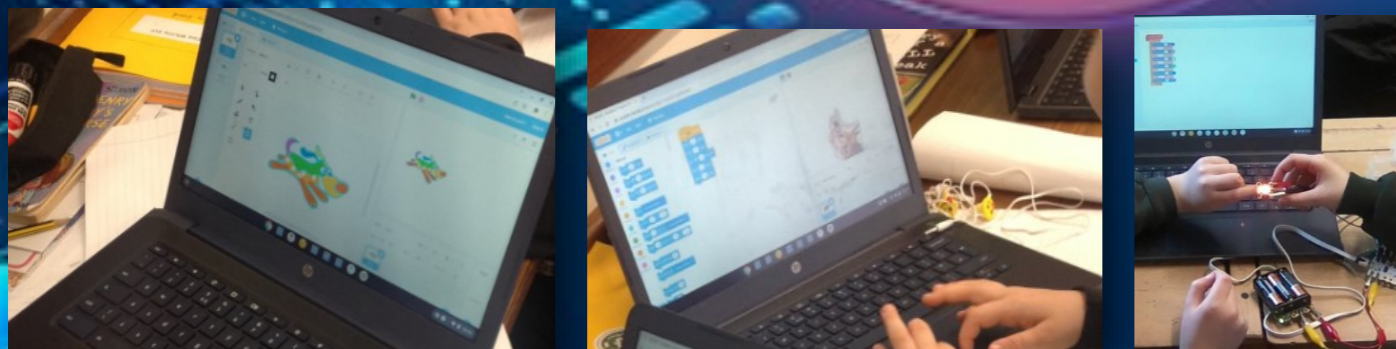
Lesson	Brief overview	Learning objectives
1 Collecting data	Learners will collect and organise data in a format of their choice. They will then explore how data can be structured in a table. Finally they will input data into a spreadsheet.	To create a data set in a spreadsheet <ul style="list-style-type: none"> <li>I can collect data</li> <li>I can suggest how to structure my data</li> <li>I can enter data into a spreadsheet</li> </ul>
2 Formatting a spreadsheet	Learners will develop their understanding of the structure of a spreadsheet. They will be introduced to cell references, data items and the concept of formatting cells. Learners will see data items formatted in different ways, they will then choose formats for data items before applying formats in their own spreadsheet.	To build a data set in a spreadsheet <ul style="list-style-type: none"> <li>I can explain what an item of data is</li> <li>I can choose an appropriate format for a cell</li> <li>I can apply an appropriate format to a cell</li> </ul>
3 What's the formula?	Learners will begin to use formulas to produce calculated data. They will understand that the type of data in a cell is important (e.g. numbers can be used in calculations whereas words cannot). Learners will create formulas to use in a spreadsheet using cell references and identify that changing inputs will change the output of the calculation.	To explain that formulas can be used to produce calculated data <ul style="list-style-type: none"> <li>I can explain which data types can be used in calculations</li> <li>I can construct a formula in a spreadsheet</li> <li>I can identify that changing inputs changes outputs</li> </ul>
4 Calculate and duplicate	Learners will calculate data using the operations of multiplication, subtraction, division, and addition. They will use these operations to create formulas in a spreadsheet. Learners will then begin to understand the importance of creating formulas that include a range of cells and the advantage of duplicating in order to apply formulas to multiple cells.	To apply formulas to data <ul style="list-style-type: none"> <li>I can calculate data using different operations</li> <li>I can create a formula which includes a range of cells</li> <li>I can apply a formula to multiple cells by duplicating it</li> </ul>
5 Event planning	Learners will plan and calculate the cost of an event using a spreadsheet. They will use a predefined list to choose what they would like to include in their event, and use their spreadsheet to answer questions on the data they have selected. Learners will be reminded of the importance of organising data and will then create a spreadsheet using formulas to work out costs for their event.	To create a spreadsheet to plan an event <ul style="list-style-type: none"> <li>I can use a spreadsheet to answer questions</li> <li>I can explain why data should be organised</li> <li>I can apply a formula to calculate the data I need to answer questions</li> </ul>
6 Presenting data	Learners will gain skills to create charts in Google Sheets. They will evaluate the results from their charts to answer questions. Finally, learners will show they understand that there are different software tools available within spreadsheet applications to present data.	To choose suitable ways to present data <ul style="list-style-type: none"> <li>I can produce a chart</li> <li>I can use a chart to show the answer to a question</li> <li>I can suggest when to use a table or chart</li> </ul>



## Year 6 – Communication and collaboration

Lesson	Brief overview	Learning objectives
<b>L1 Internet addresses</b>	Learners explore what is necessary for effective communication and the importance of agreed protocols. They apply this understanding to IP addresses and the rules (protocols) that computers have for communicating with one another. Learners also use a Domain Name Server (DNS) to translate web addresses into IP addresses.	To explain the importance of internet addresses <ul style="list-style-type: none"> <li>I can recognise that data is transferred using agreed methods</li> <li>I can explain that internet devices have addresses</li> <li>I can describe how computers use addresses to access websites</li> </ul>
<b>L2 Data packets</b>	Learners are introduced to the concept of packets. They complete an activity based on transferring an image across the internet, to see that as well as messages (text), other types of data (images, video, and audio) are also transferred over the internet. They gain an understanding of the key parts of a packet: the header and the data payload.	To recognise how data is transferred across the internet <ul style="list-style-type: none"> <li>I can identify and explain the main parts of a data packet</li> <li>I can explain that data is transferred over networks in packets</li> <li>I can explain that all data transferred over the internet is in packets</li> </ul>
<b>L3 Working together</b>	Learners consider how people can work together when they are not in the same location. They discuss ways of working and complete a collaborative online project. The online activity assumes that learners can make simple slides, including text and images. If your learners are unsure how to do this, you may wish to spend some time on the Year 3 – 'Desktop publishing' unit before this lesson.	To explain how sharing information online can help people to work together <ul style="list-style-type: none"> <li>I can recognise how to access shared files stored online</li> <li>I can send information over the internet in different ways</li> <li>I can explain that the internet allows different media to be shared</li> </ul>

<b>L4 Shared working</b>	Learners are introduced to another approach to online working: reusing and modifying work done by someone else. ( <b>Note:</b> Using someone else's work needs to be within the bounds of copyright and with the relevant permissions.) This lesson involves the Scratch programming tool, which allows learners to use other people's work.	To evaluate different ways of working together online <ul style="list-style-type: none"> <li>I can identify different ways of working together online</li> <li>I can recognise that working together on the internet can be public or private</li> <li>I can explain how the internet enables effective collaboration</li> </ul>
<b>L5 How we communicate</b>	Learners deepen their understanding of the term 'communication'. They explore different methods of communication, before they consider internet-based communication in more detail. Finally, learners evaluate which methods of communication suit particular purposes.	To recognise how we communicate using technology <ul style="list-style-type: none"> <li>I can explain the different ways in which people communicate</li> <li>I can identify that there are a variety of ways to communicate over the internet</li> <li>I can choose methods of communication to suit particular purposes</li> </ul>
<b>L6 Communicating responsibly</b>	Learners use information provided in the lesson and their own prior knowledge to categorise different forms of internet communication. They then choose which method(s) they would use for the scenarios discussed in the previous lesson. Through these activities, learners explore issues around privacy and information security.	To evaluate different methods of online communication <ul style="list-style-type: none"> <li>I can compare different methods of communicating on the internet</li> <li>I can decide when I should and should not share information online</li> <li>I can explain that communication on the internet may not be private</li> </ul>



<b>Online Reputation</b>	I can explain how to search for information about others online	I can describe how to find out information about others by searching online	I can search for information about an individual online and summarise the information found	I can explain the ways in which anyone can develop a positive online reputation
	I can give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal	I can explain ways that some of the information about anyone online could have been created, copied or shared by others	I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect	I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity
	I can explain who someone can ask if they are unsure about putting something online.			

<b>Online Bullying</b>	I can describe appropriate ways to behave towards other people online and why this is important.	I can recognise when someone is upset, hurt or angry online.	I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences.	I can describe how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me.
	I can give examples of how bullying behaviour could appear online and how someone can get support.	I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat)	I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.	I can explain how someone would report online bullying in different contexts
		I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation)	I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult.	

<b>Managing Online Information</b>	I can demonstrate how to use key phrases in search engines to gather accurate information online	I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others	I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. I can explain how some technology can limit the information I am presented with.	I can explain how search engines work and how results are selected and ranked
	I can explain what autocomplete is and how to choose the best suggestion	I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites).	I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'.	I can explain how to use search technologies effectively
	I can explain how the internet can be used to sell and buy things	I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online	I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results.	I can describe how some online information can be opinion and can offer examples
	I can explain the difference between a 'belief', an 'opinion' and a 'fact' and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc	I can explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true.	I can explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence.	I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal
	I can explain that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed).	I can explain that technology can be designed to act like or impersonate living things (e.g. bots) and describe what the benefits and the risks might be	I can identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads	I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news)
	I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened	I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't	I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, influencers).	I understand the concept of persuasive design and how it can be used to influence peoples' choices

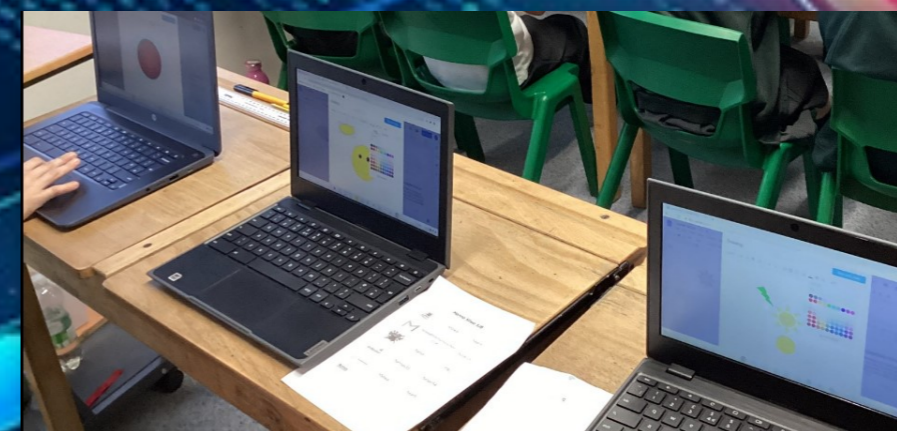
			I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others.	I can demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important
			I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.	I can explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this
			I can explain what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share.	I can describe the difference between online misinformation and dis-information
				I can explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of misinformation or disinformation)
				I can identify, flag and report inappropriate content.

Health, Well-being and Lifestyle	I can explain why spending too much time using technology can sometimes have a negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged	I can explain how using technology can be a distraction from other things, in both a positive and negative way	I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively.	I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.
	I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites)	I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time	I can describe some strategies, tips or advice to promote health and wellbeing with regards to technology	I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this.
			I recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals.	I can recognise features of persuasive design and how they are used to keep users engaged (current and future use).
			I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing.	I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).

Privacy and Security	I can describe simple strategies for creating and keeping passwords private.	I can describe strategies for keeping personal information private, depending on context.	I can explain what a strong password is and demonstrate how to create one	I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser).
	I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult	I can explain that internet use is never fully private and is monitored, e.g. adult supervision.	I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.	I can explain what to do if a password is shared, lost or stolen
	I can describe how connected devices can collect and share anyone's information with others	I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure.	I can explain what app permissions are and can give some examples.	I can describe how and why people should keep their software and apps up to date, e.g. auto updates.
		I know what the digital age of consent is and the impact this has on online services asking for consent		I can describe simple ways to increase privacy on apps and services that provide privacy settings.
			I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).	
			I know that online services have terms and conditions that govern their use.	

## Year 5 – Video production

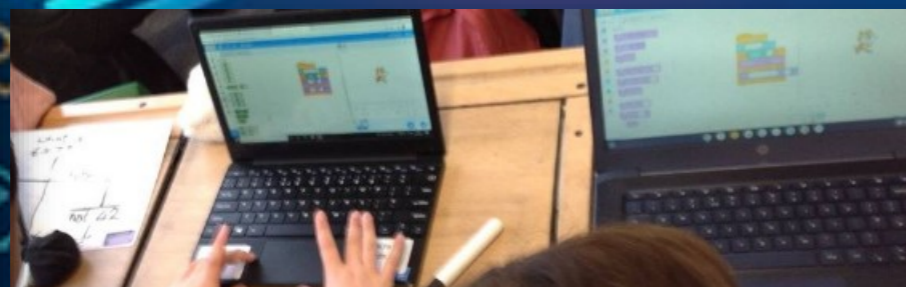
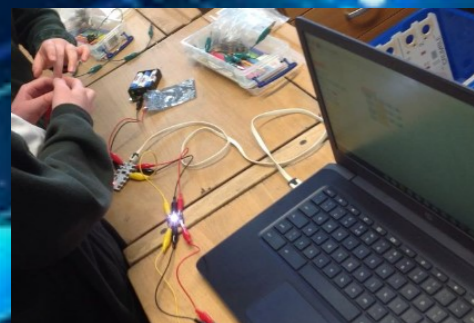
Lesson	Brief overview	Learning objectives
<b>1 What is video?</b>	Learners will be introduced to video as a media format. They will see examples of videos featuring production and editing techniques that they will work towards using their own videos. Learners will begin by explaining what the medium of video is before analysing and comparing examples of videos.	To explain what makes a video effective <ul style="list-style-type: none"> <li>I can explain that video is a visual media format</li> <li>I can identify features of videos</li> <li>I can compare features in different videos</li> </ul>
<b>2 Filming techniques</b>	Learners will explore the capabilities of a digital device that can be used to record video. Once they are familiar with their device, learners will experiment with different camera angles, considering how different camera angles can be used for different purposes.	To use a digital device to record video <ul style="list-style-type: none"> <li>I can identify and find features on a digital video recording device</li> <li>I can experiment with different camera angles</li> <li>I can make use of a microphone</li> </ul>
<b>3 Using a storyboard</b>	Learners will use a storyboard to explore a variety of filming techniques, some of which they will use in their own video project later in the unit. They will evaluate the effectiveness of these techniques before offering feedback on others' work.	To capture video using a range of techniques <ul style="list-style-type: none"> <li>I can suggest filming techniques for a given purpose</li> <li>I can capture video using a range of filming techniques</li> <li>I can review how effective my video is</li> </ul>
<b>4 Planning a video</b>	Learners will plan a video by creating a storyboard. Their storyboard will describe each scene, and will include a script, camera angles, and filming techniques. Learners will use their storyboards to film the first scene of their videos.	To create a storyboard <ul style="list-style-type: none"> <li>I can outline the scenes of my video</li> <li>I can decide which filming techniques I will use</li> <li>I can create and save video content</li> </ul>
<b>5 Importing and editing video</b>	Learners will film the remaining scenes of their video, and then import their content to video editing software. They will then explore key editing techniques and decide whether sections of their video can be edited or need to be shot again.	To identify that video can be improved through reshooting and editing <ul style="list-style-type: none"> <li>I can store, retrieve, and export my recording to a computer</li> <li>I can explain how to improve a video by reshooting and editing</li> <li>I can select the correct tools to make edits to my video</li> </ul>
<b>6 Video evaluation</b>	Learners will complete their video by removing unwanted content and reordering their clips. They will then export their finished video and evaluate the effectiveness of their edits. Finally, they will consider how they could share their video with others.	To consider the impact of the choices made when making and sharing a video <ul style="list-style-type: none"> <li>I can make edits to my video and improve the final outcome</li> <li>I can recognise that my choices when making a video will impact the quality of the final outcome</li> <li>I can evaluate my video and share my opinions</li> </ul>



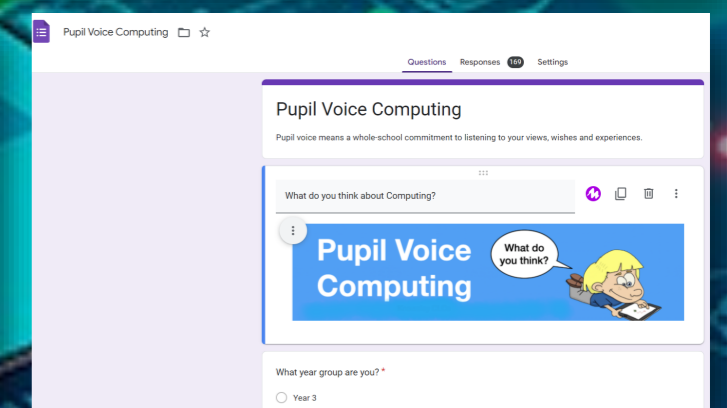
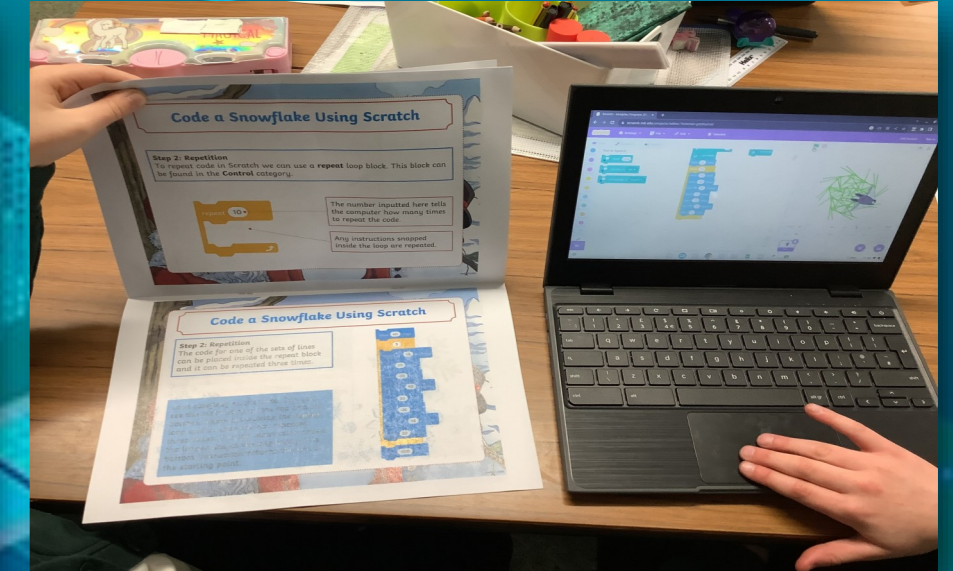
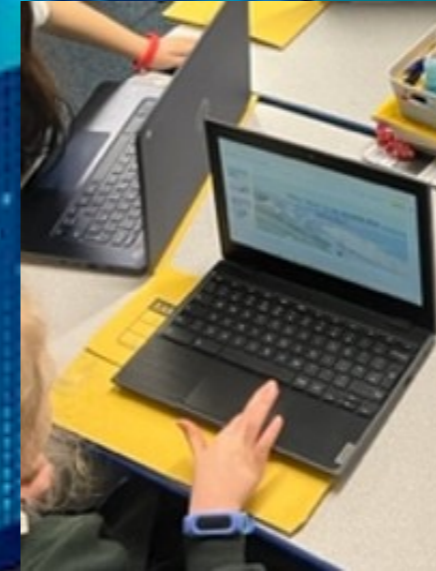
## Year 5 – Programming A – Selection in physical computing

Lesson	Brief overview	Learning objectives
<b>1 Connecting Crumbles</b>	In this lesson, your learners will become familiar with the Crumble controller and the programming environment used to control it. Learners will connect a Sparkle to a Crumble and then program the Crumble to make the Sparkle flash different colour patterns. Learners will also use infinite loops, which were introduced to the learners in the previous school year.	To control a simple circuit connected to a computer <ul style="list-style-type: none"> <li>I can create a simple circuit and connect it to a microcontroller</li> <li>I can program a microcontroller to make an LED switch on</li> <li>I can explain what an infinite loop does</li> </ul>
<b>2 Combining output components</b>	In this lesson, learners will connect a Sparkle and a motor to the Crumble controller. Learners will design sequences of actions for these components. They will then apply their understanding of repetition by using count-controlled loops when implementing their design as a program.	To write a program that includes count-controlled loops <ul style="list-style-type: none"> <li>I can connect more than one output component to a microcontroller</li> <li>I can use a count-controlled loop to control outputs</li> <li>I can design sequences that use count-controlled loops</li> </ul>
<b>3 Controlling with conditions</b>	In this lesson, learners will be introduced to conditions, and how they can be used in programs to control their flow. They will identify conditions in statements, stating if they are true or false. Learners will be introduced to a Crumble switch, and learn how it can provide the Crumble controller with an input that can be used as a condition. They will explore how to write programs that use an input as a condition.	To explain that a loop can stop when a condition is met <ul style="list-style-type: none"> <li>I can explain that a condition is either true or false</li> <li>I can design a conditional loop</li> <li>I can program a microcontroller to respond to an input</li> </ul>

<b>4 Starting with selection</b>	In this lesson, learners will develop their understanding of how the flow of actions in algorithms and programs can be controlled by conditions. They will be introduced to selection and then represent conditions and actions using the 'if...then...' structure. Learners will create algorithms that include selection. They will use their algorithms to guide their program writing. Learners will see that infinite repetition is required to repeatedly check if a condition has been met.	To explain that a loop can be used to repeatedly check whether a condition has been met <ul style="list-style-type: none"> <li>I can explain that a condition being met can start an action</li> <li>I can identify a condition and an action in my project</li> <li>I can use selection (an 'if...then...' statement) to direct the flow of a program</li> </ul>
<b>5 Drawing designs</b>	In this lesson, learners will apply their understanding of microcontrollers and selection when designing a project to meet the requirements of a given task. To support their understanding, learners will identify how selection might be used in real-world situations, then they will consider how they can apply this knowledge to design their project. Learners will produce design sketches to show how their model will be made and how they will connect the microcontroller to its components.	To design a physical project that includes selection <ul style="list-style-type: none"> <li>I can identify a real-world example of a condition starting an action</li> <li>I can describe what my project will do</li> <li>I can create a detailed drawing of my project</li> </ul>
<b>6 Writing and testing algorithms</b>	In this final lesson of the unit, learners will develop Crumble programs to control the model of a fairground ride they built in Lesson 5. First, learners will identify how they are going to use selection before writing an algorithm to meet the requirements of the given task. They will then implement their algorithms as code. Learners will run their programs to identify any bugs, and then return to the code or algorithm to debug it where necessary. Finally, to conclude the unit, learners will evaluate their designs.	To create a program that controls a physical computing project <ul style="list-style-type: none"> <li>I can write an algorithm that describes what my model will do</li> <li>I can use selection to produce an intended outcome</li> <li>I can test and debug my project</li> </ul>



<b>Copyright and Ownership</b>	I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause	When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it	I can assess and justify when it is acceptable to use the work of others	I can demonstrate the use of search tools to find and access online content which can be reused by others
		I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.	I can give examples of content that is permitted to be reused and know how this content can be found online.	I can demonstrate how to make references to and acknowledge sources I have used from the internet.



### Year 3 – Connecting computers

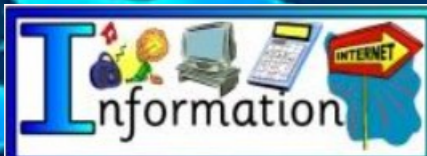
Lesson	Brief overview	Learning objectives
<b>1 How does a digital device work?</b>	This lesson introduces the concepts of input, process, and output. These concepts are fundamental to all digital devices.	To explain how digital devices function <ul style="list-style-type: none"> <li>I can explain that digital devices accept inputs</li> <li>I can explain that digital devices produce outputs</li> <li>I can follow a process</li> </ul>
<b>2 What parts make up a digital device?</b>	Learners will develop their knowledge of the relationship between inputs, processes, and outputs and apply it to devices and parts of devices that they will be familiar with from their everyday surroundings.	To identify input and output devices <ul style="list-style-type: none"> <li>I can classify input and output devices</li> <li>I can describe a simple process</li> <li>I can design a digital device</li> </ul>
<b>3 How do digital devices help us?</b>	Learners will apply their learning from Lessons 1 and 2 by using programs in conjunction with inputs and outputs on a digital device. They will create two pieces of work with the same focus, using digital devices to create one piece of work, and non-digital tools to create the other. Learners will then compare and contrast the two approaches.	To recognise how digital devices can change the way that we work <ul style="list-style-type: none"> <li>I can explain how I use digital devices for different activities</li> <li>I can recognise similarities between using digital devices and using non-digital tools</li> <li>I can suggest differences between using digital devices and using non-digital tools</li> </ul>

<b>4 How am I connected?</b>	<p>Many digital devices are now connected to other digital devices, eg computers through wires, tablets through Wi-Fi, and smartphones through mobile phone networks. The benefit of connecting digital devices is that it allows information to be shared between users and systems.</p> <p>This lesson introduces the concept of connections and moving information between connected devices. Learners will learn to explain how and why computers are joined together to form networks.</p>	To explain how a computer network can be used to share information <ul style="list-style-type: none"> <li>I can recognise different connections</li> <li>I can explain how messages are passed through multiple connections</li> <li>I can discuss why we need a network switch</li> </ul>
<b>5 How are computers connected?</b>	This lesson introduces key network components, including a server and wireless access points. Learners will examine each device's functionality and look at the benefits of networking computers.	To explore how digital devices can be connected <ul style="list-style-type: none"> <li>I can recognise that a computer network is made up of a number of devices</li> <li>I can demonstrate how information can be passed between devices</li> <li>I can explain the role of a switch, server, and wireless access point in a network</li> </ul>
<b>6 What does our school network look like?</b>	Learners will further develop their understanding of computer networks. They will see examples of network infrastructure in a real-world setting and relate them to the activities in Lesson 5.	To recognise the physical components of a network <ul style="list-style-type: none"> <li>I can identify how devices in a network are connected together</li> <li>I can identify networked devices around me</li> <li>I can identify the benefits of computer networks</li> </ul>

### Year 5 – Data and information – Flat-file databases

Lesson	Brief overview	Learning objectives
<b>1. Creating a paper-based database</b>	In this lesson, learners will create a paper version of a record card database. Using a card template, they will create a data set, with each learner creating eight to ten cards linked to a theme, e.g. animals. They will complete records for each of the animals in their database and then they will physically sort the cards to answer questions about the data.	To use a form to record information <ul style="list-style-type: none"> <li>I can create a database using cards</li> <li>I can explain how information can be recorded</li> <li>I can order, sort, and group my data cards</li> </ul>
<b>2. Computer databases</b>	In this lesson, learners will use a computer-based database to examine how data can be recorded and viewed. They will learn that a database consists of 'records', and that each record contains 'fields'. In addition, they will order records in different ways and compare this database to the paper database they created in Lesson 1.	To compare paper and computer-based databases <ul style="list-style-type: none"> <li>I can explain what a field and a record is in a database</li> <li>I can navigate a flat-file database to compare different views of information</li> <li>I can choose which field to sort data by to answer a given question</li> </ul>
<b>3. Using a database</b>	In this lesson, learners will investigate how records can be grouped, using both the paper record cards created in Lesson 1 and a computer-based database from J2E. They will use 'grouping' and 'sorting' to answer questions about the data.	To outline how you can answer questions by grouping and then sorting data <ul style="list-style-type: none"> <li>I can explain that data can be grouped using chosen values</li> <li>I can group information using a database</li> <li>I can combine grouping and sorting to answer specific questions</li> </ul>

<b>4. Using search tools</b>	In this lesson, learners will develop their search techniques to answer questions about the data. They will use advanced techniques to search for more than one field, and will practise doing this through both unplugged methods (without using computers), and using a computer database.	To explain that tools can be used to select specific data <ul style="list-style-type: none"> <li>I can choose which field and value are required to answer a given question</li> <li>I can outline how 'AND' and 'OR' can be used to refine data selection</li> <li>I can choose multiple criteria to answer a given question</li> </ul>
<b>5. Comparing data visually</b>	In this lesson, learners will consider what makes a useful chart, and how charts can be used to compare data. They will create charts from their data in order to answer questions about it.	To explain that computer programs can be used to compare data visually <ul style="list-style-type: none"> <li>I can select an appropriate chart to visually compare data</li> <li>I can refine a chart by selecting a particular filter</li> <li>I can explain the benefits of using a computer to create charts</li> </ul>
<b>6. Databases in real life</b>	The final lesson requires learners to use a real-life database to ask questions and find answers in the context of a flight search based on set parameters. They will take on the role of a travel agent and present their findings, showing how they arrived at their chosen options. Presentations may be given between groups of learners, or by each group to the whole class, depending on the time available.	To use a real-world database to answer questions <ul style="list-style-type: none"> <li>I can ask questions that will need more than one field to answer</li> <li>I can refine a search in a real-world context</li> <li>I can present my findings to a group</li> </ul>



## Year 5 – Programming B – Selection in quizzes

Lesson	Brief overview	Learning objectives
<b>Exploring conditions</b>	In this lesson, learners revisit previous learning on 'selection' and identify how 'conditions' are used to control the flow of actions in a program. They are introduced to the blocks for using conditions in programs using the Scratch programming environment. They modify the conditions in an existing program and identify the impact this has.	To explain how selection is used in computer programs <ul style="list-style-type: none"> <li>I can recall how conditions are used in selection</li> <li>I can identify conditions in a program</li> <li>I can modify a condition in a program</li> </ul>
<b>Selecting outcomes</b>	In this lesson, learners will develop their understanding of selection by using the 'if... then... else...' structure in algorithms and programs. They will revisit the need to use repetition in selection to ensure that conditions are repeatedly checked. They identify the two outcomes in given programs and how the condition informs which outcome will be selected. Learners use this knowledge to write their own programs that use selection with two outcomes.	To relate that a conditional statement connects a condition to an outcome <ul style="list-style-type: none"> <li>I can use selection in an infinite loop to check a condition</li> <li>I can identify the condition and outcomes in an 'if... then... else...' statement</li> <li>I can create a program that uses selection to produce different outcomes</li> </ul>
<b>Asking questions</b>	In this lesson, learners consider how the 'if... then... else...' structure can be used to identify two responses to a binary question (one with a 'yes or no' answer). They identify that the answer to the question is the 'condition', and use algorithms with a branching structure to represent the actions that will be carried out if the condition is true or false. They learn how questions can be asked in	To explain how selection directs the flow of a program <ul style="list-style-type: none"> <li>I can explain that program flow can branch according to a condition</li> </ul>

	Scratch, and how the answer, supplied by the user, is used in the condition to control the outcomes. They use an algorithm to design a program that uses selection to direct the flow of the program based on the answer provided. They implement their algorithm as a program and test whether both outcomes can be achieved.	<ul style="list-style-type: none"> <li>I can design the flow of a program that contains 'if... then... else...'</li> <li>I can show that a condition can direct program flow in one of two ways</li> </ul>
<b>Designing a quiz</b>	In this lesson, learners will be provided with a task: to use selection to control the outcomes in an interactive quiz. They will outline the requirements of the task and use an algorithm to show how they will use selection in the quiz to control the outcomes based on the answer given. Learners will complete their designs by using design templates to identify the questions that will be asked, and the outcomes for both correct and incorrect answers. To demonstrate their understanding of how they are using selection to control the flow of the program, learners will identify which outcomes will be selected based on given responses.	To design a program that uses selection <ul style="list-style-type: none"> <li>I can outline a given task</li> <li>I can use a design format to outline my project</li> <li>I can identify the outcome of user input in an algorithm</li> </ul>
<b>Testing a quiz</b>	In this lesson, learners will use the Scratch programming environment to implement the first section of their algorithm as a program. They will run the first section of their program to test whether they have correctly used selection to control the outcomes, and debug their program if required. They will then continue implementing their algorithm as a program. Once completed, they will consider the value of sharing their program with others so that they can receive feedback. Learners conclude the lesson by using another learner's quiz and providing feedback on it.	To create a program that uses selection <ul style="list-style-type: none"> <li>I can implement my algorithm to create the first section of my program</li> <li>I can test my program</li> <li>I can share my program with others</li> </ul>
<b>Evaluating a quiz</b>	In this lesson, learners will return to their completed programs and identify ways in which the program can be improved. They will focus on issues where answers similar to those in the condition are given as inputs, and identify ways to avoid such problems. Learners will also consider how the outcomes may change the program for subsequent users, and identify how they can make use of 'setup' to	To evaluate my program <ul style="list-style-type: none"> <li>I can identify ways the program could be improved</li> <li>I can identify the setup code I need in my program</li> </ul>

	provide all users with the same experience. They will implement their identified improvements by returning to the Scratch programming environment and adding to their programs. They conclude the unit by identifying how they met the requirements of the given task, and identifying the aspects of the program that worked well, those they improved, and areas that could improve further.	<ul style="list-style-type: none"> <li>I can extend my program further</li> </ul>
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## Year 3 – Desktop publishing

Lesson	Brief overview	Learning objectives
<b>1. Words and pictures</b>	In this lesson, learners will become familiar with the terms 'text' and 'images' and understand that text and images need to be used carefully to communicate messages clearly. Learners will be able to give advantages and disadvantages of using text, images, or both text and images to communicate messages effectively.	To recognise how text and images convey information <ul style="list-style-type: none"> <li>I can explain the difference between text and images</li> <li>I can recognise that text and images can communicate messages clearly</li> <li>I can identify the advantages and disadvantages of using text and images</li> </ul>
<b>2. Can you edit it?</b>	This lesson will build on last week's lesson, in which we looked at using images and text to communicate a message effectively. In this lesson we will look at desktop publishing. Learners will think about how to make careful choices regarding font size, colour, and type in an invitation. The use of the Return, Backspace, and Shift keys will be explored and learners will be taught how to type age-appropriate punctuation marks. This will build on the typing skills learned in the <a href="#">Year 1 'Digital writing' unit</a> . Learners will understand that once content has been added, it can be rearranged on the page.	To recognise that text and layout can be edited <ul style="list-style-type: none"> <li>I can change font style, size, and colours for a given purpose</li> <li>I can edit text</li> <li>I can explain that text can be changed to communicate more clearly</li> </ul>
<b>3. Great template!</b>	Learners will be introduced to the terms 'templates', 'orientation', and 'placeholders' within desktop publishing software. The learners will create their own magazine template, which they will add content to during the next lesson.	To choose appropriate page settings <ul style="list-style-type: none"> <li>I can explain what 'page orientation' means</li> <li>I can recognise placeholders and say why they are important</li> </ul>

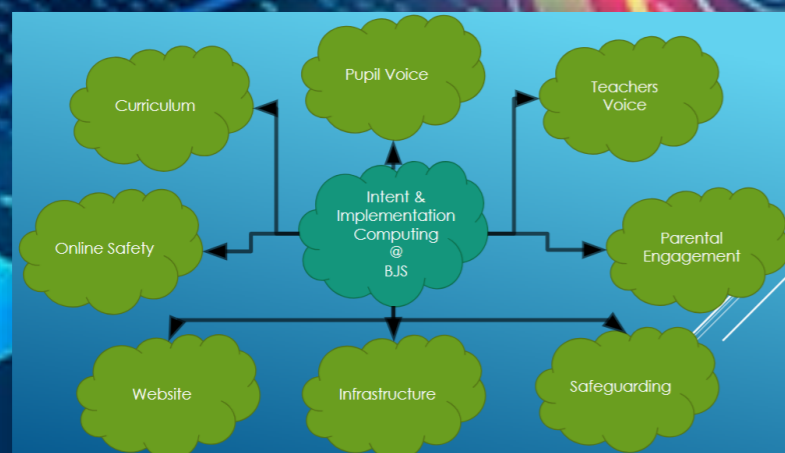
	This lesson has been designed on a laptop using Canva and this is reflected in the slides. Teachers may decide to use Canva, or other software such as Microsoft Publisher.	<ul style="list-style-type: none"> <li>I can create a template for a particular purpose</li> </ul>
<b>4. Can you add content?</b>	In this lesson, learners will add their own content (text and images) to the magazine templates they created in lesson 3. They will copy the information for the front of their magazine from a prewritten document and paste it into the chosen place on their magazine cover. Images will be added from within the search facility in Canva.	To add content to a desktop publishing publication <ul style="list-style-type: none"> <li>I can choose the best locations for my content</li> <li>I can paste text and images to create a magazine cover</li> <li>I can make changes to content after I've added it</li> </ul>
<b>5. Lay it out</b>	In this lesson, learners will think about the different ways information can be laid out on a page. They will look at a range of page layouts such as letters and newspapers, and begin to think about the purpose of each of these.	To consider how different layouts can suit different purposes <ul style="list-style-type: none"> <li>I can identify different layouts</li> <li>I can match a layout to a purpose</li> <li>I can choose a suitable layout for a given purpose</li> </ul>
<b>6. Why desktop publishing?</b>	In this lesson, learners will explain what desktop publishing means in their own words. They will think about how desktop publishing is used in the wider world and consider the benefits of using desktop publishing applications.	To consider the benefits of desktop publishing <ul style="list-style-type: none"> <li>I can identify the uses of desktop publishing in the real world</li> <li>I can say why desktop publishing might be helpful</li> <li>I can compare work made on desktop publishing to work created by hand</li> </ul>



## Year 3 – Programming B – Events and actions in programs

Lesson	Brief overview	Learning objectives
1 Moving a sprite	In this lesson, learners will investigate how characters can be moved using 'events'. They will analyse and improve an existing project, and then apply what they have learned to their own projects. They will then extend their learning to control multiple sprites in the same project.	To explain how a sprite moves in an existing project <ul style="list-style-type: none"> <li>I can explain the relationship between an event and an action</li> <li>I can choose which keys to use for actions and explain my choices</li> <li>I can identify a way to improve a program</li> </ul>
2 Maze movement	In this lesson, learners will program a sprite to move in four directions: up, down, left, and right. They will begin by choosing a sprite and sizing it to fit in with a given background. Learners will then create the code to move the sprite in one direction before duplicating and modifying it to move in all four directions. Finally, they will consider how their project could be extended to prove that their sprite has successfully navigated a maze.	To create a program to move a sprite in four directions <ul style="list-style-type: none"> <li>I can choose a character for my project</li> <li>I can choose a suitable size for a character in a maze</li> <li>I can program movement</li> </ul>
3 Drawing lines	This lesson will introduce learners to extension blocks in Scratch using the <b>Pen</b> extension. Learners will use the pen down block to draw lines, building on the movement they created for their sprite in Lesson 2. Learners will then decide how to set up their project every time it is run.	To adapt a program to a new context <ul style="list-style-type: none"> <li>I can use a programming extension</li> <li>I can consider the real world when making design choices</li> <li>I can choose blocks to set up my program</li> </ul>

4 Adding features	In this lesson, learners will be given the opportunity to use additional <b>Pen</b> blocks. They will predict the functions of new blocks and experiment with them, before designing features to add to their own projects. Finally, they will add these features to their projects and test their effectiveness.	To develop my program by adding features <ul style="list-style-type: none"> <li>I can identify additional features (from a given set of blocks)</li> <li>I can choose suitable keys to turn on additional features</li> <li>I can build more sequences of commands to make my design work</li> </ul>
5 Debugging movement	This lesson explores the process of debugging, specifically looking at how to identify and fix errors in a program. Learners will review an existing project against a given design and identify bugs within it. They will then correct the errors, gaining independence as they do so. Learners will also develop their projects by considering which new setup blocks to use.	To identify and fix bugs in a program <ul style="list-style-type: none"> <li>I can test a program against a given design</li> <li>I can match a piece of code to an outcome</li> <li>I can modify a program using a design</li> </ul>
6 Making a project	In this lesson, learners will design and create their own projects. Using a template (which can be blank or partially completed), learners will complete projects to move a sprite around a maze, with the option to leave a pen trail showing where the sprite has moved. Ideally, projects will include setup blocks to position the sprite at the start of the maze and clear any lines already on the screen.	To design and create a maze-based challenge <ul style="list-style-type: none"> <li>I can make design choices and justify them</li> <li>I can implement my design</li> <li>I can evaluate my project</li> </ul>



## Year 5 – Vector drawing

Lesson	Brief overview	Learning objectives
1 The drawing tools	Learners are introduced to vector drawings and begin to understand that they are made up of simple shapes and lines. They use the main drawing tools within the Google Drawings application to create their own vector drawings. Learners discuss how vector drawings differ from paper-based drawings.	To identify that drawing tools can be used to produce different outcomes <ul style="list-style-type: none"> <li>I can recognise that vector drawings are made using shapes</li> <li>I can experiment with the shape and line tools</li> <li>I can discuss how vector drawings are different from paper-based drawings</li> </ul>
2 Creating images	Learners begin to identify the shapes that are used to make vector drawings. They are able to explain that each element of a vector drawing is called an object. Learners create their own vector drawing by moving, resizing, rotating, and changing the colours of a selection of objects. They also learn how to duplicate the objects to save time.	To create a vector drawing by combining shapes <ul style="list-style-type: none"> <li>I can identify the shapes used to make a vector drawing</li> <li>I can explain that each element added to a vector drawing is an object</li> <li>I can move, resize, and rotate objects I have duplicated</li> </ul>
3 Making effective drawings	Learners increase the complexity of their vector drawings and use the zoom tool to add detail to their work. They are shown how grids and resize handles can improve the consistency of their drawings. Learners also use tools to modify objects to create a new image.	To use tools to achieve a desired effect <ul style="list-style-type: none"> <li>I can use the zoom tool to help me add detail to my drawings</li> <li>I can explain how alignment grids and resize handles can be used to improve consistency</li> <li>I can modify objects to create a new image</li> </ul>

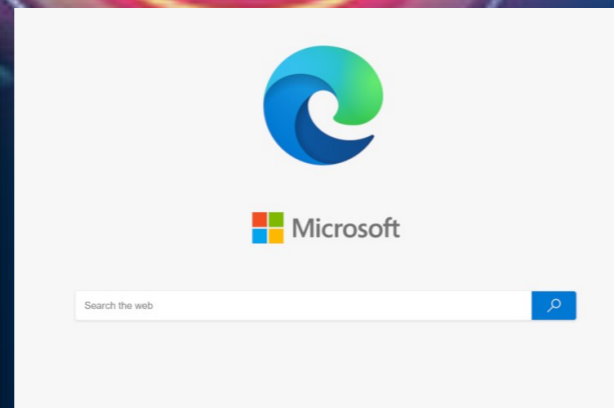
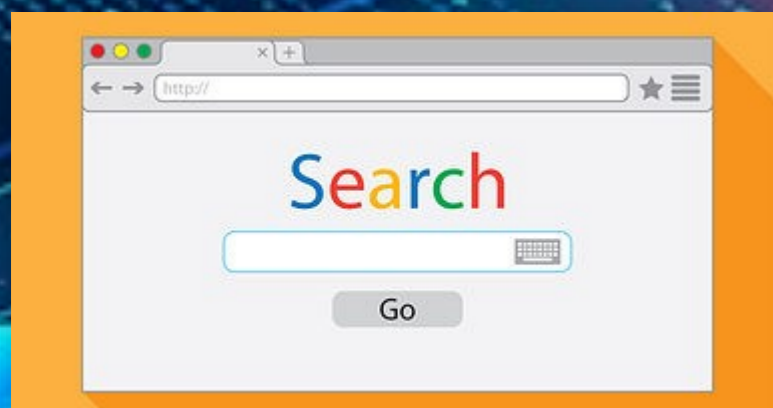
4 Layers and objects	Learners gain an understanding of layers and how they are used in vector drawings. They discover that each object is built on a new layer and that these layers can be moved forwards and backwards to create effective vector drawings.	To recognise that vector drawings consist of layers <ul style="list-style-type: none"> <li>I can identify that each added object creates a new layer in the drawing</li> <li>I can change the order of layers in a vector drawing</li> <li>I can use layering to create an image</li> </ul>
5 Manipulating objects	Learners find out how to select and duplicate multiple objects at a single time. They develop this skill further by learning how to group multiple objects to make them easier to work with. Learners then use this knowledge to group and ungroup objects, in order to make changes to and develop their vector drawings.	To group objects to make them easier to work with <ul style="list-style-type: none"> <li>I can copy part of a drawing by duplicating several objects</li> <li>I can recognise when I need to group and ungroup objects</li> <li>I can reuse a group of objects to further develop my vector drawing</li> </ul>
6 Create a vector drawing	Learners use the skills they have gained in this unit to create a vector drawing for a specific purpose. They reflect on the skills they have used to create the vector drawing and think about why they used the skills they did. Learners then begin to compare vector drawings to freehand paint program drawings.	To apply what I have learned about vector drawings <ul style="list-style-type: none"> <li>I can create a vector drawing for a specific purpose</li> <li>I can reflect on the skills I have used and why I have used them</li> <li>I can compare vector drawings to freehand paint drawings</li> </ul>



## Year 5 – Systems and searching

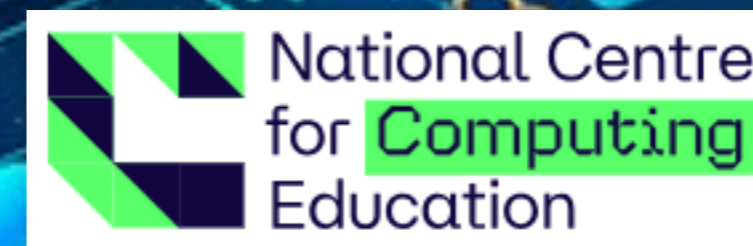
Lesson	Brief overview	Learning objectives
<b>1 Systems</b>	Learners are introduced to the concept of a system. They begin to understand that components can work together to perform a task. Finally, learners explore how digital systems can work and learn about physical and electronic connections.	To explain that computers can be connected together to form systems <ul style="list-style-type: none"> <li>I can explain that systems are built using a number of parts</li> <li>I can describe the input, process, and output of a digital system</li> <li>I can explain that computer systems communicate with other devices</li> </ul>
<b>2 Computer systems and us</b>	Learners consider how larger computer systems work. They see how devices and processes are connected, and reflect on how computer systems can help them.	To recognise the role of computer systems in our lives <ul style="list-style-type: none"> <li>I can identify tasks that are managed by computer systems</li> <li>I can identify the human elements of a computer system</li> <li>I can explain the benefits of a given computer system</li> </ul>
<b>3 Searching the web</b>	Learners are introduced to a range of search engines. They are given the opportunity to explain how to search, before they write and test instructions. Next, they learn that searches do not always return the results that someone is looking for, and refine their searches accordingly. Finally, learners are introduced to the two most common methods of searching: using a search engine and using the address bar.	To identify how to use a search engine <ul style="list-style-type: none"> <li>I can make use of a web search to find specific information</li> <li>I can refine my web search</li> <li>I can compare results from different search engines</li> </ul>

<b>4 Selecting search results</b>	Learners gain an understanding of why search engines are necessary to help them find things on the World Wide Web. They conduct their own searches and break down, in detail, the steps needed to find things on the web. Learners then emulate web crawlers to create an index of their own classroom. Finally, they consider why some searches return more results than others.	To describe how search engines select results <ul style="list-style-type: none"> <li>I can explain why we need tools to find things online</li> <li>I can recognise the role of web crawlers in creating an index</li> <li>I can relate a search term to the search engine's index</li> </ul>
<b>5 How search results are ranked</b>	Learners take part in an unplugged activity to find out about how a webpage's content can influence where it is ranked in search results. In groups, learners create paper-based webpages on a topic that they are familiar with. They then discover how their webpages would rank when searching for keywords relating to their content.	To explain how search results are ranked <ul style="list-style-type: none"> <li>I can order a list by rank</li> <li>I can explain that a search engine follows rules to rank results</li> <li>I can give examples of criteria used by search engines to rank results</li> </ul>
<b>6 How are searches influenced?</b>	Learners explore how someone performing a web search can influence the results that are returned, and how content creators can optimise their sites for searching. They also explore some of the limitations of searching and discuss what cannot be searched.	To recognise why the order of results is important, and to whom <ul style="list-style-type: none"> <li>I can describe some of the ways that search results can be influenced</li> <li>I can recognise some of the limitations of search engines</li> <li>I can explain how search engines make money</li> </ul>



## Year 3 – Stop-frame animation

Lesson	Brief overview	Learning objectives
<b>1 Can a picture move?</b>	Learners will discuss whether they think a picture can move. They will learn about simple animation techniques and create their own animations in the style of flip books (flick books) using sticky notes.	To explain that animation is a sequence of drawings or photographs <ul style="list-style-type: none"> <li>I can draw a sequence of pictures</li> <li>I can create an effective flip book—style animation</li> <li>I can explain how an animation/flip book works</li> </ul>
<b>2 Frame by frame</b>	In the previous lesson, learners created their own flip book—style animations. In this lesson, they will develop this knowledge and apply it to make a stop-frame animation using a tablet.	To relate animated movement with a sequence of images <ul style="list-style-type: none"> <li>I can predict what an animation will look like</li> <li>I can explain why little changes are needed for each frame</li> <li>I can create an effective stop-frame animation</li> </ul>
<b>3 What's the story?</b>	Remind the learners of the animations that we created last week and tell them that next week we will use tablets to animate some of our own stories. Tell the learners that during this lesson they will create a storyboard showing the characters, settings and events that they would like to include in their own stop-frame animation next week.	To plan an animation <ul style="list-style-type: none"> <li>I can break down a story into settings, characters and events</li> <li>I can describe an animation that is achievable on screen</li> <li>I can create a storyboard</li> </ul>
<b>4 Picture perfect</b>	In the previous lesson, learners planned out their own stop-frame animations in a storyboard. This lesson, they will use tablets to carefully create stop-frame animations, paying attention to consistency.	To identify the need to work consistently and carefully <ul style="list-style-type: none"> <li>I can use onion skinning to help me make small changes between frames</li> <li>I can review a sequence of frames to check my work</li> <li>I can evaluate the quality of my animation</li> </ul>
<b>5 Evaluate and make it great!</b>	Last lesson, learners created their own stop-frame animations. This lesson, they will evaluate their animations and try to improve them by creating a brand-new animation based on their feedback.	To review and improve an animation <ul style="list-style-type: none"> <li>I can explain ways to make my animation better</li> <li>I can evaluate another learner's animation</li> <li>I can improve my animation based on feedback</li> </ul>
<b>6 Lights, camera, action!</b>	Last lesson, learners perfected their stop-frame animations. This lesson, they will add other media and effects into their animations, such as music and text.	To evaluate the impact of adding other media to an animation <ul style="list-style-type: none"> <li>I can add other media to my animation</li> <li>I can explain why I added other media to my animation</li> <li>I can evaluate my final film</li> </ul>



## Year 3 – Programming A - Sequencing sounds

Lesson	Brief overview	Learning objectives
1. Introduction to Scratch	This lesson introduces learners to a new programming environment: Scratch. Learners will begin by comparing Scratch to other programming environments they may have experienced, before familiarising themselves with the basic layout of the screen.	To explore a new programming environment <ul style="list-style-type: none"> <li>I can identify the objects in a Scratch project (sprites, backdrops)</li> <li>I can explain that objects in Scratch have attributes (linked to)</li> <li>I can recognise that commands in Scratch are represented as blocks</li> </ul>
2. Programming sprites	In this lesson, learners will create movement for more than one sprite. In doing this, they will design and implement their code, and then will create code to replicate a given outcome. Finally, they will experiment with new motion blocks.	To identify that commands have an outcome <ul style="list-style-type: none"> <li>I can identify that each sprite is controlled by the commands I choose</li> <li>I can choose a word which describes an on-screen action for my plan</li> <li>I can create a program following a design</li> </ul>
3. Sequences	In this lesson, learners will be introduced to the concept of sequences by joining blocks of code together. They will also learn how event blocks can be used to start a project in a variety of different ways. In doing this, they will apply principles of design to plan and create a project.	To explain that a program has a start <ul style="list-style-type: none"> <li>I can start a program in different ways</li> <li>I can create a sequence of connected commands</li> <li>I can explain that the objects in my project will respond exactly to the code</li> </ul>

4. Ordering commands	This lesson explores sequences, and how they are implemented in a simple program. Learners have the opportunity to experiment with sequences where order is and is not important. They will create their own sequences from given designs.	To recognise that a sequence of commands can have an order <ul style="list-style-type: none"> <li>I can explain what a sequence is</li> <li>I can combine sound commands</li> <li>I can order notes into a sequence</li> </ul>
5. Looking good	This lesson develops learners' understanding of sequences by giving them the opportunity to combine motion and sounds in one sequence. They will also learn how to use costumes to change the appearance of a sprite, and backdrops to change the appearance of the stage. They will apply the skills in Activity 1 and 2 to design and create their own project, including sequences, sprites with costumes, and multiple backdrops.	To change the appearance of my project <ul style="list-style-type: none"> <li>I can build a sequence of commands</li> <li>I can decide the actions for each sprite in a program</li> <li>I can make design choices for my artwork</li> </ul>
6. Making an instrument	In this lesson, learners will create a musical instrument in Scratch. They will apply the concept of design to help develop programs and use programming blocks – which they have been introduced to throughout the unit. They will learn that code can be copied from one sprite to another, and that projects should be tested to see if they perform as expected.	To create a project from a task description <ul style="list-style-type: none"> <li>I can identify and name the objects I will need for a project</li> <li>I can relate a task description to a design</li> <li>I can implement my algorithm as code</li> </ul>

## Year 4 – Photo editing

Lesson	Brief overview	Learning objectives
1 Changing digital images	In this lesson, you will introduce learners to the concept of editing images. They will go on to explore when we need to rotate and crop an image as well as how to use an image editor to make these changes. Learners will then discuss image composition.	To explain that the composition of digital images can be changed <ul style="list-style-type: none"> <li>I can improve an image by rotating it</li> <li>I can explain why I might crop an image</li> <li>I can use photo editing software to crop an image</li> </ul>
2 Recolouring	In this lesson, learners will look at the effect that different colours and filters can have on an image. They will choose appropriate effects to fit a scenario, and explain how they made their choices. They will then edit the images using different effects to suit two different scenarios.	To explain that colours can be changed in digital images <ul style="list-style-type: none"> <li>I can explain that different colour effects make you think and feel different things</li> <li>I can experiment with different colour effects</li> <li>I can explain why I chose certain colour effects</li> </ul>
3 Cloning	In this lesson, learners will be introduced to the cloning tool and its use in both changing the composition of a photo and photo retouching. They will see how parts of a photo can be removed or duplicated using cloning. Learners will consider what parts of an image can be retouched and learn techniques to make this as unnoticeable as possible. Finally, they will consider when it is necessary to edit photographs in this way.	To explain how cloning can be used in photo editing <ul style="list-style-type: none"> <li>I can add to the composition of an image by cloning</li> <li>I can identify how a photo edit can be improved</li> <li>I can remove parts of an image using cloning</li> </ul>

4 Combining	In this lesson, students learn how to use different tools to select areas of an image. Learners then use copy and paste within one image and between two images to produce a combined image. Finally, learners will consider when it's appropriate to edit an image and discuss some of the ethics around retouching photos.	To explain that images can be combined <ul style="list-style-type: none"> <li>I can experiment with tools to select and copy part of an image</li> <li>I can use a range of tools to copy between images</li> <li>I can explain why photos might be edited</li> </ul>
5 Creating	In this lesson, learners will apply all the skills they have learnt in the unit so far. They will start by reviewing some images and considering what makes an image look real or made up. Learners will then plan their own image. They will choose from a selection of images, open them and edit them to create their own project.	To combine images for a purpose <ul style="list-style-type: none"> <li>I can describe the image I want to create</li> <li>I can choose suitable images for my project</li> <li>I can create a project that is a combination of other images</li> </ul>
6 Evaluating	This lesson is the final lesson in the unit on photo editing. Learners will review the image that they created in Lesson 5. After they have reviewed their image, they will have the opportunity to make changes to their image based on their review. Learners will then add text to their image to complete it as a publication.	To evaluate how changes can improve an image <ul style="list-style-type: none"> <li>I can review images against a given criteria</li> <li>I can use feedback to guide making changes</li> <li>I can combine text and my image to complete the project</li> </ul>

**What Parents & Carers Need to Know about DISNEY+**

The Walt Disney Company's streaming service, Disney+, combines entertainment from the famous animation studio itself with Pixar, Star and National Geographic, plus the Marvel and Star Wars franchises. With access to the latest releases, Disney classics and original series, there's plenty of content to explore. While parents may have noted that content has now been introduced on some versions of the service, the platform is "unsurprisingly for a Disney product - designed to be appropriate for the whole family."

**WHAT ARE THE RISKS?**

**LESS SUITABLE CONTENT**  
While Disney+ is predominantly family-friendly, there are some movies and shows in its library which are aimed at an older audience. These may contain language or content themes or language that are not suitable for children. It is important to check the content ratings by clicking on the 'More Info' link in the content settings, which will specify a content rating for your child's profile.

**ENCROACHING ADVERTS**  
Disney+ has introduced shareable subscription packages - Disney+ Family Share. This allows up to seven people to share a single subscription. While these services offer content catered for younger viewers, they also provide access to the same content as the main subscription. As a result, your child could find themselves accessing content not intended for their age group. Adults who give content will see personalised adverts based on their location and viewing history.

**ACCESSING ADULTS' CONTENT**

**BINCE WATCHING**

**What Parents & Carers Need to Know about SMART TVS**

Smart TVs connect to the internet without the need for a set-top box or streaming device, giving users access to a range of features through the TV's own Smart TV interface. Content is often accessed through streaming services such as Netflix, Amazon, YouTube and other video services. As it is now easier to connect to the internet, it is also easier to access content that is not intended for children. It is now even more important to consider the online safety aspects.

**WHAT ARE THE RISKS?**

**AGE-INAPPROPRIATE CONTENT**  
From social media to streaming services, Smart TVs offer a wide range of content. While these services offer content catered for younger viewers, they also provide access to the same content as the main subscription. As a result, your child could find themselves accessing content not intended for their age group. Adults who give content will see personalised adverts based on their location and viewing history.

**UNCONVINING SECURITY**  
An internet-connected TV is a smart device. It is important to ensure that your TV is secure. You should ensure that you have updated the TV's software. You should also ensure that you have updated the TV's operating system. You should also ensure that you have updated the TV's firmware. You should also ensure that you have updated the TV's BIOS. You should also ensure that you have updated the TV's BIOS.

**INCREASED SCREEN TIME**

**A SILENT SPY?**

## Year 4 – Data logging

Lesson	Brief overview	Learning objectives
1 Answering questions	Learners will consider what data can be collected and how it is collected. They will think about data being collected over time. Learners will also think about questions that can and can't be answered using available data, and reflect on the importance of collecting the right data to answer questions.	To explain that data gathered over time can be used to answer questions <ul style="list-style-type: none"> <li>I can choose a data set to answer a given question</li> <li>I can suggest questions that can be answered using a given data set</li> <li>I can identify data that can be gathered over time</li> </ul>
2 Data collection	Learners will build on the idea of collecting data over time, and be introduced to the idea of collecting data automatically using computers such as data loggers. They will also be introduced to the concept that computers can capture data from the physical world using input devices called 'sensors'. Learners will establish that sensors can be connected to data loggers, which can automatically collect data while not attached to a computer.	To use a digital device to collect data automatically <ul style="list-style-type: none"> <li>I can explain what data can be collected using sensors</li> <li>I can use data from a sensor to answer a given question</li> <li>I can identify that data from sensors can be recorded</li> </ul>
3 Logging	Learners will explore how data loggers work. They will record data at set moments in time and draw parallels with the data points that a data logger captures at regular intervals. Learners will use data loggers away from a computer, then they will connect the loggers to a computer and download the data.	To explain that a data logger collects 'data points' from sensors over time <ul style="list-style-type: none"> <li>I can recognise that a data logger collects data at given points</li> <li>I can identify the intervals used to collect data</li> <li>I can talk about the data that I have captured</li> </ul>

4 Analysing data	Learners will open an existing data file and use software to find out key information. They will analyse a data file which is a five-hour log of hot water cooling to room temperature.	To recognise how a computer can help us analyse data <ul style="list-style-type: none"> <li>I can view data at different levels of detail</li> <li>I can sort data to find information</li> <li>I can explain that there are different ways to view data</li> </ul>
5 Data for answers	Learners will think about questions that can be answered using collected data. They will choose a question to focus on and then plan the data logging process that they need to complete. After learners have completed their plan, they will set up the data loggers to check that their plan will work. This setting up is designed to ensure that the data collection will work, and that learners will have data to use in the next lesson.	To identify the data needed to answer questions <ul style="list-style-type: none"> <li>I can propose a question that can be answered using logged data</li> <li>I can plan how to collect data using a data logger</li> <li>I can use a data logger to collect data</li> </ul>
6 Answering my question	Learners will access and review the data that they have collected using a data logger. They will then use the data collected to answer the question that they selected in the previous lesson. Learners will also reflect on the benefits of using a data logger.	To use data from sensors to answer questions <ul style="list-style-type: none"> <li>I can interpret data that has been collected using a data logger</li> <li>I can draw conclusions from the data that I have collected</li> <li>I can explain the benefits of using a data logger</li> </ul>



## Year 4 – The internet

Lesson	Brief overview	Learning objectives
1 Connecting networks	Learners will explore how a network can share messages with another network to form the internet. They will consider some of the network devices involved in this, such as routers, and will also discuss what should be kept in and out of a network to keep safe.	To describe how networks physically connect to other networks <ul style="list-style-type: none"> <li>I can describe the internet as a network of networks</li> <li>I can demonstrate how information is shared across the internet</li> <li>I can discuss why a network needs protecting</li> </ul>
2 What is the internet made of?	Learners will describe the parts of a network and how they connect to each other to form the internet. They will use this understanding to help explain how the internet lets us view the World Wide Web and recognise that the World Wide Web is part of the internet which contains websites and web pages.	To recognise how networked devices make up the internet <ul style="list-style-type: none"> <li>I can describe networked devices and how they connect</li> <li>I can explain that the internet is used to provide many services</li> <li>I can recognise that the World Wide Web contains websites and web pages</li> </ul>
3 Sharing information	Learners will explore what can be shared on the World Wide Web and where websites are stored. They will also explore how the World Wide Web can be accessed on a variety of devices.	To outline how websites can be shared via the World Wide Web (WWW) <ul style="list-style-type: none"> <li>I can explain the types of media that can be shared on the WWW</li> <li>I can describe where websites are stored when uploaded to the WWW</li> <li>I can describe how to access websites on the WWW</li> </ul>

4 What is a website?	Learners will analyse a website and identify the key parts. They will then consider what content can be added to websites and what factors they should consider before adding content to a website. Finally, they will use a website which enables them to create their own content online.	To describe how content can be added and accessed on the World Wide Web (WWW) <ul style="list-style-type: none"> <li>I can explain what media can be found on websites</li> <li>I can recognise that I can add content to the WWW</li> <li>I can explain that internet services can be used to create content online</li> </ul>
5 Who owns the web?	Learners will explore who owns the content on the World Wide Web (or 'web' for short). They will explore a variety of websites and will investigate what they can and cannot do with the content on them. They will also relate this to principles of ownership and sharing in the real world.	To recognise how the content of the WWW is created by people <ul style="list-style-type: none"> <li>I can explain that websites and their content are created by people</li> <li>I can suggest who owns the content on websites</li> <li>I can explain that there are rules to protect content</li> </ul>
6 Can I believe what I read?	Learners will gain an appreciation of the fact that not everything they see on the internet is true, honest, or accurate. They will review images and decide whether or not they are real, before looking at why web searches can return ambiguous (and sometimes misleading) results. Finally, learners will complete a practical activity, demonstrating how quickly information can spread beyond their control.	To evaluate the consequences of unreliable content <ul style="list-style-type: none"> <li>I can explain that not everything on the World Wide Web is true</li> <li>I can explain why some information I find online may not be honest, accurate, or legal</li> <li>I can explain why I need to think carefully before I share or reshare content</li> </ul>

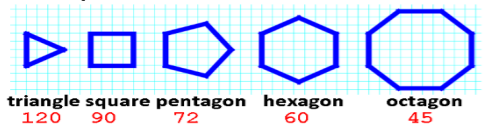
## Year 4 – Programming A – Repetition in shapes

Lesson	Brief overview	Learning objectives
1 Programming a screen turtle	This lesson will introduce pupils to programming in Logo. Logo is a text-based programming language where pupils type commands that are then drawn on screen. Pupils will learn the basic Logo commands, and will use their knowledge of them to read and write code.	To identify that accuracy in programming is important <ul style="list-style-type: none"> <li>I can program a computer by typing commands</li> <li>I can explain the effect of changing a value of a command</li> <li>I can create a code snippet for a given purpose</li> </ul>
2 Programming letters	In this lesson, pupils will create algorithms (a precise set of ordered instructions, which can be turned into code) for their initials. They will then implement these algorithms by writing them in Logo commands to draw the letter. They will debug their code by finding and fixing any errors that they spot.	To create a program in a text-based language <ul style="list-style-type: none"> <li>I can use a template to draw what I want my program to do</li> <li>I can write an algorithm to produce a given outcome</li> <li>I can test my algorithm in a text-based language</li> </ul>
3 Patterns and repeats	In this lesson, pupils will first look at examples of patterns in everyday life. They will recognise where numbers, shapes, and symbols are repeated, and how many times repeats occur. They will create algorithms for drawing a square, using the same annotated diagram as in Lesson 2. They will use this algorithm to program a square the 'long' way, and recognise the repeated pattern within a square. Once they know the repeated pattern, they will use the repeat command within Logo to program squares the 'short' way.	To explain what 'repeat' means <ul style="list-style-type: none"> <li>I can identify repetition in everyday tasks</li> <li>I can identify patterns in a sequence</li> <li>I can use a count-controlled loop to produce a given outcome</li> </ul>

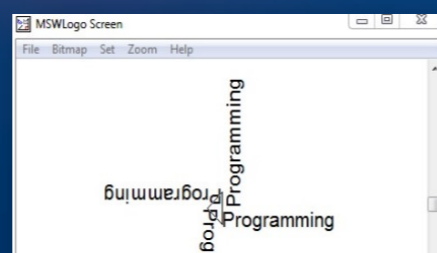
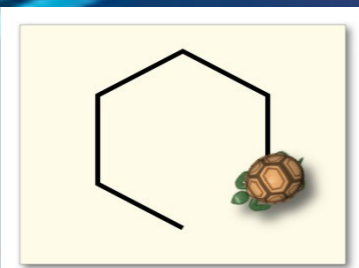
4 Using loops to create shapes	In this lesson, pupils will work with count-controlled loops in a range of contexts. First, they will think about a real-life example, then they will move on to using count-controlled loops in regular 2D shapes. They will trace code to predict which shapes will be drawn, and they will modify existing code by changing values within the code snippet.	To modify a count-controlled loop to produce a given outcome <ul style="list-style-type: none"> <li>I can identify the effect of changing the number of times a task is repeated</li> <li>I can predict the outcome of a program containing a count-controlled loop</li> <li>I can choose which values to change in a loop</li> </ul>
5 Breaking things down	In this lesson, pupils will focus on decomposition. They will break down everyday tasks into smaller parts and think about how code snippets can be broken down to make them easier to plan and work with. They will learn to create, name, and call procedures in Logo, which are code snippets that can be reused in their programming.	To decompose a task into small steps <ul style="list-style-type: none"> <li>I can identify 'chunks' of actions in the real world</li> <li>I can use a procedure in a program</li> <li>I can explain that a computer can repeatedly call a procedure</li> </ul>
6 Creating a program	In the final lesson, pupils will apply the skills that they have learnt in this unit to create a program containing a count-controlled loop. Over the course of the lesson, they will design wrapping paper using more than one shape, which they will create with a program that uses count-controlled loops. They will begin by creating the algorithm, either as an annotated sketch, or as a sketch and algorithm, and then implement it as code. They will debug their work throughout, and evaluate their programs against the original brief.	To create a program that uses count-controlled loops to produce a given outcome <ul style="list-style-type: none"> <li>I can design a program that includes count-controlled loops</li> <li>I can make use of my design to write a program</li> <li>I can develop my program by debugging it</li> </ul>

### LI: To draw regular 2D shapes in Logo

Draw shapes `fd 100 rt XX`



Change pen colour `setpc 1 → 16` Move pen without drawing `Pen Up = pu`



## Year 4 — Repetition in games

Lesson	Brief overview	Learning objectives
1 Using loops to create shapes	In the first lesson, learners look at real-life examples of repetition, and identify which parts of instructions are repeated. Learners then use Scratch, a block-based programming environment, to create shapes using count-controlled loops. They consider what the different values in each loop signify, then use existing code to modify and create new code, and work on reading code and predicting what the output will be once the code is run.	To develop the use of count-controlled loops in a different programming environment <ul style="list-style-type: none"> <li>I can list an everyday task as a set of instructions including repetition</li> <li>I can predict the outcome of a snippet of code</li> <li>I can modify a snippet of code to create a given outcome</li> </ul>
2 Different loops	In this lesson, learners look at different types of loops: infinite loops and count-controlled loops. They practise using these within Scratch and think about which might be more suitable for different purposes.	To explain that in programming there are infinite loops and count-controlled loops <ul style="list-style-type: none"> <li>I can modify loops to produce a given outcome</li> <li>I can choose when to use a count-controlled and an infinite loop</li> <li>I can recognise that some programming languages enable more than one process to be run at once</li> </ul>
3 Animate your name	In this lesson, learners create designs for an animation of the letters in their names. The animation uses repetition to change the costume (appearance) of the sprite. The letter sprites will all animate together when the event block (green flag) is clicked. When they have designed their animations, the learners will program them in Scratch.	To develop a design that includes two or more loops which run at the same time <ul style="list-style-type: none"> <li>I can choose which action will be repeated for each object</li> </ul>

	After programming, learners then evaluate their work, considering how effectively they used repetition in their code.	<ul style="list-style-type: none"> <li>I can explain what the outcome of the repeated action should be</li> <li>I can evaluate the effectiveness of the repeated sequences used in my program</li> </ul>
4 Modifying a game	In this lesson, learners look at an existing game and match parts of the game with the design. They make changes to a sprite in the existing game to match the design. They then look at a completed design, and implement the remaining changes in the Scratch game. They add a sprite, re-use and modify code blocks within loops, and explain the changes made.	To modify an infinite loop in a given program <ul style="list-style-type: none"> <li>I can identify which parts of a loop can be changed</li> <li>I can explain the effect of my changes</li> <li>I can re-use existing code snippets on new sprites</li> </ul>
5 Designing a game	In this lesson, learners look at a model project that uses repetition. They then design their own games based on the model project, producing designs and algorithms for sprites in the game. They share these designs with a partner and have time to make any changes to their design as required.	To design a project that includes repetition <ul style="list-style-type: none"> <li>I can evaluate the use of repetition in a project</li> <li>I can select key parts of a given project to use in my own design</li> <li>I can develop my own design explaining what my project will do</li> </ul>
6 Creating your games	In this lesson, learners build their games, using the designs they created in Lesson 5. They follow their algorithms, fix mistakes, and refine designs in their work as they build. They evaluate their work once it is completed, and showcase their games at the end.	To create a project that includes repetition <ul style="list-style-type: none"> <li>I can refine the algorithm in my design</li> <li>I can build a program that follows my design</li> <li>I can evaluate the steps I followed when building my project</li> </ul>

